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INDUSTRIES WITHOUT SMOKESTACKS

INDUSTRIALIZATION IN AFRICA
RECONSIDERED

Edited by
Richard S. Newfarmer, John Page,
and Finn Tarp

UNU-WIDER STUDIES IN DEVELOPMENT ECONOMICS

Industries without Smokestacks

UNU World Institute for Development Economics Research (UNU-WIDER) was established by the United Nations University as its first research and training centre and started work in Helsinki, Finland, in 1985. The mandate of the institute is to undertake applied research and policy analysis on structural changes affecting developing and transitional economies, to provide a forum for the advocacy of policies leading to robust, equitable, and environmentally sustainable growth, and to promote capacity strengthening and training in the field of economic and social policy-making. Its work is carried out by staff researchers and visiting scholars in Helsinki and via networks of collaborating scholars and institutions around the world.

*United Nations University World Institute
for Development Economics Research (UNU-WIDER)
Katajanokanlaituri 6B, 00160 Helsinki, Finland
www.wider.unu.edu*

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Industrialization in Africa Reconsidered

Edited by
Richard S. Newfarmer, John Page,
and Finn Tarp

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Foreword

Structural transformation in Africa is a hot topic. And the reason for this rising concern is clear. The movement of workers from low- to high-productivity employment has contributed far less to growth in Africa than in other fast-growing developing regions. Historically, industry—particularly manufacturing—is the sector which economies have relied on early in the process of structural transformation. However Africa’s experience with industrialization has been disappointing, causing observers to question the durability of its growth prospects. Concurrently, changes in transport costs and IC technology are shifting the boundaries and *concept* of industry. Manufacturing—‘smokestack industry’—has been understood as the main driver of structural transformation; but today a wide range of services and agro-industrial products have emerged.

To look in depth at the emerging developments, the Brookings Institution and UNU-WIDER launched a joint research project entitled *Industries without Smokestacks: Implications for Africa’s Industrialization*, with the remit of helping African policy makers develop a better understanding of industries without smokestacks and their potential to contribute to growth-enhancing structural change. This book delivers the crystalized and refined results of that entire research project.

I am most grateful to the book’s many contributors for their authorship, and to my fellow editors, Richard S. Newfarmer and John Page, for their analytical and editorial skills. The book is an advancement in the field of structural transformation providing essential reading and analyses for economists, policy makers, and scholars of development.

UNU-WIDER gratefully acknowledges the support and financial contributions to its research programme by the governments of Finland, Sweden, and the United Kingdom. Without this vital funding our research and policy advisory work would be impossible.

Finn Tarp
Director, UNU-WIDER
May 2018

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List of Abbreviations

AEC	African Economic Community
AMU	Arab Maghreb Union
AU	African Union
BPO	business process outsourcing
BTA	Agreement on Basic Telecommunications Services
C	coastal
CEMAC	Central African Economic and Monetary Community
CET	common external tariff
COMESA	Common Market for Eastern and Southern Africa
CPU	Customs and Political Union
EAC	East African Community
ECOWAS	Economic Community of West African States
ELF	ethno-linguistic fractionalization
EPEU	Environmental, Political and Economic Union
FDI	foreign direct investment
FEs	fixed effects
FTAs	free trade areas
GTAP	Global Trade Analysis Project
GVCs	global value chains
HVLD	'high-value low-density' (tourism policy)
ITA	Information Technology Agreement
SSA	sub-Saharan Africa
NICI	National ICT Strategy and Plan, Rwanda
HH Index	Herfindahl-Hirschmann index
ICT	information and communication technologies
ITES	ICT-enabled services
LDC	least developed countries
LL	landlocked

List of Abbreviations

NTBs	non-tariff barriers
OLS	ordinary least squares
POL	polarization
PTAs	preferential trade agreements
RECs	Regional Economic Communities
RIAs	Regional Integration Arrangements
RoO	rules of origin
RTAs	regional trade agreements
SADC	Southern African Development Community
SEZ	special economic zone
SPM	Supplementary Protection Measures
TFTA	Tripartite FTA
UNECA	United Nations Economic Commission for Africa
WAEMU	West African Economic and Monetary Union

Notes on Contributors

Haroon Bhorat is Professor of Economics in the School of Economics and Director of the Development Policy Research Unit (DPRU), at the University of Cape Town, South Africa. His research interests cover labour economics, poverty, and income distribution. He has published more than 150 academic journal articles, book chapters, and working papers, as well as co-authoring and co-editing a number of books on labour market and poverty issues in Africa. Haroon is a Non-Resident Senior Fellow at the Brookings Institution, an IZA Research Fellow, and an Honorary Research Fellow at the Human Sciences Research Council (HSRC). He sits on numerous boards, and has served as economic advisor to two past South African finance ministers.

Heinrich C. Bofinger is a transportation economist at the World Bank. His prior research on air transportation in Africa included the World Bank's Africa Infrastructure Country Diagnostic Background Paper 16, which presented a sweeping portrait of the sector for both sub-Saharan African as well as North African air transport. He has been involved in a range of aviation issues throughout East Africa as well as in Senegal and Cape Verde, and also is the author of the World Bank's Air Freight for Development Toolkit.

António S. Cruz is an independent consultant. He was the National Director of Studies and Policy Analysis at the Ministry of Planning and Development in Mozambique for seven years. He is an economics undergraduate from University Eduardo Mondlane in Maputo, has a Master's degree in economics from the University of East Anglia, UK, and a PhD in International Trade (Agricultural Economics Department) from Purdue University, USA.

Jack Daly is a Research Analyst at Duke University's Global Value Chains Center. His research has used the GVC framework to study service, agricultural, and manufacturing value chains in Africa, Southeast Asia, and the Caribbean regions.

Jaime de Melo, professor emeritus University of Geneva, is scientific Director at FERDI (Fondation pour les études et recherches sur le développement international) and academic advisor at the Geneva Business School. His areas of interest are trade policy, regional integration, and trade and climate change.

Mia Ellis is an economics and mathematics student at Tufts University. Her research has primarily focused on industry development and employment issues. She has worked in Honduras, Tanzania, Tunisia, and Egypt.

E. Philip English is a consultant specializing in African economic policy. He worked for twenty years at the World Bank where his last assignment was as Lead Economist based

Notes on Contributors

in Dakar and responsible for Senegal as well as Cape Verde, Guinea Bissau, Mauritania, and Gambia. Before that he was Lead Economist for Benin, Burkina Faso, Côte d'Ivoire and Togo. Between 2005–8, he conducted numerous country-level trade and export development studies in West Africa. From 1995–2005, he worked at the World Bank Institute, designing and delivering courses on trade policy, public expenditures, and labour issues, with a particular focus on Africa. He has written and edited books on international trade, small-scale enterprise, tourism, foreign aid, and the AfDB. He holds a PhD in economics from the University of Toronto.

Mike Fitzmaurice is the Owner-Director of Transport Logistics Consultants, a leading consultancy house in Southern and East Africa, specializing in cross-border and corridor performance monitoring; he is also the CEO of FESARTA (Federation of East and Southern Africa Road Transport Associations). His work is focused on cross-border road transportation, border post and corridor performance monitoring, trade facilitation, harmonization of road transport regulations, standards and one-stop border post developments in the region and he has published widely in these fields.

Cláudio R. Frischtak is the head of Inter.B—Consultoria Internacional de Negócios, a financial and economics consulting firm based in Rio de Janeiro, Brazil, and Country Director for Mozambique of the International Growth Center. He was formerly a Principal Industrial Economist at the World Bank where he worked during 1984–91. His graduate work in economics was undertaken at the University of Campinas, Brazil and at Stanford University (1980–4). While at the World Bank, he was an Adjunct Professor at the Department of Economics at Georgetown University (1987–90). He has published over 120 academic papers, books, and technical reports, and has worked extensively on issues related to industrial and infrastructure development, regulatory policy, and technological change and innovation.

Emiko Fukase was an economist in the Development Research Group at the World Bank and continues to work for the Bank from New York as a consultant. Her research interests include agriculture and food security, trade policies and labour market issues such as job creation, income inequality, and migration. She holds a PhD in Economics from the Graduate Center, the City University of New York, and an MA in International Relations from Johns Hopkins University, School of Advanced International Studies (SAIS).

Mulu Gebreeyesus is a senior researcher at the Ethiopian Development Research Institute (EDRI). His current research interest is on industrial policy, trade orientation and firm performance, and small businesses dynamics. He has published widely in the field of development economics and particularly competition and enterprises dynamics (investment, growth, entry-exit, and productivity), the practice and impact of industrial policy, and innovation and growth in small businesses in developing countries. He holds a PhD in Economics from the Department of Economics, University of Gothenburg, Sweden in 2006.

Gary Gereffi is Professor of Sociology and Director of the Duke Global Value Chains Center. He has published numerous books and articles on globalization, industrial upgrading, and social and economic development, and he is one of the originators of the global commodity chain and global value chain frameworks.

Kasim Munyegera Ggombe is an economist and researcher with a PhD and MA in Development Economics and a BA in Economics. He has research interests and experience in development economics in general and in particular, financial sector development, rural development, migration, trade, gender, poverty, and vulnerability, and climate change. He previously worked as Country Economist in the Rwanda country office of the International Growth Center (IGC) focusing on policy research in the fields of trade, agriculture, firm productivity, and private sector development. He has published in leading journals in the field of development economics. Besides his research consultancy work in Rwanda, he engages in training in data and policy analysis, quantitative methods, and the application of data analysis software, STATA. He has consulted for leading international organizations.

Bernard Hoekman is Professor, Robert Schuman Centre for Advanced Studies, European University Institute in Florence, Italy. He is also a Research Fellow of the Centre for Economic Policy Research, a Senior Associate of the Economic Research Forum for the Arab countries, Turkey, and Iran, a Fellow of the UK Trade Policy Observatory, a member of the World Economic Forum Global Future Council on International Trade and Investment.

Stephen Karingi is the Director of the Capacity Development Division of the United Nations Economic Commission for Africa. He spearheads policy research in a broad array of areas within the Commission and is a member of the Editorial Boards of several African journals, such as the *Journal of African Trade* and the recently launched *Journal of African Transformation*. He has published extensively in major academic peer-reviewed journals and contributed chapters in edited books in the fields of development, trade, and agriculture economics. Mr. Karingi holds a BSc (Hons) degree in Agricultural Economics from Egerton University in Kenya and a MSc in Economics and PhD in Agricultural Economics from the University of New England in Australia.

Peter Kimuyu is a commissioner in the Commission on Revenue Allocation, Kenya. His research focuses on economics of energy and water, enterprise/industrial economics, and ethical issues related to economics. He has published widely on enterprise performance, transformation and growth, manufacturing, and strategic policies.

Charles Kunaka is Lead Private Sector Specialist with the World Bank. He specializes on investments and analytical work on trade and transport corridors, logistics and transport services, and has a current focus on East Africa, East Asia and Pacific and South Asia countries but has worked on countries across all regions of the world.

Monica P. Lambon-Quayefio is a lecturer at the Department of Economics, University of Ghana. Her research is on health, demographic, and development economics. She has published in the fields of health and demographic economics, in particular in the area of neonatal mortality and migration in developing countries.

Fausto J. Mafambissa is an official at the Economic and Financial Studies Directorate, Ministry of Economy and Finance of Mozambique, Maputo. He was the Head of Macroeconomic Policies Department for nine years. He has an Agronomics Engineering Undergraduate degree from University Eduardo Mondlane in Maputo, and a Masters in Development Economics from Reading University, UK.

Notes on Contributors

Will Martin is a Senior Research Fellow at the International Food Policy Research Institute, and President of the International Association of Agricultural Economists. Martin's recent research has focused primarily on the impact of changes in food and trade policies and food prices on poverty and food security in developing countries. His research has also examined the impact of major trade policy reforms—including the Uruguay Round, the Doha Development Agenda, and China's accession to the WTO—on developing countries; implications of climate change for poor people; and implications of improvements in agricultural productivity in developing countries. He trained in economics and agricultural economics at the University of Queensland, the Australian National University and Iowa State University and worked at the Australian Bureau of Agricultural Economics, the Australian National University, and the World Bank before joining IFPRI in 2015.

Margaret McMillan is a professor of economics at Tufts University. She has published widely in the areas of international trade, investment, structural change, and economic growth focusing primarily on developing countries. Understanding the distributional consequences of international economic integration is a key focus of her work. She is a Faculty Research Associate of the National Bureau of Economic Research, a Senior Research Fellow at the International Food Policy Research Institute, and a recipient of numerous research grants.

Sally Murray is Senior Country Economist for the International Growth Centre (IGC) in Rwanda. Her research is focused on urbanization, tax, and tourism in developing countries. She has also worked for the IGC in South Sudan, and on urban policy research for the World Bank. She holds a BA in Philosophy, Politics, and Economics from Oxford University, and an MSc in Development Studies (Research) from the London School of Economics and Political Sciences.

Richard S. Newfarmer is Country Director for Rwanda and Uganda at the International Growth Centre (Oxford University and the London School of Economics). He is a Member of the Advisory Board for the WTO Chairs Program, and consults with international organizations, including the World Bank, the OECD, and the International Trade Centre. He was the World Bank's Special Representative to the World Trade Organization, and served as a lead economist in Latin America, East Asia, and the research department. He has authored numerous articles and books on trade, industrial policy, and foreign investment, recently co-authoring *Trade in Zimbabwe*, and 'Trade and Employment in a Fast Changing World' for the OECD.

Dianah Ngui is a senior lecturer at the School of Economics, Kenyatta University. Her research focuses on industrial and energy economics and enterprise performance. She has researched and published widely on industrial policy, firm efficiency, technology adoption, energy consumption, and demand analysis.

Mariem Nouar is a PhD student at the University of Geneva. Her research involves the impacts of regional trade agreements on intra-African trade. She holds a Master's degree in development economics from the University of Paris 1 Panthéon-Sorbonne.

Nkechi S. Owoo is a Senior Lecturer at the Department of Economics, University of Ghana. Her research is on population economics, economics of the family, and development economics. She has published in the fields of health, demographic, and gender economics, particularly in the area of child and maternal health.

John Page is Senior Fellow, Global Economy and Development at the Brookings Institution and a Non-Resident Senior Fellow of UNU-WIDER. He is the author of more than 100 published articles on the economics of developing countries and the co-author of the 2009 UNIDO Industrial Development Report *Breaking in and Moving Up: Industrial Challenges for the Bottom Billion and the Middle-Income Countries* and *Made in Africa: Learning to Compete in Industry* (Brookings Institution Press).

Ottavia Pesce is an economist at the United Nations Economic Commission for Western Asia. Her research focuses on the multidimensional poverty and employment policies of the Arab region. Prior to this, she was an economist at the United Nations Economic Commission for Africa, where she published extensively on trade and industrial policies on the continent and advised African governments on trade negotiations and industrial strategies for structural transformation. Ms. Pesce holds a MSc in Public Affairs from the London School of Economics and Political Sciences and a BA in Economics from Università Bocconi.

Gaël Raballand is Lead Public Sector Specialist with the World Bank, currently based in Dar es Salaam. He has co-authored six World Bank books on customs reforms, transport and trade, and has worked in sub-Saharan Africa and North Africa on various public sector reforms and governance programs.

Christopher Rooney is a junior researcher at the Development Policy Research Unit (DPRU), at the University of Cape Town, South Africa. Chris has a Master's degree in Applied Economics (development stream) from UCT. His research interests include economics of education, behavioural economics, and development economics. He has tutored extensively for UCT's Statistics and Economics departments and completed an internship for the Economic Research Southern Africa in June-July 2014.

Jed Silver is a senior research assistant at IFPRI. His work has focused on agricultural development as well as SME financing and FDI agglomeration spillovers in Africa. He is particularly interested in how the private sector can create incentives to increase smallholder agricultural productivity.

Jean-Marc Solleder is a PhD candidate at the University of Geneva. His area of research is international trade, in particular non-tariff measures, trade elasticities, and global value chains. Prior to joining the School of Economics and Management of the University of Geneva he had a career as information security engineer.

Lily Sommer is a Trade Policy Fellow at the African Trade Policy Centre of the United Nations Economic Commission for Africa. Her research is on African trade policy with a focus on the linkages between trade and industrialization, poverty, and gender. She has published widely in the fields of development and trade economics, in particular on issues related to the continental free trade area, smart trade and industrial policy, and sustainable development goals. Ms. Sommer holds a MSc in Economics from the London School of Economics and Political Sciences and a BA in Economics from the University of Cambridge.

John Spray is a PhD candidate in economics at the University of Cambridge. Prior to this, he was a country economist for the International Growth Centre in Rwanda and as an ODI fellow in the Ministry of Commerce and Industry in Liberia.

Notes on Contributors

François Steenkamp is a Researcher at the Development Policy Research Unit (DPRU), at the University of Cape Town, South Africa. Francois has a Master's degree in Economics from the University of KwaZulu Natal. He is currently working on his PhD at UCT, focusing on South African export patterns, and the developmental implications of these export patterns. He has also lectured on international trade and macroeconomics at the UCT School of Economics. His research interests include international trade, economic development, and labour economics.

Finn Tarp is Director of UNU-WIDER and Coordinator of the Development Economics Research Group (DERG) at the University of Copenhagen. He has some forty years of experience in academic and applied development economics research and teaching; and his field experience covers more than twenty years of in-country work in thirty-five countries across Africa and the developing world more generally. He is a leading international expert on issues of development strategy and foreign aid, with a sustained interest in poverty, income distribution, growth, and industrial policy. He has published widely in leading international academic journals alongside a series of books and is a long-time resource person of the African Economic Research Consortium (AERC).

Sebastian Wolf is an advisor at the Ministry of Finance, Planning, and Economic Development in Uganda, working with the Overseas Development Institute. Before that he was a Country Economist for the International Growth Centre in Uganda, and has also worked with the Ministry of Finance in South Sudan. He holds an MPhil in Economics from the University of Cambridge.

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Industries without Smokestacks and Structural Transformation in Africa

Overview

Richard S. Newfarmer, John Page, and Finn Tarp

1. Introduction

Structural transformation in Africa has become a hot topic. Over the last five years, the African Development Bank and the UN Economic Commission for Africa have expressed concerns about the pattern and pace of structural change in the region. The African Union (2015), in its *Agenda 2063: The Africa We Want*, has called for the economic transformation of the continent, and the Africa Center for Economic Transformation has published its first *Africa Transformation Report* (ACET, 2014). The reason for this rising concern is clear. Structural change—the movement of workers from lower to higher productivity employment—has contributed far less to growth in Africa than in other fast-growing developing regions (McMillan, Rodrik, and Verduzco-Gallo 2014; de Vries, Timmer, and de Vries 2013).

Historically, industry, particularly manufacturing, is the sector on which economies have relied early in the process of structural transformation. Africa's experience with industrialization, however, has been disappointing. In 2014, the average share of manufacturing in GDP in sub-Saharan Africa (SSA) was about 10 per cent, unchanged from the 1970s. Not surprisingly, Africa's slow pace of industrialization has caused observers to question the durability of its growth prospects (Rodrik 2014).

At the same time, changes in transport costs and information and communications technology are shifting the boundaries of industry. When today's system of economic statistics was first drawn up there was little confusion over

what industry was: mining, manufacturing, utilities, and construction. Of these, manufacturing—‘smokestack industry’—was regarded as the key driver of structural transformation. Today, a wide range of services and agro-industrial products, including horticultural products, has emerged. These activities have many features in common with manufacturing.¹ They are tradable and have high value added per worker. Like manufacturing, they benefit from technological change and productivity growth. Some exhibit scale and agglomeration economies (Ebling and Janz 1999; Ghani and Kharas 2010). We call them ‘industries without smokestacks’.

In 2015, the Brookings Institution and UNU-WIDER launched a joint research project entitled *Industries without Smokestacks: Implications for Africa’s Industrialization*. The objective of the project was to help African policy makers develop a better understanding of industries without smokestacks and their potential to contribute to growth enhancing structural change. This book presents the results of that research. It is structured in three main parts. Part I presents seven essays that survey core aspects of tradable services and agro-industrial value chains at the global level. Part II consists of nine country-level studies from Africa. Part III examines the opportunities for and constraints on more rapid growth of industries without smokestacks offered by Africa’s regional communities. This introductory chapter reviews common themes, and a concluding chapter explores the implications of the studies in this volume for public policy at the national, regional, and global level.

2. The Problem of Structural Transformation in Africa

One of the earliest ‘stylized facts’ of development economics is that low-income countries have large differences in output per worker across sectors. Structural transformation—the shift of labour from lower productivity to higher productivity ‘modern’ sectors—is, therefore, often a key driver of growth (Lewis 1954; Chenery 1986). When strong within-sector productivity growth combines with rapid movement of labour into higher productivity sectors—the pattern of structural transformation seen in East Asia over the last fifty years—very rapid growth of output per worker is the outcome (McMillian and Rodrik 2012).

Because it is a relatively labour-intensive, high productivity sector, industry is historically where workers have first moved in the course of structural transformation (Chenery 1986). Industry is also a powerful engine of within-sector productivity growth. There is evidence that modern manufacturing

¹ See, for example, Baumol (1985) and Bhagwati (1984).

industries—unlike agriculture or traditional services—converge to global best practice productivity levels ‘unconditionally’, regardless of geographical disadvantages, poor institutions, or bad policies (Rodrik 2013). Between 1950 and 2006, about half of the catch-up by developing countries to advanced economy productivity levels was due to rising productivity within industry combined with structural transformation out of agriculture (Duarte and Restuccia 2010).

With this pattern of structural transformation, economy-wide growth depends crucially on the pace of industrialization and its capacity to absorb labour. The contribution that structural-change can make to sustained growth is necessarily self-limiting. The low-income elasticity of demand for agricultural products makes a movement of labour out of agriculture inevitable during the process of development. The labour that is released has to be absorbed in other activities. If productivity is not growing in the other sectors, economy-wide growth ultimately will stall. Historically, where manufacturing has stagnated, and structural transformation has mainly involved reallocation of workers into lower productivity sectors, aggregate per capita income growth has lagged (Duarte and Restuccia 2010).

Because it has the greatest differences across sectors in output per worker, Africa is the developing region with the most to gain from structural transformation. However, despite two decades of solid economic growth, this potential for structural transformation has not been fully realized. In fact, from 1990 through 1999, structural transformation in Africa was ‘growth reducing.’ Africa’s higher productivity sectors, including manufacturing, failed to generate enough jobs to absorb a rapidly growing labour force, and the share of workers employed in high productivity sectors declined, reducing aggregate growth of output per worker (McMillan, Rodrik, and Verduzco-Gallo 2014; de Vries et al. 2013). Labour in Africa began to move from agriculture into more productive employment after 2000, but 80 per cent of workers have moved into retail trade and distribution (de Vries et al. 2013), not into industry.

Mia Ellis, Margaret McMillan and Jed Silver examine the case of structural transformation in Tanzania in detail in Chapter 15. They find that that close to 80 per cent of Tanzania’s growth in labour productivity over the period 2002–12 is attributable to structural change. However, the structural change that took place was primarily due to growth in employment in small manufacturing firms and retail, wholesale, and food and beverages services in the informal economy. Services productivity in Tanzania is relatively high at 3.5 times that of agriculture, while average labour productivity in manufacturing is more than seven times that of the agricultural sector. Services productivity in Rwanda was even higher—manufacturing labour productivity was five times agriculture but services were more than ten times agriculture, according to Ggombe and Newfarmer’s unweighted calculation in Chapter 16.

This structural shift from agriculture to services differs from the development experience of other regions. In a recent paper, Rodrik, Diao, and McMillan (2017) find that growth-enhancing structural change in Ethiopia, Malawi, Senegal, and Tanzania has been accompanied by negative labour productivity growth in non-agricultural sectors of the economy. Ellis, McMillan, and Silver find that within-sector productivity growth was negative in six out of ten modern sectors of the Tanzanian economy in 2002–12. Rodrik et al. suggest that in contrast to East Asia, where both structural change and within-sector labour productivity growth contributed strongly to overall growth, structural change in African countries may be driven mainly from the demand side by external transfers or increased agricultural incomes. As incomes rise, demand increases for a range of ‘urban products,’ including simple manufactures and services. Under these circumstances, labour productivity in the modern sector may decline, as less productive firms are drawn into production for the domestic market. In Chapter 16, Ggombe and Newfarmer find that productivity in four of eight non-agricultural activities in Rwanda declined somewhat between 2005–14, as the urban labour force grew.

Another difference that distinguishes Africa from Asia’s pattern of structural transformation concerns underlying demographics. Between 2000–16, for example, the labour force grew by 0.8 per cent in East Asia and 1.6 per cent in South Asia—while in sub-Saharan Africa (SSA) it grew far more rapidly at 2.9 per cent annually. The median age in Africa is 18, seven years younger than in South Asia (Fox et al. 2017). Because jobs created in off-farm activities were insufficient to absorb these rates of labour force growth, labour had no choice but to stay on the land or seek informal employment. Expanding population pressure on the land weighs heavily on labour productivity in agriculture, and even modestly higher wages off farm are likely to be sufficient to entice young workers to move.

One symptom of this phenomenon has been ‘premature urbanization’. Demographics have accelerated rural-urban migration such that Africa is likely to reach 50 per cent urbanization rates at half the per capita income levels that Latin America did, and one-third the levels of East Asia. Since many of these new workers lack skills and jobs, their productivity in the urban economy is likely to be quite low. Many low-income migrants are earning a living in household enterprises and SMEs, a trend that is likely to continue (Fox et al. 2017). Clearly, a major challenge for African governments is to promote the growth of higher value-added activities capable of absorbing the large numbers of unskilled and moderately skilled workers leaving agriculture.

The export-led, mass manufacturing model used with great success in Asia over the past fifty years represents one potential path for Africa toward structural transformation and job growth. However, changes in manufacturing technology and in the global market for manufactured goods may pose new

Peak manufacturing share of total employment (1950–2012), by country income level

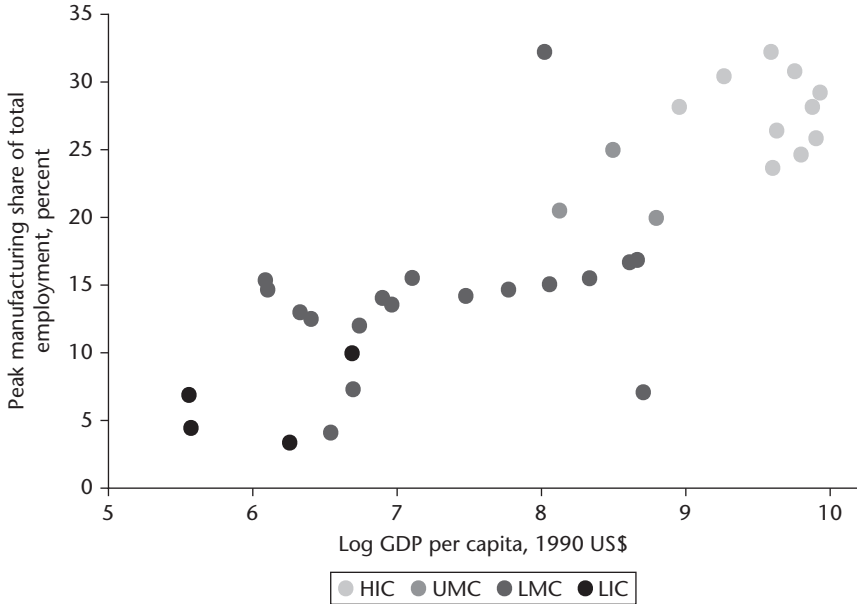


Figure 1.1. Has Africa’s manufacturing peaked too soon?

challenges. The first wave of industrializers such as Britain and Germany had more than 30 per cent of their labour force in manufacturing before industry as a share of GDP began to fall. On average, countries across all income levels now have a lower manufacturing share than before, and they reach their peak employment and value-added shares at a lower income than in previous decades (Rodrik 2016; Ghani and O’Connell 2014). Hallward-Dreimeier and Nayyar (2017) show this phenomena was even greater for employment shares (Figure 1.1). These trends allow more limited space for employment-creating industrialization. At the same time, changes in the global economy may create an opportunity for a different path of structural transformation.

3. A Different Path: Global Trends, Opportunities and Constraints

As Africa enters its next phase of development, it confronts a global economy substantially different from previous ‘late industrializers’. On the one hand, the exceptionally buoyant trade environment of the 1990s has given way to a slower growth environment for world trade in the new century. World trade

growth had ranged between 1.5 and 3.0 times world income growth for nearly two decades prior to 2000. Since the turn of the century, there have been several years when world trade has grown at about the same pace as world income (see Hoekman 2015). On the other hand, many of the forces that have contributed to this slowdown in world trade have created new opportunities for Africa. Particularly since 2000, technological change has accelerated, lowering the cost of communication and, no less important, creating new forms of communication such as internet platforms and smart phones. By lowering the costs of cross-border financial transactions, it has opened the way for digital commerce. Technological change has also lowered the cost of shipping via sea and air, as well as passenger air travel. The essays in Part I of this volume suggest that four global trends present new opportunities for Africa: a revolution in trade in services, the marked change toward ‘servicification’ of manufacturing production, the rise in global value chains, and major developments in technology markets may permit Africa to leapfrog to transformative technologies. In each of these four areas, major progress in technology and rapid reductions in costs are creating new opportunities for Africa; consider each in turn.

3.1. *A Global Services Revolution*

Economists have traditionally viewed services as the quintessential ‘non-traded’ activity. This meant that trade in services depended on the physical movement of service providers or customers to the location in which the service was to be given. As Bernard Hoekman argues in Chapter 8, the need for such movement has been declining as the result of changes in technology that allow many services to be digitized and provided across borders through ICT networks.

Since the 1980s, global trade in services has grown faster than merchandise trade. Service exports from developing countries have almost tripled in the last ten years, growing by 11 per cent annually (World Bank 2010). Modern service exports (computer and information services, financial services, business services and communication) are also growing much faster than traditional service exports such as travel, tourism and transport.

While sub-Saharan Africa trails other developing regions in the growth of services exports, they have nevertheless grown at about 10 per cent per year between 1998–2015. This is more than six times faster than merchandise exports. Exports of services are about 11 per cent of the total exports of the average SSA country, so the potential for expansion exists, although levels vary widely across countries.² Importantly, services trade is particularly relevant

² Excluding South Africa from the average.

for Africa's many land locked countries where, unlike in goods trade, transportation costs do not significantly raise export costs.

Modern services are a critical input into downstream industries—and as such a potential driver of productivity gains in other sectors. For example, telecommunications are vital to the operations of manufacturers, service providers, and primary products suppliers. Most large businesses, even in the poorest countries of Africa, now have websites. These form an essential window onto the firm's goods and/or services for the outside world, and as such are vital for sales. Financial services are crucial to business efficiency across all aspects of the economy. These services and a multiplicity of others—ranging from retail, real estate, and business services to engineering, architectural, consultant, accounting, computer and ICT and legal services to name a few—are essential inputs into all other sectors of the economy.

The impact of services on manufacturing productivity is considerable. At average level of services use, a 10 per cent increase in services productivity is associated with an increase in manufacturing productivity of 0.32 per cent in Burundi, 0.41 in Kenya, 0.34 in Rwanda, 0.67 in Tanzania and 0.55 in Uganda (Hoekman and Shepherd 2015).

3.2. *The 'Servicification' of Manufacturing*

Bernard Hoekman describes in Chapter 8 the trend toward 'servicification' of global manufacturing. He argues that much of manufacturing is undergoing a process of servicification, involving a focus on the provision (sale) of the services that are generated by products as opposed to simply the fabrication and sale of tangible goods. Distinguishing between manufacturing and services sectors is rapidly becoming less meaningful. For example, back office operations and accounting, which were previously integrated components of manufacturing enterprises can now be spun off and subcontracted. At the same time, services sector firms have become larger, providing a range of specialized services; e.g., engineering design work, legal services, and accounting.

These changes in the boundaries of manufacturing are in part responsible for the 'premature deindustrialization' described above.³ Historically, the relationship between manufacturing and per capita income has had an

³ Dani Rodrik (2016) coined the term 'premature deindustrialization'. It should be recognized that even though the share of manufacturing in GDP may be falling (and pre-maturely), the sector may be growing. Hallward-Dreimeier and Nayyar (2017) point out that for all developing countries with data, some three-quarters had falling shares of manufacturing in GDP in 1994–2014, but only 12 countries had contractions of the manufacturing sector. Most of these experienced war or severe social conflict (e.g. Syria). The only African country among the 12 was Zimbabwe; see Hallward-Dreimeier and Nayyar (2017: 55–7).

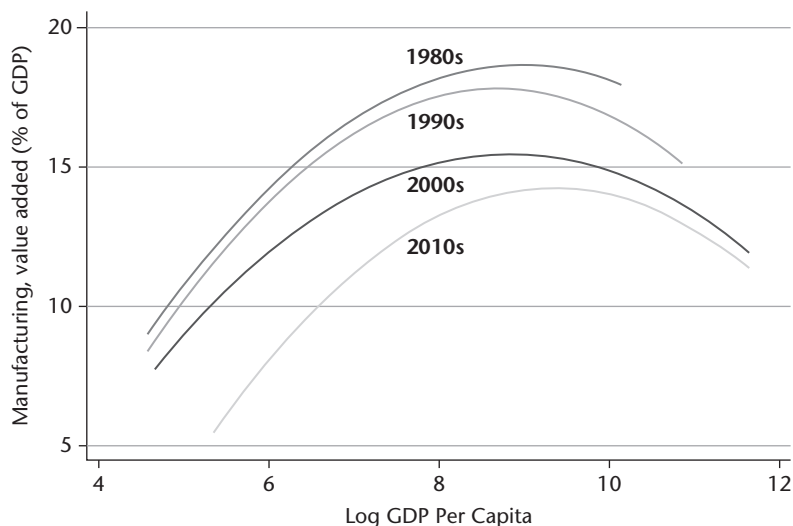


Figure 1.2. Manufacturing as a share of GDP on average declines over four decades
Source: Authors' calculation from WDI (April 2017).

'inverted U' shape as shown in Figure 1.2. In the early stages of development, growth in income is associated with very rapid increases of the share of manufacturing in total employment. As incomes and real wages rise and skills develop, the relative importance of manufacturing peaks; countries moving toward upper middle-income levels diversify into more skill-intensive activities, including services.

As a result of servicification interacting with technological advances in production, this historic relation has changed. The average share of manufacturing in national output—for all countries at all levels of national income—has fallen steadily over the last four decades (Figure 1.2). Where in the 1980s, average shares of manufacturing in GDP peaked at nearly 20 per cent of GDP, in today's world the average peak is about 14 per cent.

3.3. *The Rise of Global Value Chains*

Services out-sourcing is only one part of the story. Another part is off-shoring and the emergence of global value chains (GVCs). In many manufacturing and service activities, a production process can be decomposed into a series of steps or tasks (Grossman and Rossi-Hansberg 2006). Sharp declines in transport and communication costs have enabled companies to relocate selected tasks to low-wage countries around the world. One indication of this fragmentation of production is the rising proportion of world trade in intermediate inputs. Trade in intermediates, according to Miroudot et al. (2009), amounted

to 56 per cent of goods trade and 73 per cent of services trade in OECD countries in the period from 1995 to 2005.⁴

While this trend may be maturing—and in that sense has contributed to the slower world trade growth relative to income after 2000⁵—it has also given rise to productivity gains. Based on a panel estimation covering thirteen sectors in forty countries over fifteen years, Mattoo et al. (2017), found that participation in global value chains is a significant driver of labour productivity. An increase by 10 per cent in the level of global value chain participation increased average productivity by close to 1.7 per cent.

The essays in Part II show the extent to which value chains are already taking root in Africa. Tourism and horticulture are prime examples. In Chapter 4 Jack Dailey and Gary Gereffi describe the structure of Africa's tourism value chain. Ethiopia, Ghana and Senegal all actively participate in global horticultural value chains. In manufacturing, even though tariffs and other border barriers remain substantially higher than in 'factory Asia', the great majority of firms that export are also substantial importers (Spray 2017; Spray and Wolf this volume; von Euxkull 2016).

Baldwin (2011) has argued that the increasing role of GVCs in world trade is a double-edged sword for developing regions like Africa. On the one hand, it has created an avenue through which countries can industrialize at a much earlier stage of development, as lead firms choose to off-shore fragments of the production value chain to countries where labour is cheaper or where other locational advantages confer a competitive cost advantage on the whole GVC.⁶ Participation in GVCs may also allow suppliers in developing countries to meet standards and regulations that allow access to rich country markets; it may permit imports under privileged tariff treatment for intra-firm trade; or it may facilitate use of network technology that would not otherwise be available. However, the second consequence is that in a world of GVC-dominated trade in which production is allocated to the location with lowest cost, countries that try to industrialize through import-substitution policies behind high tariff walls are unlikely to ever reduce their costs to the point of being competitive on global markets.

The rise of global value chains has contributed to the reduction in the role of manufacturing. Baldwin, et al. (2014) argue that the 'smile curve' across production stages has substantially deepened over time (Figure 1.3). Out-sourcing

⁴ To arrive at these numbers, they looked at disaggregated trade statistics for major products and crossed these findings with findings from input-output tables. They found that intermediate goods trade is growing at about the same pace as all trade, so the trend did not affect the final composition of OECD merchandise trade. Services exhibit a different pattern, as services intermediates were indeed a faster growth segment of the market. These shares are considerably larger than those found in other studies, arguably because of their more comprehensive methodology.

⁵ See Hoekman (2015).

⁶ See Puga and Venables (1996).

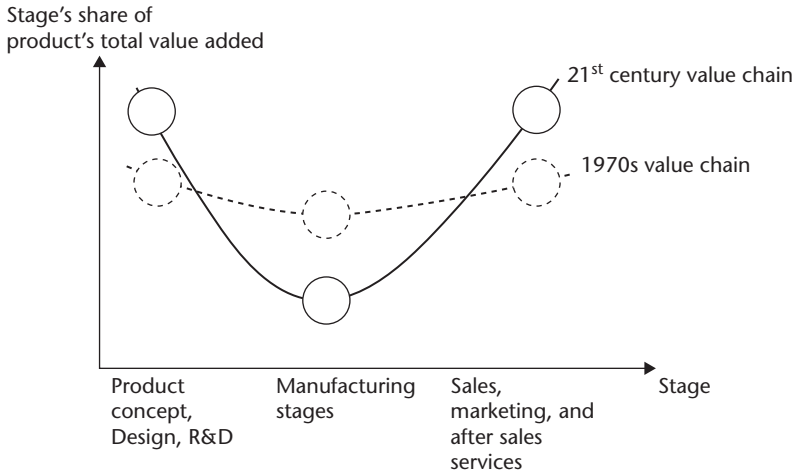


Figure 1.3. The changing relationship between manufacturing and services

and off-shoring of production to low-wage countries has meant that the value added share in manufacturing has declined relative to services-based tasks such as design work, R&D, and marketing, often associated with lead firms.

GVCs are also important outside manufacturing. The transport of fresh fruit, vegetables, and flowers over long distances became possible with the development of ‘cold chains’ linking production and consumption points. Lead firms that coordinate vertical supply chains dominate the industry.⁷ Daly and Gereffi highlight in Chapter 4 the importance of lead firms that connect customers and service providers, including both global and national enterprises, in Africa’s tourism value chain.

3.4. Disruptive New Technologies

The fourth and final change in the global environment referred to above is that the pace of technological innovation and diffusion is accelerating—creating vast opportunities to leap-frog and in some cases capture first mover advantages. Sally Murray in Chapter 2 points to clusters of technology that offer a range of new and unprecedented applications in Africa. She argues that some have the potential for *overcoming distance* through e-commerce, mobile money, business process outsourcing (BPO), and lowering transport costs (for example drones). Others are critical to *increasing labour productivity*—access to distance education and ICT, as well as new technologies (GMO crops). Some, particularly solar power, have the potential to *reduce energy costs*. The bottom

⁷ See Humphrey and Memedovic (2006).

line is that Africa has abundant opportunities to adapt newly created technologies to its own situation (mobile money and drone transport), develop and expand technologies that make intensive use of Africa's resource endowments (solar power), and use these to create new and unforeseen sources of competitive advantage. In some cases, these new technologies will allow Africa to leap-frog technologies in the high-income countries, most likely in network industries where the high fixed cost of investments constrains adoption of latest technologies in richer economies.

4. Africa's Emerging Industries without Smokestacks

In Africa, three major sectors have benefited from the global changes described above: agro-industrial and horticultural value chains; tourism; and business and trade services (including information- and communications-based (ICT) services and transport and logistics). These activities are among the most rapidly growing sectors of the global economy and are increasingly important across a wide range of countries in Africa.

4.1. *Agro-Industry and Horticulture*

Emiko Fukase and Will Martin point out in Chapter 5 that one of the stylized facts of structural transformation is that while the share of the agricultural sector in an economy typically declines with economic growth, the share of agro-processing in GDP tends to increase. Consumption shifts from starchy staple foods to foods such as vegetables, fruits, meats, and food products that make use of more services. They also note that lower transport and communication costs have created new opportunities for developing countries. Once efficient logistics are in place, countries with suitable agro-ecological conditions can potentially produce high-value products, such as cut flowers and fresh vegetables, which formerly needed to be produced near their point of consumption.

Between 1988 and 2014, world agricultural exports expanded from US\$83.4 billion to US\$1,532 billion. Bulk agricultural products accounted for a small and declining share of world agricultural exports—decreasing from 25 per cent in 1988 to 17 per cent in 2014. By contrast, processed and semi-processed agricultural products accounted for almost three-quarters of global agricultural exports in 2015, and horticultural exports accounted for around 12 per cent of global agricultural exports in 2014.⁸

⁸ See Chapter 5 in this volume.

Fukase and Martin find quite distinct differences between African and global patterns of agricultural trade. Bulk agricultural exports dominate. The share of processed and semi-processed agricultural products in Africa's agricultural exports rose, but only to 35 per cent by 2014. The share of horticultural exports on the other hand more than doubled, from around 10 per cent in 1988–9 to 22 per cent in 2014. Fukase and Martin suggest that the relatively low share of agricultural processing in African economies reflects their relatively low incomes. In addition, they argue, Africa faces tariff escalation within many value chains in its export markets.

Ethiopia has achieved extraordinary success in flower exports making the country a global player in the sector. In Chapter 9, Mulu Gebreeyesus finds that over the period 2002–8 the number of flower farms grew about sixteen-fold. Ethiopia's 2015–16 cut flower exports reached about US\$225 million making the country the second largest cut-flower exporter in Africa. The successful discovery of the flower industry in Ethiopia was a result of private entrepreneurs' experimentation, supported by active government efforts to identify and remove bottlenecks to the sector's growth. Despite Ethiopia's well-documented success in cut flowers, exports of fruits and vegetables have remained marginal. Gebreeyesus argues that the lack of export dynamism in other horticultural products is attributable to several factors—among them the standards to enter developed country markets are more stringent in the fruits and vegetables sector than in the flower sector, and flower exports are better suited to air transportation.

Horticultural exports from Senegal were modest up to 2003, but starting in 2004, exports to Europe have grown rapidly, averaging increases of 20 per cent per year. In Chapter 13, Philip English argues that one of the keys to the early expansion of the sector was the availability of high-speed ships to bring goods to northern European markets. The sector was able to shift from air to maritime transport, significantly improving its competitiveness. Integrated multinational companies handle production, processing and exporting—selling either to wholesalers or directly to supermarkets.

Export of processed horticultural products (mainly fruits and beverages) has become increasingly significant in Ghana. Export earnings from the agro-processing industry increased from US\$181.1 million in 2004 to about US\$902.5 million in 2011. In Chapter 10, Nkechie Owoo and Monica Lambon-Quayefio give a detailed description of the fruit and juice processing value chain. Export production depends on four large fruit processing companies that employ capital intensive imported technology for fruit juice processing and run large commercial farms.

Haroon Bhorat and others show in Chapter 14 that over the period 2000–14 horticulture exports outperformed aggregate export growth in South Africa. They show that the relatively rapid growth in horticulture products was driven

by the intensification of existing export relationships and low exit rates from export markets, relative to other agriculture products. They suggest that this rapid and persistent growth is partly due to the rapid growth of South African FDI in the retail sector across Africa.

4.2. *Tourism*

Daly and Gereffi in Chapter 4 argue that tourism is an important driver of economic growth around the world. In 2014, the tourism industry provided an estimated 277 million jobs and accounted for about 9.8 per cent of global GDP. In part, the development impact of tourism receives too little attention because it is hard to measure. Ellis, McMillan, and Silver make the point in Chapter 15 that the tourism sector is made up of several different industries including but not limited to accommodation, food and beverage, transportation, and culture, sports, and recreational services. Thus, while it is possible to track tourist arrivals, estimates of their direct and indirect effect on output and employment are necessarily imprecise. The country studies suggest that they can be substantial.

In 2014, 9.5 million tourists visited South Africa, by far the most in SSA. Tourism constitutes around 3 per cent of GDP and has been growing at the same rate as the economy as a whole. Bhorat and others estimate that the number of jobs dependent on tourism was approximately 680,000 in 2014. They further find that about 36 per cent of jobs in the food and beverage industry in South Africa are directly related to tourism, and that four industries—road passenger transport, food and beverage, retail and trade and accommodation for visitors—are responsible for 83 per cent of tourism-related jobs. Bhorat and his colleagues argue that tourism is an important source of shared growth in South Africa. Many of these jobs are low-skilled, located in towns where there is little other economic activity, and have a higher-than-average representation of women and youth.

Ellis, McMillan, and Silver estimate that in Tanzania tourism generates over US\$1 billion in direct annual foreign exchange revenues and contributes directly and indirectly approximately 14 per cent of GDP. Its share of employment was about 3.2 per cent in 2012, larger than both transport and business services. They find that during 2002–12 the sector grew at roughly the same rate as GDP and employment, and productivity increased by approximately 50 per cent.

Tourism is Rwanda's largest single export activity, accounting for about 23 per cent of total exports in 2016. Overall tourism receipts have grown by 22 per cent per annum over the last ten years. However, they appear to have levelled off since 2012. In Chapter 16, Gigombe and Newfarmer suggest that the main driver of tourism, gorilla trekking, is reaching full capacity and the

country needs to develop additional attractions to keep the sector growing. Recently, government priorities have focused on meetings and conferences with an aim of making Rwanda a conference tourism hub within the EAC and African region.

Gebreyesus finds that Ethiopia's number of international tourist arrivals tripled during 2005–13 from 227,000 to 681,000. International tourist and travel receipts also tripled over the same period. In 2015, the travel and tourism sector contributed about 11.3 per cent of GDP and 9.8 per cent of employment. Antonio Cruz and Fausto Mafambissa find in Chapter 12 that tourism in Mozambique has been growing at an annual average rate of 9.1 per cent, which is higher than GDP growth. English documents the rise and decline of the tourism sector in Senegal. In the 1980s, Senegal was second only to Kenya in SSA in terms of tourist arrivals. However, by 2010, it was no longer among the top ten destinations. In 2015 tourism receipts accounted for about 11 per cent of total exports. The share of international tourism in GDP was about 4 per cent in 2000 and declined toward 3 per cent in 2015.

The country studies paint a portrait of an industry with substantial potential, and one that has not yet achieved its full promise. Despite a plethora of published tourism strategies, the country studies suggest that most governments are failing to implement them effectively. Perhaps the most dramatic case is Senegal where English argues that scepticism about the development impact of tourism by its long-time president Abdoulaye Wade resulted in neglect of the sector, including a failure to collect basic statistics. In 2009, Ethiopia's government launched a tourism development policy; most of the initiatives included in the policy document are still in the process of implementation. In Tanzania the government has attempted to pursue a 'high-value low-density' (HVLD) tourism policy, designed to make Tanzania a 'high-end' tourist destination that caters to a very wealthy clientele. However, the quality of tourism services in Tanzania is currently too low to make this policy feasible.

4.3. *Business and Trade Services*

Developing countries are closing the connectivity gap—defined in terms of the extent of internet access and speed—with more advanced economies at a remarkable rate. There have been pronounced gains among developing and emerging economies, mostly centred on mobile telephones. In Europe in 2010 total fixed and mobile broadband subscriptions were 54.1 per 100 inhabitants. This rose to 107.8 in 2015. In Africa, the gains were far more pronounced, from 2.0 to 17.9 per 100, with the Europe/Africa ratio decreasing from 27:1 to 6:1 in five years.

These technologies will enable a far larger number of countries to enter service export markets, moving beyond the traditional outsourcing model. In Chapter 3, Claudio Frishtak writes that ‘there is an ongoing revolution in the ICT space with implications for the way we live, interact, consume, produce and manage firms, cities and other jurisdictions’. Frishtak suggests that second-generation ICTs are changing the competitive landscape in ways that lower entry barriers, and new technologies will dramatically facilitate the production and export of services, without resort to software engineers, computer scientists and highly skilled professionals.

The poster child for ICT-based services in Africa is Kenya. In Chapter 11, Dianah Ngui Muchai and Peter Kimuyu provide a detailed picture of Kenya’s most successful IT-based industry, mobile money transfer—a financial product that allows users to make financial transactions via the mobile phone. Kenya has the highest share of adults with a mobile money account (58 per cent of the population) in East Africa. Kenya’s wide availability of mobile devices offered a distribution technology for mobile financial services, in particular mobile banking and mobile money transfers. Most large banks have made substantial investments in mobile phone banking capabilities. Mobile network carriers, credit card processors, and online personal finance services firms were among the non-bank investors. In 2012, a carrier, Safaricom, teamed up with the Commercial Bank of Africa (CBA) to launch *M-Shwari*, a mobile service that offers micro savings accounts and credit. Many small companies rely on mobile money for nearly all transactions or provide a service that is a derivative of the platform itself.

Kenya was also an early entrant into the Business Process Outsourcing (BPO) market. BPO is the contracting of a specific business task to a third-party service provider. The most common examples of BPO are call centres, human resources, accounting and payroll outsourcing. Following the entry of a pioneer firm, KenCall in 2005, other firms have jumped into the market. Currently there are fifty BPO firms operating in Kenya providing various services such as data processing, digitization, transcription and call centres. Nairobi’s BPO call centres are small-scale, with from ten to a few hundred agents. A growing number of firms are offering high end services such as software development, programming, research and development and finance and accounting services. While KenCall has an international clientele, the bulk of firms, are serving the domestic and EAC regional markets.

Rwanda has set the goal of being the ICT hub of the East African Community, under the multi-phase National ICT Strategy and Plan (NICI). ICT has expanded rapidly in recent years, attracting 47 per cent of foreign direct investments between 2008 and 2011. It contributed 3 per cent of GDP in 2014. Gigombe and Newfarmer argue in Chapter 16 that, like many other African countries, Rwanda has leapfrogged from twentieth century fixed-line

technology directly into twenty-first century mobile technology. Mobile phone subscriptions rose to 70 per cent of the population in 2014. Mobile money was introduced in 2010, and between 2011 and 2014, mobile payments subscriptions increased from 639,673 to 6,480,449. The government is a major consumer of ICT services. The Rwanda Development Board (RDB) has worked closely with technology solutions companies to promote the digitization of 100 services, including applications for birth certificates, registration and school examination fee payments. One of the main digitization initiatives was the establishment of electronic and mobile declaration of tax returns in 2011. Mobile payment of taxes was introduced in 2015.

Senegal was one of the earliest entrants into outsourcing in SSA. Call centres were the main focus; companies were able to attract better qualified employees than in France at one-tenth the cost. In 2000, there were thirty-five companies exporting IT-enabled services. By 2016, there were only nine call centres and they were finding it increasingly difficult to compete outside Senegal. Because solutions developed for Senegal are well-suited to other African contexts, export of software appears to be doing better. English argues that the decline of the IT-enabled services industry in Senegal is closely related to the high cost of access. The principal investor in the fiber optic cables was Sonatel, the former parastatal privatized in 1997. Although Sonatel reduced prices significantly in the early 2000s, it has been able to maintain a monopoly on external connectivity, and the number of Internet service providers has fallen from nine to two. Internet access speeds are below the average for SSA and much slower than in Rwanda or Kenya.

Virtually all goods trade passes through a combination of air, sea, and land transport routes. Even services like tourism rely on reliable air and sea connections. Historically, the small market countries of Africa were caught in a vicious trap of low trading volumes, monopoly transport services, high uncertainty in the logistics chain and high transport costs. As a result of these conditions—and ‘thick borders’ associated with barriers (Brenton and Izak 2014)—transport costs overland in Africa are substantially higher than in other parts of the world. For example, costs per ton transported along the Northern Corridor from Mobassa to Kampala average US\$8 cents per ton/kilometer, as compared to average costs in Brazil of US\$3.5 cents per ton/kilometer (Raballand 2016). Schlumberger and Weiskopf (2014) estimate that transport costs are in general 30–50 per cent higher in Africa than other developing countries. This has particularly affected the landlocked countries of Africa—where typically costs (measured in days) are twice those for coastal cities—adversely (see Arvis et al. 2010).

Reductions in transport costs, due to regional initiatives and increased investments, have begun to break this cycle. In East Africa, port dwell, transit and border processing times are 40–60 per cent less than a decade ago.

Dwell times in Mombasa port have fallen from 13 to 5.8 days—while the number of containers has roughly doubled. Transit times through Kenya have fallen from four days to two days. Police roadblocks in Tanzania have been reduced from 35 to eight. At the border crossing at Malaba, average delays have fallen from 24 hours to four hours. As Raballand and others note in Chapter 7, with lower trade logistics costs, a manufacturer can change the source of inputs or the destination of exports or relocate production, reconfiguring their entire supply chain to suit production opportunities or respond to shifts in relative prices.

Air transport in some high unit value products, such as cut flowers, can offer an alternative to overland transport. As with trucking, Africa suffers high transportation costs because of low volumes, monopoly routes, and the presence of high-cost state-sponsored carriers. In Chapter 6, Heinrich Bofinger notes that the region has about 100 million seats for both international and domestic travel; Brazil, by comparison, has about the same number solely for its domestic capacity. Similarly, the three airports serving metropolitan Washington DC in the US handle annually almost the same capacity as all of Africa. Lack of competition on most routes impedes the consolidation of the market. The use of high landing fees at airports—often designed to finance airport maintenance and expansion—drives up costs further.

This is changing. Several aggressive new airlines—notably Ethiopian and Emirates—are promoting Fifth Freedom market access and creating new competition with attendant price effects—at least in the larger markets. Ethiopian Airlines, Emirates, and to a far lesser extent, Turkish Airlines have grown at double-digit rates over the last decade (2007–15). Other smaller airlines—Qatar, TAAG, Air Austral, Royal Air Maroc, and Rwandair—have also registered double digit growth from a lower base. Rwandair, for example, has just negotiated new routes to the US (New York) and Europe (London and Brussels). This expansion has occurred at the expense of lost market share of the majors—British Airways, South Africa Airways, Air France, and Kenya Airways.

5. The Pivotal Role of Regional Trade

In Africa, where fifteen out of forty-seven countries are land-locked, trading with neighbours is vital. Two factors accentuate the importance of facilitating regional trade: the high cost of transportation and the ‘thick borders’ associated with high border barriers that impede trade to a far greater degree than in other developing regions (see Brenton and Izak 2014). Transport costs, for example, add roughly 50 per cent on average of goods shipment into Kigali to the landed cost of products in the Mombasa port. Tariffs and non-tariff barriers are generally higher in Africa than elsewhere, undermining the

competitiveness of local producers that require imported inputs into export production. In fact, in both Uganda and Rwanda, exporters purchase three times more imports than non-trading companies, and account for most imports in both countries. As Chapter 18 by Stephen Karingi, Octavia Pesce, and Lily Sommner on trade in the East African Community vividly shows, to the extent that regional agreements lower the cost of transport and lower intra-regional border barriers, they increase the competitiveness of Africa's industry.

Another reason that regional trade is important is its peculiar role in structural transformation, particularly in the development of manufacturing. Regional agreements can provide opportunities to develop local manufactures based on locational advantages. Superior knowledge of local tastes and consumption patterns allows firms to tailor differentiated products to the local market, often using local inputs. Similarly, transport costs act as effective protection for production located in inland areas. No wonder products as diverse as beer, rebars, and cement are traded intra-regionally. Hallward-Dreimeier and Nayyar illustrated this dramatically by comparing the structure of exports to the world market to those traded in the intra-regional market. They find that the share of manufactured exports in total export sold to neighbouring countries was substantially higher their share of total exports sold to the global market.

Karingi, Pesce, and Sommer show the effects of regional agreements in influencing this pattern. They find, for example, that while manufactures constitute only 11 per cent of EAC total exports, they make up 42 per cent of intra-regional exports. There are two likely channels at work that underpin this process. The first is the emergence of intra-regional value chains, sometimes connected with final sales in the global market. Daly et al. (2016) explore the emergence of intra-regional value chains in the EAC in agro-processing, dairy, and tourism. A second channel may over time become even more important: intra-regional competition, particularly in differentiated consumer goods, may drive specialization and productivity gains in manufacturing at the same time it permits diversification in consumption patterns. Taking advantage of this channel of growth requires reducing border frictions and fostering competition that allows the emergence of ever larger and more competitive enterprises.

Jaime de Melo, Mariem Nouar, and Jean-Marc Solleder in Chapter 19 undertake a comparative analysis and show that Africa has not come close to tapping the full potential of 'deep integration'. They highlight the importance of culture, trust, and institutions—typically ignored in analyses of regional agreements—in determining their success in expanding trade. They calculate an 'average distance ratio', and show that for nearly all of the regional economic communities, trade costs have fallen faster in the regional agreements than

vis-à-vis the rest of the world for agricultural products, while about half of Africa's regional communities show progress for manufactures. Their cross-country regressions confirm that the membership in regional agreements (preferential trade agreements) indeed does have a positive effect on the export of manufactures and services. Furthermore, regional groupings tend to foster an increase in new products. Overall, these findings would augur well for the role of regional agreements in fostering 'industries without smokestacks'. However, results to date have been disappointing because of the lack of enforcement of deep integration provisions and aspirations for more complete trade liberalization. They also highlight the substantial underperformance of African regional agreements in comparison with Asian and Latin American agreements, a topic that we revisit in the final chapter of this volume.

6. Industries without Smokestacks: A Different Path for Structural Transformation?

6.1. *New and Different Trends for Africa's Exports*

As the studies in this volume make abundantly clear, the story of the increasing importance of industries without smokestacks unfolds mainly at the country level, as each country takes advantage of its particular opportunities. But are the trends evident in some countries becoming important for the continent as whole? Though data are limited and often spotty, we were able to construct a picture of changes in export portfolios measured in current dollars for 33 of 51 SSA countries over the period 2002–15.⁹ Since mineral exports, including petroleum and mining exports, grew rapidly during the period—and these tend to dominate export performance, particularly for the large exporters (e.g., South Africa and Nigeria)—we have backed out mineral exports from the calculations. In addition, we use unweighted averages to

⁹ Working with the authors, Victor Steenberg (2018) put together a detailed global data set relying on COMTRADE (<https://comtrade.un.org/data/>) for merchandise exports at the two-digit-level, and the WTO (https://www.wto.org/english/res_e/status_e/trade_datasets_e.htm) for an EBOPS-classification of services exports across all 51 SSA countries. Thirty-three countries had sufficiently disaggregated data over the period to construct a comprehensive panel for 2002, 2007, 2012, and 2015 at the two-digit level. (In a few cases where 2015 data were missing, he used 2014 or 2016 numbers.) He classified each HS-level and each service sector as an 'IWSS sector' according to whether they (a) were tradable; (b) had a relatively high value added per worker; (c) benefit from technological change and productivity growth; and (d) had some promise of scale and/or agglomeration economies. IWSS sectors included HS03–08; 11–24 (food processing and horticulture); and services sectors S205–245 (travel, transportation and communication); S253–268 (financial services computer informational services, and business services). Omitted were traditional products including agriculture, manufacturing, textiles, footwear, metal fabrication, and machinery as well as construction services, recreational services, and government services.

Industries without Smokestacks

focus on changes in the non-mineral export basket of countries irrespective of size. This exploratory exercise surfaces some noteworthy trends for the region as a whole:

- Comparing unweighted averages across countries, industries without smokestacks (IWSS) sectors grew more rapidly than non-mineral exports on average and were thus becoming more important as a share of export portfolios. This is evident in the shift upwards of the curve in Figure 1.4. A point to note is that these curves reflect averages and there is considerable variation around in both years.
- Changes were most dramatic for small and medium sized exporting countries, such as Lesotho (LSO), Sierra Leone (SLE), and Burkina Faso (BFA) (Figure 1.5). Several large exporters, even those predominantly exporting minerals, also registered large gains in the share of IWSS activities as a share of their non-mineral export baskets—including Nigeria (NGA), Angola (AGO), and Zimbabwe (ZWE). The changes were notable if less pronounced in several mid-sized exporters, such as Senegal (SEN), Ethiopia (ETH), and Kenya (KEN).
- All in all, the IWSS sectors performed better than other non-mineral exports in more than half of the 33 countries in 2002–15, and performed the same or better in nearly two-thirds (Figure 1.5).
- Industries without smokestacks grew more rapidly for the average African country as evidenced in the unweighted change in export baskets.

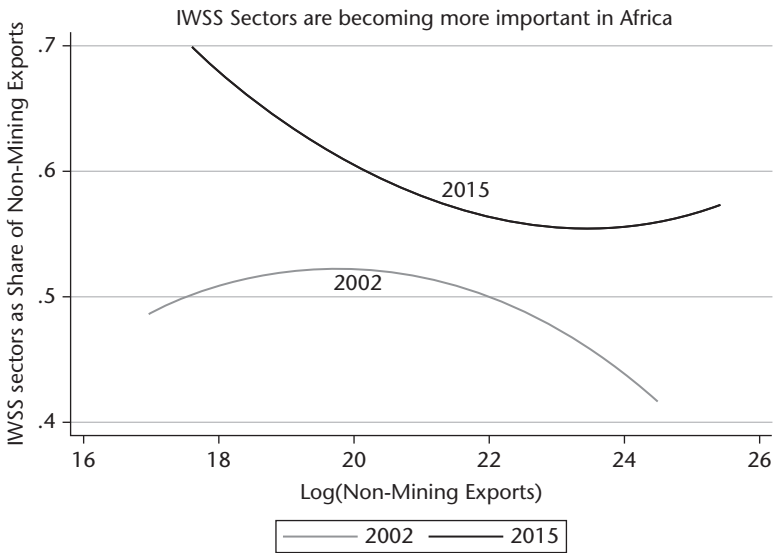


Figure 1.4. IWSS sectors become more important in African non-mineral exports

Industries without Smokestacks and Structural Transformation in Africa

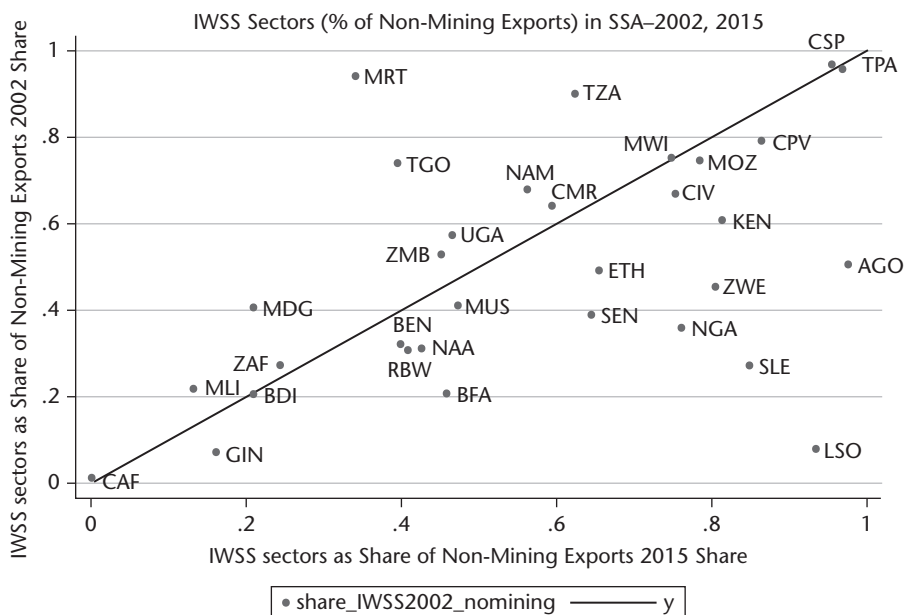


Figure 1.5. The IWSS exports outstripped other non-mineral exports in most of SSA

Table 1.1. Industries without smokestacks are a growing segment of exports

	2002	2015
Average Share of Non-Mineral Exports		
Average Export Share IWSS	51%	58%
Share IWSS Agro-Processing	22%	24%
Share IWSS Horticulture	3%	3%
Share IWSS Services	26%	30%
Average Export Share NonIWSS	49%	42%
Share Other Agriculture	10%	7%
Share Other Manufacturing	33%	33%
Share Other Services	6%	3%

Source: Steenbergen (2018) a/Average unweighted share of 33 countries, excluding oil and minerals.

IWSS activities rose from 51 per cent of the average non-mineral portfolio to more than 58 per cent over the 2002–15 period (Table 1.1). While agro-processing rose slightly, horticulture held about constant, services exports, particularly tourism and transport, were the dominant driving force within the IWSS sectors. This was at the expense of declines in agriculture and other (non-IWSS) services. Manufacturing held about constant. Within manufacturing, textile tended to fall as a share of the nonmineral total while other manufacturing tended to increase.

While the more interesting developments are occurring at the country level as shown in chapters that follow, the role of agro-processing, horticulture, ICT, tourism, transport, and other services is becoming more important in many countries across the continent—not just in a few middle-income countries but even in the small countries and large mineral exporting countries.

6.2. Implications for Productivity Growth

Resource endowments, the rapid growth of industries without smokestacks and the possibility of ‘premature deindustrialization’ have important implications for the changing structure of Africa’s economies. It is highly likely that, due to differences in endowments and trade opportunities, African countries will see a higher share of extractive industries, agro-industry, and tradable services in the course of their structural transformation than was present in Asia’s newly industrializing economies.

The question, then, is to the extent to which these industries without smokestacks can play the role in structural transformation historically played by manufacturing. The answer depends on the characteristics of both existing manufacturing and of the new activities. In cases where the manufacturing sector exhibits little employment or productivity growth while services or agro-industrial productivity and employment are growing, these sectors can lead growth enhancing structural change.

Hoekman dispels the notion that services growth implies lower productivity growth: ‘Services lend themselves just as much to productivity growth as do manufactured goods production . . . Within services resource allocation shifts are a driver of productivity growth in the same way as in goods-producing sectors.’ A growing body of literature supports the view that where the service sector has the dynamic characteristics attributed to manufacturing in the past—strong linkages, productivity increases, and technological innovations—it can act as an engine of growth.¹⁰ Several modern service sectors—such as ICT services, financial services, transport, and logistics—have broadened the definition of the leading sector and contributed to structural transformation in a number of countries, taking up the role held by manufacturing in the past (Timmer and De Vries 2009; Lavopa and Szirmai 2014; Lavopa 2015b).

There is some evidence that in Africa services are taking up the role as the primary source of within-sector productivity growth. An ODI team calculated the contribution of services to annual labour productivity growth for some twenty-five African countries over the period 1991–2013. They found that in 15 countries, services accounted for more than 50 per cent of labour

¹⁰ See for example Lavopa (2015a), Szirmai (2012a), Szirmai and Verspagen (2015), and Tregenna (2015).

productivity growth. In countries as diverse as Botswana, Rwanda, Cape Verde, and Zambia, productivity growth in services accounted for more than 80 per cent of annual labour productivity growth (Balchin et al. 2016: 14). The Rwandan case, elaborated by Ggombe and Newfarmer, highlights the contribution of structural change from agriculture to services to the country's 8 per cent growth over the last two decades. Ellis, McMillan, and Silver find that labour productivity increased modestly in informal manufacturing and services firms in Tanzania.

In Chapter 17, John Spray and Sebastian Wolf use transaction-level data from the value-added tax (VAT), Pay-As-You-Earn (PAYE) and Customs declarations submitted to tax authorities to study the population of formal enterprises in Uganda and Rwanda between 2010 and 2014–15. They find that service industries make up most of the top 30 industries in terms of labour productivity in both countries: 17 out of the top 30 industries in Uganda, and 21 out of the top 30 in Rwanda. In Uganda marine aquaculture, post-harvest crop activities, and marine fishing rank among the highest productivity sectors in the economy and in Rwanda one agri-business ranks among the top 30.

Spray and Wolf find that on average firms are larger in industries with high labour productivity, suggesting that scale is important not only in the manufacturing sector, but also in industries such as agri-business and services. They also find that, like manufacturing, services are distinct in their interconnectivity to the rest of the economy. Service sectors make up six of the top ten most interconnected sectors of the economy in Uganda and five in Rwanda, suggesting that services are vital to knitting the economy together. They further show that productivity growth in these sectors is strongly associated with the performance of the economy as a whole.

7. Conclusions

Taken together, the studies in this volume suggest that a broader definition of the higher productivity 'modern sector' is needed in thinking about structural transformation in Africa. Modern, tradable services, such as ICT-based services, tourism, and transport and logistics, have the potential for strong within-sector productivity change and contribute to raising productivity in other sectors of the economy. Agro-industrial production and horticulture offer the potential for productivity growth and exports. Some of these industries have the capacity to absorb large shares of Africa's growing urban labour force. In short, it is possible that industries without smokestacks offer the potential for a new—or at least complementary—path towards structural transformation.

That said, it is important not to overlook manufacturing, which has in recent years been growing at more than 7 per cent per year in several countries including Ethiopia, Mozambique, Nigeria, Rwanda, Tanzania, and Uganda. In some of these economies smokestack industry may emerge to lead a more traditional pattern of structural transformation. Even in these cases, services will have an important role in raising the productivity of manufacturing, and agro-industry and horticulture can also support the transformation processes discussed here.

One of the main messages of this book is that the successful African economy of the twenty-first century is unlikely to look like the successful East Asian economy of the twentieth. It will be more diverse and draw on a broader range of high productivity economic activities for sustained growth. Nonetheless, significant policy challenges stand between today's opportunities and our optimistic vision for tomorrow. These are the subject of the concluding chapter.

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2

New Technologies Create Opportunities

Sally Murray

1. Framing

Almost all transitions from low-income to high-income country status passed through manufacturing.¹ Manufacturing offered certain important benefits—it was particularly amenable to scale and specialization, supporting productivity growth. Traditionally, manufactured products have been more tradable than services, opening up more robust consumer markets. And due to higher value addition, manufactured products have been less vulnerable to fluctuating commodity prices, and more labour intensive, than unprocessed natural resource exports.

Many are concerned that sub-Saharan African (SSA) may struggle to develop through this well-trodden path (e.g. Rodrik 2016; Hallward-Driemeier and Nayyar 2018). The share of manufacturing in employment is falling globally, driven by labour-replacing technology and a shift in demand towards services. Furthermore, manufacturing shares in GDP typically rise at first with incomes, peak, then decline as higher-income economies shift structurally towards services. In light of this, Rodrik (2016) shows that manufacturing as a share of GDP in SSA ‘peaked’ during 1970s and 1980s and has since declined as a share of GDP (from 15 per cent to 11 per cent today). This ‘peak’ was inadequate to deliver high- or even middle-income status to the region.

Rodrik posits that this is attributable to SSA’s weak comparative advantage in manufacturing, combined with openness to global trade. For Rodrik, weak comparative advantage is here to stay and manufacturing shares will thus continue to decline, making robust economic development and job creation

¹ The author thanks Richard Newfarmer for his many helpful contributions to and overall guidance on this piece.

challenging. Others (e.g. Hallward-Driemeier and Nayyar 2018) have argued that modern and anticipated technologies like 3D printing, advanced robotics, and the ‘Internet of Things’, combined with rising consumer demand for customisation and speed, are likely to further shift comparative advantages in manufacturing in favour of richer, higher-skilled countries, by diminishing the importance of cheap labour and raising the importance of proximity to consumers.

However, new technologies also create opportunities to raise the comparative advantage of SSA. For example, SSA is home to many natural resources critical to modern manufacturing, which have often been shipped to Asia for manufacturing, thanks to the region’s more productive labour, cheaper energy prices, more reliable governance, higher international accessibility and connectivity, and development of virtuous agglomeration economies. New technologies may raise the competitiveness of manufacturing in SSA itself. This chapter explores how technologies can overcome factors driving high labour costs in SSA, raise human capital, dramatically lower energy prices, and disrupt agglomeration economies and overcome transport costs. Technologies also create productive opportunities in sectors beyond manufacturing, such as service exports, and raise living standards at given income levels.

This analysis focuses on technologies to overcome SSA’s disadvantages in labour, energy, and distance, because these are, today, foundational to SSA’s structural transformation. However, the scope of technological innovation is far broader, and constantly evolving. Another analysis might have considered technology for governance, bioengineering, blockchain, quantum computing, and so on. Furthermore, the precise form of future technologies, and their respective impacts, cannot be known today. Indeed, it is possible that the most important technology shaping Africa’s future in the next twenty years has not yet been invented or conceived. However, one can say with a degree of confidence that the three areas of focus—labour, energy, and distance—are likely to be fundamental.

2. Competitive Labour

Competitive low-skill wages were the motivation for much global manufacturing to move East. Wages are typically lower in sub-Saharan Africa than in key competing destinations (such as Asian and Latin American countries), but are higher than expected *considering income levels* (e.g. Gelb 2017a). Combined with other disadvantages such as weak agglomeration economies, high energy prices, and poor governance, wages in SSA have thus, typically, not been cheap enough to attract major labour-intensive industries from Asia. Several labour-intensive manufacturers in China have begun looking to more inland

Chinese destinations, low-wage Asian countries like Bangladesh, and robotics, rather than SSA, to overcome rising labour costs (Gelb 2017b).

Labour costs are clearly one important factor for making labour-intensive sectors competitive. New technologies can help overcome weak labour productivity in SSA by reducing living costs, to reduce wage demands. As technologies like robotics and 3D printing reduce the importance of cheap labour over *skills*, technology also has the potential to support step-changes in human capital. The latter cannot be taken for granted, or delivered through technological gimmicks, however, but requires strategic catalytic use of technology supported by low-tech complementary foundations.

2.1. *Reducing Living Costs*

In African cities, food, housing and transport prices are higher (by around 35 per cent, 55 per cent, and 42 per cent respectively) compared to low- and middle-income countries elsewhere. ‘Overall, urban households pay 20 to 31 per cent more for goods and services in African countries than in other developing countries’ (Lall, Henderson, and Venables 2017). This puts considerable pressure on wages, making African labour expensive relative to GDP and skill levels. New technologies present opportunities to address elevated food, housing, and transport costs in SSA.

AFRICA’S GREEN REVOLUTION

Africa has lagged other regions in the adoption of modern agricultural technologies such as high yield seeds, fertilizers, irrigation, and genetically modified crops. China’s manufacturing output jumped in the context of the ‘green revolution’ that released rural labour and pressures on urban food costs, shepherded by agriculture technology adoption. Improved varieties of wheat and rice spread rapidly, alongside investments in irrigation and increased use of fertilizer and pesticides. Yields doubled and production tripled between the 1960s and 1990s, and low-income rural labourers moved to the cities to take advantage of new opportunities, especially in the manufacturing sector, supported by cheap food.

Over the same period, agricultural productivity remained fairly stagnant in Africa (FAO n.d.), and technology adoption low (FAO 2015). Rapid urbanization is now occurring in an environment of fairly stagnant rural productivity growth (USDA ERS 2017), raising pressures on food prices. This is exacerbated by climate change, reducing the suitability and reliability of environments for food production. Thus, living costs in cities, and in return wage demands, often remain uncompetitive.

New information technologies can accelerate agricultural modernization in SSA, by providing more tailored and reliable information to farmers at the

right time. Higher quality satellite data, and new analysis techniques such as machine learning, improve the ability to provide advice, inputs, and insurance appropriate for Africa's highly differentiated microclimates (e.g. Biffis and Chavez 2017; McSharry, Swartz, and Spray 2016). Private company Olam adopted a mobile phone-based system to cost-effectively manage over 30,000 small-holder coffee farmers in Tanzania, reducing dramatically the costs of sending farming instructions, advice, price data, and payments. More broadly, the proliferation of mobile phones (and increasingly, smartphones) has led to innovations such as farmer hotlines, automated text messages with advice, and on-demand market price information (including voice-based services for illiterate farmers, such as '3-2-1' in Malawi) (e.g. GSMA, 2017), which Africa's farmers have taken up at scale (e.g. Human Network International, 2016), with big impacts on uptake of improved inputs and yields (e.g. Cole and Fernando 2016; Casaburi et al. 2014).

SSA has also suffered under-investment in research and development (R&D) to make appropriate improved crop varieties available to farmers (Benin et al. 2016). Genetically modified (GM) crops have been particularly neglected from already small R&D agendas but they have considerable potential to raise yields and food security in a context of climate change.

Genetic engineering is the direct editing of the genome of a plant to insert DNA from other species that is responsible for desired traits (such as pest or drought resistance, or improved nutrient content). 181 million hectares of GM crops were planted in 28 countries in 2014, but only two countries in SSA allowed commercial GM planting: South Africa (with 2.7 million hectares of maize, cotton, and soybean) and Burkina Faso (with 0.5 million hectares of cotton).

Yet GM offers substantial promise for raising SSA's low yields, reducing the need for pesticides and insecticides, improving nutrition, and reducing SSA's particularly high vulnerability to climate change.

Drought-resistant GM-maize is particularly promising for Africa. Maize is the most widely-grown food crop, but requires substantial, reliable, water, which climate change is calling into question. In 2016, a particularly severe El Niño drought affected maize harvests in several countries. The maize harvest of Malawi, for example, fell 34 per cent below its five-year average, and about 20 per cent of the population faced food insecurity (GIEWS 2017). During the crisis, some countries even banned food aid that incorporated GM maize. For other countries, GM maize varieties have been developed that are both drought-resistance and reduce the need for pesticides.

Potatoes are also a popular staple in Africa, but at risk of late blight (the disease responsible for the Great Irish Famine of the 1840s, which reduced Ireland's potato harvest by 88 per cent, causing over a million to starve to death). Late blight spreads particularly rapidly in the warm and moist

conditions common in much of SSA. Thus, preventative measures like fungicide and metal spraying are required in high quantities, raising costs and restricting many farmers from adequately protecting their crops. Unlike selective breeding, genetic modification allows several resistant genes to be introduced into the same potato variety, to optimize resistance. Despite political backlash, GM potatoes resistant to late blight have in 2017 enjoyed positive field trials in Uganda.

In June 2016, 121 Nobel laureates signed a letter of support for GM crops, stating, ‘There has never been a single confirmed case of a negative health outcome for humans or animals from their consumption. Their environmental impacts have been shown repeatedly to be less damaging to the environment, and a boon to global biodiversity’ (Support Precision Agriculture 2016). However, genetically modified crops do bring risks for agricultural ecosystems that must be managed. If research and development for GM is to be increased, and regulation revised, it should not be done so half-heartedly.

First, the planting of pest-resistant GM crops must be carefully managed to reserve ‘refuge areas’ for targeted pests; without this, pests can quickly evolve to develop resistance. Bt (GM) cotton, for example, initially looked promising for environmental protection—whereas traditional insecticides destroyed a wide range of animals, the GM cotton’s Bt toxin was targeted towards a specific pest only, protecting non-invasive wildlife. The Bt cotton was planted by 7.7 million farmers in India, and 7.1 million in China, in 2014 (ISAAA 2014). However, the seeds were so popular that farmers did not leave enough spaces without Bt cotton, leading the targeted pests to develop resistance. Yields suffering across India on a massive scale, causing huge negative publicity for GM across India and China. This can be avoided by proper enforcement of refuge areas, however. The US demands that farmers leave 20–50 per cent of land Bt-free within 0.8 km of their Bt plantations. Especially with less coordinated small-holder farmers in SSA, and several governance challenges, the role of effective governance will be particularly critical for GM success.

Second, testing procedures must also be robust—as for all new crops. For example, the strain of cotton into which the Bt toxin was engineered in India has retrospectively proven susceptible to whitefly, whereas local organic varieties are not (Indian Express News Service 2015). Mirid bugs blighted GM cotton yields in northern China (European Commission DG Environment News Alert Service 2010). These losses might have been avoided with proper field trials before commercial release of the crop. On the other hand, these risks also *result from* the tiny range of GM and hybrid strains available on the market, exacerbated by slow regulatory processes and under-investment in R&D; with more varieties, farmers have more options if a weakness becomes apparent with one. Again, investment in research needs to be serious, so that many varieties can be trialled, and each trial be robust.

Genetic modification is by no means the only source of agricultural productivity gains. Selective breeding offers some similar gains, but is far slower, requiring several generations of breeding before the desired characteristics manifest with the required strength. Selective breeding for one trait often also unintentionally breeds out other desirable genes, and with selective breeding, a much smaller variety of genes can be added, as they must come from sexually compatible organisms (e.g., maize bred with maize). So far, selective breeding has produced far more new crop varieties for sub-Saharan Africa than genetic modification, however, due to greater investment in R&D and lower regulatory resistance. Increasing investments in R&D for selective breeding is still predicted to have large returns (Perez and Rosengrant 2015). The particular promise of GM derives not just from its greater speed and flexibility, but also from the fact that *the development of GM varieties has so far been so restricted*, suggesting considerable ‘catch-up’ growth potential. With policy support for and investments in such ‘catch-up’ R&D, the quality and range of varieties available to farmers may improve substantially.

New technologies thus have the potential to bridge gaps in Africa’s agricultural modernization, multiply yields, lower food prices (as well as prices for export and manufacturing crops like cotton), and bring new opportunities for resilience to food security risks such as climate change. This has potential to reduce pressure on wages and raise labour productivity, while also raising agricultural export and processing potential.

INNOVATIONS IN URBAN TRANSPORT AND HOUSING

African countries also enjoy the chance to leapfrog straight to modern technologies to bring down their high urban transport and housing costs.

Congestion is a major source of elevated transport costs, but new technologies are helping to relieve congestion in several developing cities. The need for individual vehicles is reduced by ride-sharing apps such as Uber, and domestic versions for shared motorcycle taxis (e.g., SafeBoda in Uganda and SafeMotos in Rwanda). New digital transport information tools—such as GIS devices on buses, and GTFS-based public transit data²—make public transport easier both to plan (for city managers) and to use (for consumers). Cheaper, and less polluting, fuel is also available through electric vehicles: in 2016, Volkswagen announced their plan to introduce electric cars with a ride-sharing service in Kigali, Rwanda, to take advantage of cheap renewable grid power; Ampersand Solar hopes to bring China’s electric bike revolution to Kigali, replacing omnipresent motorbike taxis with solar-powered electric bicycles, and reducing deadly urban air pollution to boot. Improved urban transport will not only

² General Transit Feed Specification.

lower living costs (and hence wage pressures) directly, but also better integrate now-fragmented urban neighbourhoods and labour markets for more productive, inclusive, cities (Lall, Henderson, and Venables 2017).

Prefab housing technologies and ‘3D printing’ may help to reduce the cost of quality urban housing. Though many technologies are still in the development phase, semi-automated construction methods may support scale economies in housing supply, overcome weak local skills in architecture and construction, and enable cost-saving structural forms not possible using traditional methods. Such innovations may help developers meet often stringent regulatory requirements at low cost, while creating ‘reliable’ uniform units easier to value and certify. Additive manufacturing (‘3D printing’) is discussed below in the context of manufacturing, but one novel application is 3D printing houses. Large 3D cement printers have already been developed, and used to ‘print’ house-like structures. These are large mechanical arms equipped with nozzles that emit cement according to a pre-programmed design, layering the cement progressively as it dries. It’s fast, too: a Chinese firm, Win Sun, claimed to have ‘printed’ ten robust, concrete, houses in 24 hours, at US\$5,000 per house, in 2015. The World Advanced Saving Project is working on another 3D printer—the Big Delta 12m—that can ‘print’ earth homes with features such as cavity walls (tricky with traditional building techniques) and coverings to improve look and durability.

2.2. *Raising Human Capital*

Labour productivity concerns not only wage costs, but also worker quality. No country has achieved sustained, rapid, broad-based growth without major investments and improvements in human capital outcomes. What’s more, the centrality of education to growth is likely to become even more salient, as machines are increasingly able to replace unskilled labour. Raising workers’ *skills*—to *use* technologies, and perform less ‘replaceable’ roles—will thus be increasingly critical for long-run job-creation.

Sub-Saharan African economies are, so-far, not future-proof in this respect. SSA has some of the lowest literacy and education levels in the world. The quality of learning in schools continues to be extremely poor, with many children unable to read with comprehension by the end of primary school, and teachers often lacking the knowledge they are expected to transmit to students (e.g. Bold et al. 2017). Parents can hardly straddle the gap, with World Development Indicators suggest that between ten and 40 per cent of adults in most sub-Saharan African countries are ‘illiterate’ (unable to read and write a basic sentence about their lives); only approximately 7 per cent of adults have degrees, and the skills transferred during higher education often anyway do not leave graduates job-ready (British Council 2014). Whereas

countries in the Organization of Economic Cooperation and Development (OECD) spend around US\$7,000 per primary pupil per year, many African countries spend less than one hundredth as much (OECD 2016). How, in such an environment, can African economies possibly develop the human capital required for future-proof mass employment?

E-LEARNING FOR BASIC SKILLS

In theory, smartphones or tablet computers, combined with electricity and a good internet connection, can give teachers and students in poor, remote schools access to international-standard resources and information, at comparatively low marginal costs. This includes dedicated learning resources, such as scripted lesson plans, computer games for personalized learning, and free online courses (including from top universities), as well as informal information tools such as Google searches, Wikipedia, and YouTube tutorials. There is already evidence for stronger demand for and engagement with online educational resources in developing countries (Murray 2017).

Currently, available data suggests that use of such resources remains mostly an elite activity (Murray 2017). Africa has some of the highest internet costs and worst coverage and speed in the world, despite low incomes (The Economist 2013a). Smartphones are unaffordable for most, and literacy is a further challenge, particularly when an international language is required.

However, data costs are forecast to come down dramatically, with a surge in data supply exceeding demand. Many coastal areas are set to benefit from the completion of planned high-speed internet cables (Murray 2017). Some satellites orbiting over Africa already have 80 per cent spare capacity, which may be mobilized to provide affordable mass internet access (Scaturro 2016). The internet is also reaching isolated areas through initiatives such as Facebook's internet.org (providing rural internet access through lasers and unmanned solar aircraft), Google's Project Loon (using balloons in the upper atmosphere), and hundreds of microsatellites launched by Tesla. In 2014, the average cost of mobile broadband³ fell by 40 per cent in least developed countries (International Telecommunications Union 2015), and several network operators in the region recorded a 50 per cent increase in data usage in 2015 (GSMA Intelligence 2016).

Smartphone prices have begun to plummet—smartphones below US\$50 are now available (GSMA Intelligence 2016), and prices are falling while functionality improves exponentially. Smartphones are thus also being adopted at progressively lower income levels, and the gap between adoption in Africa and elsewhere narrowing (Murray 2017).

³ This is based on the example of 500 MB of prepaid handset-based data.

The chance for e-learning to ‘leapfrog’ skill development should not be taken for granted, even given access to data and devices, however. The full wealth of online information and resources can also only be accessed by those fluent in a major world language, and with the critical thinking and independent study skills to pursue knowledge effectively. Many teachers’, students’, and broader citizens’ literacy (especially in an ‘international language’) is too low to make use of the best online resources.

Most studies suggest that the internet and electronic devices can improve classroom learning, but that success depends critically on the right software and its skilful use by teachers (Murray 2017). There are countless examples of computers collecting dust because teachers lack skills to utilize them, and repairs are not budgeted or planned for; computer labs being dominated by a handful of more advanced students; and, generally, computers failing to improve learning without the skilled stewardship of quality, well-supported teachers (Toyama 2015). Indeed, many now argue that technology mostly serves to accentuate what is already found in an education system—be that good teaching or bad (Toyama 2015). Linden (2008) found that computer-assisted learning was very effective when used to *complement* a normal programme, but when used as a *substitute* for a teacher-delivered curriculum, students learned significantly less than they would otherwise have done (Aker et al. 2010). While devices remain expensive, resources must be distributed strategically, for example targeting e-solutions to ‘teach teachers’ rather than equipping every student with a laptop while teachers lack the skills to make effective use of them. In many contexts, traditional textbooks in fact offer much cheaper access to quality information, compared with the purchase and maintenance costs of tablet and laptop computers, power, and internet access.

E-learning will, therefore, be most effective if governments invest in laying the ‘springboard’ of high-quality literacy and critical thinking skills, teacher skills, and robust and affordable internet and power access.

ICT TO HONE MARKETABLE SKILLS

As technology advances to out-compete humans in more tasks, a particularly important opportunity is to become a producer, rather than simply a consumer, of digital content. Learning to program does not require a college degree or even completion of secondary school; free online platforms, such as Code Academy, can take people from zero to a marketable level of skill. Even children can learn to code, from beginners to an advanced level with free platforms such as Scratch. In April 2017, there were more than 5,600 Scratch users in Kenya, 2,700 in Somalia, and 35,000 in South Africa, and Scratch’s modal age internationally was twelve (Scratch 2017). Some more advanced coding schools recover tuition costs by taking a percentage of students’ salary

upon graduation, overcoming financial constraints to more formal education. Section 4 discusses the opportunities for coders to also hone their skills (and make their livings) serving the growing regional market.

3. Competitive Power Costs

In 2010, average generation costs in Africa were US\$0.18 per kWh, and subsidized energy tariffs US\$0.14 per kWh on average. By comparison, average tariffs in South Asia were US\$0.04 per kWh, and in East Asia US\$0.07 per kWh (AfDB 2013). To compound energy high prices, many African countries suffer frequent power outages, necessitating firms to use expensive backup generators. This makes it particularly tough for (typically energy-intensive) manufacturing sectors to compete with those in Asia, and for technology-reliant sectors and tools to flourish.

However, much of the continent is also rich in sources of renewable energy: solar, hydro, wind, and even geothermal in East Africa. With new technologies, the costs of solar and wind have been falling rapidly. Despite the plummeting cost of oil (by 67 per cent) in 2015, wind and solar accounted for half of new global investment in power generation (Frankfurt School-UNEP Collaborating Centre 2016).

Furthermore, with less 'legacy infrastructure' in their power generation (just 147 GW were produced in Africa in 2013, equivalent to the capacity installed in Belgium, and the new capacity installed in China every one-to-two years) (AfDB 2013), sub-Saharan African countries are well placed to transition straight to renewables as their energy demand grows. Developing countries are constructing more renewable energy capacity than their OECD counterparts (REN21 2017), and China's renewable energy capacity is now growing faster than its fossil fuel and nuclear capacity (Mathews and Tan 2014). If sub-Saharan Africa can indeed leapfrog past fossil fuels and directly to cost-effective renewables, it can avoid the massive exacerbation of climate change that would result from meeting future demand through coal power, and enjoy falling and less volatile prices at the same time.

3.1. Hydropower

In 2012, hydropower generated 84 per cent of Africa's non-fossil fuel energy (SciDev n.d.). Africa's hydro projects do not particularly benefit from new technologies, but they provide important context to the potential of improved solar and wind technologies, and also the promise of complementary technologies to raise competitiveness in energy-intensive industries.

Despite the high share of hydropower generation, by 2016 Africa had exploited just 8 per cent of its total hydropower potential (IRENA 2015). Expansion projects already underway or planned would generate 27 GW across Africa. Ethiopia is planning to complete a 6 GW hydropower dam on the Nile (the Grand Ethiopian Renaissance Dam) in 2018, which would triple Ethiopia's energy generation from 2 GW in 2016, supporting its growing manufacturing sector and potentially providing cheap energy to export to the Horn of Africa and East Africa.

However, many African countries have suffered over-reliance on hydro. As well as disrupting rivers—water for settlements and crops, and habitats for wildlife—hydro is particularly unreliable in the context of climate change. Zambia, for example, gets nearly all its power from hydroelectricity. With droughts in 2015, Zambia suffered daily eight-hour power cuts and a shortfall of 34 per cent of demanded electricity. The mining industry, core of the Zambian economy, had to cut power usage by 30 per cent (Sladoje 2016).

In 2016, Zambia ran a tender for 100 MW of solar to stabilize its power supply; the winning bids offered US\$0.06 and US\$0.08 per kWh—competitive with South and East Asian energy prices (IFC 2016).

3.2. *Wind*

Costs of wind power have fallen exponentially—from US\$512 to US\$70 per MWh from 1985 to 2016 in Northern Europe. Costs fell by 50 per cent since 2009 alone (Liebreich 2016). This resulted from enhanced designs (especially refined blade shapes and higher towers) that better capture wind. The capacity factor of OECD wind turbines installed in the 1990s and early 2000s was generally 10–20 per cent, rising to above 30 per cent by 2016 (Liebreich 2016).

The Horn of Africa, south-west coast, and parts of north-west Africa have strong wind capacity (Vaisala 2015), and African governments are planning serious investments. Kenya's Lake Turkana wind farm is planned to provide 310 MW to the grid—equivalent to 18 per cent of Kenya's energy demand in 2016, and likely to be the largest private investment in Kenya's history (Obulutsa 2017).

3.3. *Solar*

With technological refinements, costs per solar watt installed have fallen by more than 99 per cent since 1976, and by 90 per cent since 2009 alone. In 2016, new solar projects provided energy at or below the average grid price in 30 countries (World Economic Forum 2016), and in South Africa newly installed solar and wind were 40 per cent cheaper than baseload coal (CSIR 2016).

The inability of solar photovoltaics to generate power during darkness has been a key weakness, demanding an alternative for evenings, which once provided is often cost-effective to also utilize during the day. But this weakness would be overcome by cost-effective power storage, costs of which have finally begun to fall meaningfully. In 2010 batteries cost US\$1,000 per kWh on average, but by 2015 this had fallen to US\$350 per kWh. A 2016 UNEP report (Frankfurt School-UNEP Collaborating Centre 2016) attributes this to the intense battery innovation and production economies of scale driven by the electric vehicle movement. Utility-scale electricity storage increased by 50 per cent in just a year, from 160 MW in 2014 to 250 MW by 2015 (still small levels overall, however). A massive new solar plant in the Moroccan desert uses daytime sunlight to heat salts that retain their temperature for up to eight hours. After dark, the salts are mixed with water to create steam that turns turbines. Though more expensive than solar photovoltaics, the technology offers 24/7 power (Nelson 2015).

With more prolonged and intense sunlight, a solar plant in Africa will tend to produce almost double the power of a similar-sized plant in Germany (IRENA 2016). Yet just 1 per cent of global solar capacity was installed in Africa in 2015 (IRENA 2016). This suggests great potential for expansion.

Transmitting energy from source is a remaining challenge. Grids are not yet extended to many areas, and where they are often require expensive upgrades to transmit power in two directions, from new solar plants to consumers.

Solar home systems and mini-grids particularly avoid transmission costs through localized production. But solar home systems in Africa are typically 20–100 W, compared with 3,000–5,000 W (3–5 kW) in OECD countries, approximately doubling costs per watt through low scale economies (IRENA 2015). However, this mostly affects small firms and families; larger firms can install larger, more cost-efficient, systems to enjoy cheap solar without the transmission costs.

Solar lighting also has important benefits for health, rural poverty, and possibly education. It is typically cheaper than kerosene and offers better-quality light (ten times as bright). Researchers are studying impacts on children's learning, through improved ability to do homework, as well as SMEs' income through longer opening hours. It also avoids the substantial morbidity associated with kerosene's air pollution. Solar mobile phone charges also tend to achieve lower costs than diesel generators, since transport costs are lower and marginal costs of power zero.

Thus, although in Africa energy costs have been a serious burden to manufacturing and technology-intensive industries, and households' technological uptake, new opportunities are presented by the falling costs of solar and wind power, and appliance innovations that reduce the energy- or carbon-intensity of production and consumption.

4. Overcoming Distance

4.1. *3D-Printing Inputs to Overcome Weak External Agglomerations And Supply Chains*

3D printing, or ‘additive manufacturing’, may be disruptive for the logic of agglomeration economies, which have so far encouraged similar firms to cluster tightly together for easy access to inputs and consumers. Agglomeration economies have put a high price on relocating from major clusters in Asia to far less developed locations in Africa in search of lower wages. For example, if one part of a machine breaks, a business may need to halt production for days or weeks while the requisite part and technical expertise to fix the machine is sourced from Asia or Europe.

Depending on the sophistication the technology reaches, 3D printing may overcome such agglomeration effects, enabling firms to simply ‘print’ required parts, so more complex tasks can be completed in less developed locations. In the face of weak engineering skills and supply chains, firms could more confidently employ sophisticated machinery and processes, knowing new parts can be quickly printed and installed. Firms can use their own machines, or share machines at (for example) city-level 3D printing labs.

One concern for manufacturing in SSA is that technologies like 3D printing and robotics also reduce the costs of operating near consumers in high-income markets (by substituting for labour), while consumers’ increasing demand for fast-delivery and customized products raises the returns from doing so (e.g. Hallward-Driemeier and Nayyar, 2018). Will manufacturing return from China to Europe and North America, rather than migrating to SSA? If this trend is realised, a silver lining is the chance that manufacturing for SSA’s own regional markets may also move ‘closer to the consumer’, after being lost to China with the removal of protection and openness to global trade after the 1970s and 1980s, and that some manufacturing may instead move closer to the source of materials—many of which come from SSA.

4.2. *Online Service Sales*

Services in sub-Saharan Africa have typically been dominated by locally-traded activities like haircuts, grocery stands, and taxis, with limited opportunities for export or economies of scale (Diao, Harttgen, and McMillan, 2017). However, new technologies are also raising opportunities to export productive services directly to global markets.

A major opportunity for services exports is task outsourcing. Consider Amazon’s Mechanical Turk—an online platform for firms and individuals to recruit remote workers to complete tasks on a freelance basis. Typical tasks include responding to surveys, processing photos and videos, cleaning and

verifying data, finding information, and writing content for websites. Globally, the industry is worth more than USD one billion, and millions are actively offering services on sites such as Freelancer, Upwork, and Witmart (Imaizumi 2016).

3D printing can also be an export opportunity for sub-Saharan Africa. Africa's talented entrepreneurs can create designs to be exported (printed) around the world, as a form of online service export. Already, Kodjo Afate Gninkou, an entrepreneur who used electronic waste to create batteries and 3D printers in Togo, is now supporting the Made in Space programme to design 3D printers for space (Hall 2016).

Competitiveness in online service exports typically requires a combination of fluency in an international language, cultural understanding or technical skills, and competitive wages. This balance is reflected in the top five countries offering online workers: the USA, Philippines, Russia, Bangladesh, and the United Kingdom. Although tasks on Mechanical Turk tend to be rote and non-technical, 80 per cent of its freelancers in 2016 were based in the US, and most others in India. Some popular online platforms explicitly advertize that their online assistants are US college graduates. China, with a large domestic market and its own languages, has seen the growth of its own dedicated online tasking sites: Witmart hosts millions of registered freelancers, operating mostly in Mandarin.

Why are these task sites not more accessible to providers from Africa? Literacy is still comparatively very low, and despite colonial language legacies, many citizens are still fluent in only local or regional languages. A shared cultural understanding and exposure to 'modern' workplaces may also be required, as suggested by the continued dominance of US-based workers for US-based tasks. But as discussed under education in this chapter, new technologies also create opportunities for workers in sub-Saharan Africa to develop some of the required competencies.

4.3. *Online Goods Marketplaces*

Exports from SSA producers, as well as domestic trade between isolated areas and bigger cities in SSA, have been hindered by high costs and challenging logistics of payment and shipping, and high 'search costs' for consumers in finding information about products. E-commerce can help address these obstacles. Research has shown that online sales behave almost as if national borders and distance introduce no trade frictions at all—consumers receive fairly equal product information regardless of the seller's location or size, and payment and logistics are often facilitated by the marketplace (Lendle and Vezina 2015).

E-commerce is a large and expanding sector internationally. 10 to 15 per cent of sales in the US and Europe are now online (ITC 2015), and business-to-consumer online sales were equivalent to approximately 1.6 per cent of

global GDP in 2015 (Statista 2017). In 2013, Chinese online marketplace Taobao (parent company Alibaba) accounted for 60 per cent of all parcels delivered in China (The *Economist* 2013b), and firms on Alibaba can export to over 200 countries; indeed, Alibaba's AliExpress is already the most popular e-commerce site in Russia (Jingjing 2017).

Alibaba's founder, Jack Ma, opined that while the first twenty years of the technological revolution were characterized by advances in technological *knowledge*, the next thirty years will be characterized by a revolution in technological *inclusion* (Sangwongwanich 2016). With the falling data and device costs noted above, this could be key for empowering businesses and entrepreneurs in less developed countries. In SSA, Jumia (founded in 2012 in Nigeria) hosted over half a million African firms by 2017, and was the seventh, eighth, and fourteenth most visited site in Ghana, Nigeria, and Kenya, respectively, in December 2017 (Alexa 2018).

However, in SSA e-commerce has only taken off in a few countries,⁴ and has not been used intensively for exports, rather servicing local domestic markets. Remaining barriers include the lack of a common language, poorly integrated payment systems, tariff and non-tariff barriers for exports, weak postal and courier services (for exports, and domestic sales), expensive trade routes, and (at present) some of the world's highest data costs and lowest levels of smart-phone ownership. Many of these can be addressed by governments, while private entrepreneurs are also innovating to overcome challenges. Websites and data providers, for example, are collaborating to reduce costs and raise demand (online shopping site Jumia, mentioned above, is part-owned by major data providers in most countries where it operates). Below, private initiatives using new technologies to overcome transport and overseas payment costs are also discussed.

4.4. *Transport Innovation*

There are also promising signs that between robust markets of producers and consumers, private firms have strong incentives to build logistical bridges to facilitate trade. This has been seen in the e-commerce world, where Alibaba almost unilaterally overcame China's weak postal system. Cainiao, in which Alibaba owns 48 per cent of shares, coordinates package deliveries between different logistics operators through a software platform. In 2016, three quarters of all packages delivered in China were processed through Cainiao. E-commerce and courier services are also competing to bring down the cost

⁴ Online shopping seems less popular in other countries: in Rwanda in December 2018, the highest-ranking online shopping site was only the 50th most popular website; in Ethiopia it was 22nd, and in Botswana 24th (Alexa 2018).

and times of cross-border trade—Cainiao, for instance, has ten warehouses in the US to facilitate fast delivery (Cainiao Network 2016). In Lagos, the online marketplace, Jumia, manages a fleet of motorbikes that deliver goods to consumers' homes, larger than the delivery fleet of UPS, Fedex, or DHL (Babej 2014).

Technologies are overcoming some weaknesses in traditional logistics infrastructure, too: Murray (2017) highlights the use of drone delivery in Rwanda, for example, which (though seemingly not yet cost-effective for most purposes), offers the capacity to deliver parcels to almost the entire country from a single base within an hour. However, attempts to promote online goods sales will likely be most powerful against a background of solid, 'boring' investments (Frazer 2016) in roads, ports, borders, and railways; standards harmonization and broader regional integration; and the stronger concentrations of people and firms in high-accessibility locations like port cities. This reflects a broader lesson for the 'technology revolution'—'opportunity dances with those who are ready on the dance floor'; where technology cannot overcome a constraint, more traditional complementary investments must be provided for it to operate at its full potential.

4.5. *The Global Integration of E-Payment Platforms*

Banks in SSA are typically expensive, slow, unreliable, and in rural areas also extremely dispersed. International transfers are particularly expensive, and sometimes impossible, constituting a serious cost to exports, particularly from SMEs. Recently, however, mobile banking and online banking have exploded in popularity, and are becoming increasingly sophisticated. M-Pesa, SSA's first mobile banking platform, was launched only in 2007, but by 2016 US\$32.5 billion was being transferred over the platform in Kenya alone (compared with Kenya's \$63.4 billion GDP) (Central Bank of Kenya 2017). In sub-Saharan Africa, 34 per cent of adults have mobile money accounts, and the number of agents and accounts grew by 30 per cent in 2015 alone.

Using mobile phones, a firm can receive payments from customers; pay employees, suppliers, and often taxes; save; and, increasingly, even develop a credit history and take out loans. Many of these services were inaccessible to small firms and lower-income individuals a few years ago. Costs of *international* payments through mobile money are on average half of those through more traditional channels such as banks, money transfer operators, and post offices, and far more accessible to small and medium firms. Mobile transfers constituted just 1.2 per cent of money sent across borders in 2015, but this volume grew by 50 per cent in the same year (GSMA 2016). Together with online marketplaces and payment apps competing to undercut transaction costs, such trends may transform the ability of small and medium firms in SSA to take part in the global and national economy.

The key challenge for mobile and online money transfers, both internationally and domestically, is no longer technological, but firms' and countries' decisions to ensure *interoperability*: many traditional and e-payment platforms—whether mobile network operators, debit cards, banks, or money transfer agents like Western Union—cannot communicate with one another or at best charge fees to do so, meaning users often must be on the same network and platform to trade. However, even mobile money operators are beginning to work towards interoperability, across networks, platform types, and national borders, despite mobile money only being initiated in 2007 (Murray 2017). Governments and consumers can continue to promote this agenda and dramatically raise the efficiency of cross-border payments to African producers.

5. Conclusions

This paper has highlighted the case for optimism that SSA can benefit from new technologies to become globally competitive in a wider range of manufacturing, as well as productive agricultural and services, sectors. The impact of new technologies on economic development in SSA will depend on how far governments create enabling environments through investments in 'boring' fundamentals such as infrastructure, literacy, and sound regulatory institutions. That these fundamentals have so far often remained elusive in SSA shows that technology is no 'quick win' or 'short cut'. It rather raises the stakes. Countries that get those fundamentals right can harness them as a potentially powerful multiplier for development.

High living costs have driven up wages, contributing to make African labour less competitive. Innovations in transport and housing technology may address these elevated costs. Agricultural technologies offer a chance to raise yields, resilience to climate shocks, and nutrition, to reduce wage pressures from food, improve health, and create new export and value-addition opportunities in agriculture. For GM in particular, greater investment in research and approval processes, and thorough risk management thorough measures like enforced 'refuge areas' for pest-resistant crops, are a priority.

Human capital is fundamental to broad-based economic development, and a particular requirement for 'future-proof' job creation. Yet education quality has been a pervasive problem in sub-Saharan Africa. Falling data and device costs are gradually granting low-income and isolated people access to international-standard information and educational materials. For citizens who are highly literate, fluent in a major international language, and have a level of individual study skills, these opportunities can be transformative. For citizens without these skills, the information and resources are not truly accessible, and the huge potential gains cannot be tapped. Developing these

core skills should be prioritized to reap the gains of e-learning, combined with investment for broad-based access to the internet and devices.

Energy tariffs double those in Asia have seriously deterred investment in manufacturing and other energy-intensive industries in SSA. Yet new investments and technological advances are also cutting the costs of power in a way that is game-changing. With its superior irradiation and lack of ‘legacy infrastructure’, solar’s potential in Africa is particularly strong, and costs of power storage are starting to fall more significantly, meaning solar may begin to cost-effectively supply grids and homes in the night. Governments can prepare to take advantage of cheap solar power by upgrading grids for two-directional power, anticipating low energy costs when negotiating tariffs and planning infrastructure (as seen, for example, in East Africa’s pursuit of electric vehicles), embracing solar mini-grids and home systems, and supporting solutions for power storage.

The technologies discussed in this paper have the potential to multiply the impacts of a solid policy framework, to deliver a more skilled and healthy workforce, competitive wages, attractive power costs, and more efficient access to inputs and consumers. By addressing the key causes of weak comparative advantage in manufacturing and ‘industries without smokestacks’, new technologies are thus creating promising opportunities, not merely threats, for SSA. Yet technology does not offer an easy or certain path to development: the impact of new technologies depends unavoidably on policy fundamentals that have often proven difficult to get right, and on the highly uncertain landscape of future technologies. Risks should be prepared for, but the key foundational investments should also be made to harness the fantastic potential of new technologies as a springboard for economic and human development.

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3

Telecommunication and ICT-Based Services Trade

Cláudio R. Frischtak

1. Introduction: Moving Towards the New Economy

It is unquestionable that we are witnessing a major technological revolution, with respect to which the medium- and long-term economic and social implications are not yet clear. Even if one agrees with the view advanced by Robert J. Gordon¹ that the improvements in economic welfare and well-being of earlier broad-based innovations (1870–1970) far surpass the gains delivered by the spate of new information and communications technologies (ICTs), the latter is having an unmistakable effect on families, firms, and governments.

ICTs have shortened distances; allowed for instantaneous communications across the globe at a quasi-zero cost; improved to an unimagined degree access to information; and led to the creation of a myriad of new business ventures. ICTs are also promoting collaborative arrangements in physical and virtual spaces to mobilize people, and channel resources, time, and energy to economic endeavours, and social and political causes.² It is important to underline that—as defined in this chapter—ICTs are a new set of technologies (and platforms) that cannot be considered to be among the computers and telecom services considered ‘state of the art’ until the mid to late 1990s.

¹ See, for instance, Gordon (2016). He argues that total factor productivity (TFP) gains arising out of earlier advances (1920–70) would be over three times that observed since 1970.

² An ITU study concerning the impact of broadband diffusion on productivity and economic growth concludes that the contribution is significant and tends to increase with the so-called ‘network effects’ (ITU 2012). See also World Bank (2009) and the major new World Bank (2016) publication on the subject.

These new technologies—as described in Section 2—are nothing short of revolutionary. They facilitate the creation, diffusion, *and* use of new ideas and products, empowering users in their capacities as citizens, producers, and consumers, as well as managers of firms, cities, and governments. Countries will be faced with the challenge of creating an environment that is conducive to appropriating these technologies—no matter where generated—and ensuring that their population is connected and has the means to use the available innovations. The very concept of a ‘knowledge-based economy’³ will change: using the new ICTs proficiently will possibly be of greater relevance than generating them from both a production and trading perspective.

For developing countries, the new-generation ICTs open the opportunity to at least partially bridge the gap with advanced economies, to the extent that such ICTs will be both more affordable and user-friendly. A fundamental step is to lower transaction costs, remove the barriers to the local supply of devices and services, and undertake joint public–private initiatives to radically facilitate connectivity with the internet. The more fluid is the access to and exchange of information, the more individuals, firms, and governments will be able to explore the opportunity frontier in terms of ideas, markets, and solutions to citizens’ problems.

ICTs hold the greatest promise for poorer countries. Yet the distance from the more advanced economies remains significant, with Africa in the lowest bracket and significantly below the world (Figure 3.1).⁴

The objective of this chapter is to provide a basic understanding of the nature of emerging key ICT technologies, and establish the distance of countries and their citizens from high-quality access to the internet—the necessary threshold one needs to cross in order to make use of such technologies. Having crossed the threshold, there are many possibilities, including the export of services, which were once the realm of very few developing countries—those with an elastic supply of English-speaking skilled labour.

Following this introduction, Section 2 lists and briefly discusses the ongoing ICT revolution and its dominant feature: *connectedness and mobility*. No single study would be able to list the innovations streaming from individuals, laboratories, and firms, at what appears to be an increasing rate.

³ For earlier views, see Abramowitz and David (1996).

⁴ See ITU (2016). The IDI—which aims to reflect ICT development—is calculated by combining a total of 11 indicators on: ICT infrastructure and access (fixed telephone subscriptions, mobile-cellular subscriptions, international internet bandwidth, percentage of households with a computer, and percentage of households with internet access); use (percentage of individuals using the internet, fixed-broadband subscriptions, and active mobile-broadband subscriptions); and skills (mean years of schooling and gross enrolment ratio). For the calculation of the IDI, the indicators are weighted (ICT access and ICT use 0.4 each, and ICT skills 0.2), resulting in an IDI value between 0 and 10. Note that the concepts of ‘access’ and ‘use’—and their components—do not have a universal meaning and are sometimes used interchangeably in the literature.

Industries without Smokestacks

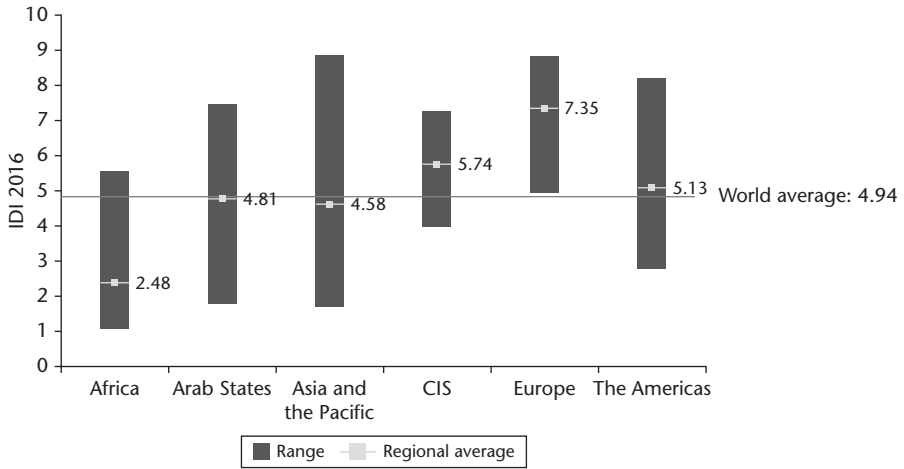


Figure 3.1. ICT Development Index (IDI) by region compared with the global average, 2016

Source: ITU (2016); reproduced here by permission.

At this point, it is also still unclear whether such innovations will allow developing countries to significantly bridge the distance to developed and emerging economies, while strengthening their position in the production and export of goods and services. Still, some early evidence shows a narrowing trend, taking into account the dissemination of the smartphone, the multi-purpose technology that may indeed help developing countries come closer to the frontier.

It is axiomatic that only by *accessing* the internet will countries be able to use ICT-related innovations. Access fundamentally depends on the ability to connect to mobile, Wi-Fi, cable, radio, and other networks, using the most efficient means—broadband (as opposed to earlier technologies, such as ADSL-based dial-up services). In Section 3 the discussion focuses on where countries stand with respect to access and use of broadband services and along their quality gradient. It is unquestionable that progress has been made on both fronts, though it appears that coverage has moved faster than quality, quasi-universally measured by the speed at which data are transmitted. This chapter thus describes the *connectivity frontier* based on two parameters—the extent of broadband coverage and transmission speeds—and measures the distance countries stand from the frontier and over time.

Section 4 defines the new *access paradigm*—the ICT foundation for connecting people and markets—that will enable a far larger number of countries to enter service export markets, moving beyond the more traditional outsourcing model, of which India is the most successful case. The question therefore

is how to provide high-quality, affordable, safe connection to the internet to the vast majority of the population of developing countries.

This final section underlines the importance of creating a more open and competitive environment to attract infrastructure investment (in terms of fibre-optic rings and cable links, among others), and foster rivalry among suppliers of devices and mainly services, thereby benefiting users—be they individuals, firms, or governments—with lower prices and better-quality services. Although important for all countries, it is critically so for developing economies.

But governments in coming years will have to do more, namely attracting major players such as Alphabet and Facebook, to partner in the provision of cost-effective infrastructure and service provision. These companies have the potential to transform the ICT environment by providing access at quasi-zero cost in order to expand ‘viewership’, which can be made consistent with the public interest. Governments would need to think outside of the box—while looking for public–private partnerships—if they are to successfully steer their societies from being marginalized by the ICT revolution and make the most intelligent and effective use of the stream of new technologies changing the global economic, social, and political landscape.

2. The ICT Revolution in Brief

Few would question that there is an ongoing revolution in the ICT space, with momentous and unclear implications for the way we live, interact, consume, produce, and manage firms, cities, and other jurisdictions. Analysts struggle to bring together in a coherent way the implications for humanity of the flow of innovations due to the difficulty of establishing both their direct and indirect effects beyond the short-term. Thus, any synthesis, as attempted in this section, is fraught with difficulties.

One way to visualize the changes is to think about successive layers.

- The core of the ‘onion’ is the process of *codification and digitalization of information*, now five to six decades old, and which allowed information to be processed by digital computers. For many years this stood at the centre of technological change. In the ‘computer age’, the basic relationship was between people (and organizations) (P) and the machine (with its prohibitive innards—the integrated circuit, and the software to run and perform tasks) (M): *P to M*.
- The second layer was built around *connectivity and mobility*, promoted fundamentally by the growing ubiquity of smartphones. It is now at the centre of the ICT revolution. The machine functionality relies on

applications (apps) most of which are free and immediately accessible, a far cry from the earlier age of the computer and unfriendly software languages. All transactions are migrating to hand-held devices: selling and buying in marketplaces and through e-commerce; paying, borrowing, and depositing with financial institutions, bank and non-bank; interacting with government and other institutions; and becoming active parts of social networks. The organization is no more at the centre, but civil society and individual initiatives backed by an expanding universe of opportunities. The connectivity and mobility layer may be summarized by the notion of people to people (*P to P*).

- The third layer is in the making: the *internet of things* (IoT), allowed by the collapsing prices of sensors, data processing, and connectivity, this time among sensors. Although wearables drew attention, far more relevant is the fact that the IoT technology allows all human and machine processes to be instantaneously monitored. It might sound like the Brave New World, but in fact has enormous implications for the sustainability of human life on Earth, with the potential not only to measure and monitor the footprint of human activity, but to make cities and other agglomerations far more ‘intelligent’, economizing on resources and optimizing their allocation. This would be Big Data at work. In this layer, the dominant relationship is sensor to sensor: *S to S*.
- The final layer—the contours of which can only be sensed today—will be driven by *artificial intelligence*, the ability of machines not only to operate without human intervention, but to learn, reason, and correct ‘mistakes’ by interacting with the environment and other machines. Individual robots are not exactly the expression of this outer layer, although they do capture the imagination, mainly as humanoids; it is the unmediated relationship among learning and adapting machines that will characterize this ICT. In this coming era, the fundamental relationship is machine to machine, without—costly and inefficient—human intervention: *M to M*.

At this juncture it is the second layer and its implications that are of most interest. It is *mobility with connectedness* centred on the smartphone that will possibly bring the most relevant changes for developing economies. What is being observed is massive digitization of information (voice, data, images); transmitted at increasing speeds; stored and processed at faster rates; and the use of which—for production, trade, education, and entertainment activities—is being carried to ever more friendly environments, causing changes that may improve the lot of firms and entrepreneurs in developing countries. A glimpse of ongoing transformation is captured by the projected growth of internet protocol (IP) traffic globally, and the increase in mobile share (Table 3.1).

Table 3.1. IP traffic by type and mobile share, 2015 (actual), 2016–20 (projected), petabyte per month

Global IT traffic	2015	2016	2017	2018	2019	2020	CAGR 2015–20 (percentage)
Fixed internet	49,494	60,160	73,300	89,012	108,102	130,758	21.5
Managed IP*	19,342	22,378	25,303	28,155	30,750	33,052	11.3
Mobile data	3,685	6,180	9,931	14,934	21,708	30,564	52.7
Total	75,521	88,719	108,533	132,101	160,561	194,374	20.8
Mobile share (percentage of total)	5	7	9	11	14	16	–
Smartphones share (percentage of mobile access)	89	91	93	95	97	98	–

Note: 1 PB (petabyte) = 1,000,000 GB (gigabytes); * includes corporate IP WAN (wide area network) traffic and IP transport of television and video on demand (VoD). CAGR = compound annual growth rate.

Source: Based on data from Cisco (available at www.cisco.com/c/dam/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.pdf?referring_site=RE&pos=4&page=http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html) and author's calculations.

It is thus important at the outset to underline that mobile technology is the pre-eminent multipurpose technology in the world. Its dissemination has reached a point that one can envision that most of the population in developing countries will have in their hands smartphones (and their variants, such as phablets) capable of connecting them to people, markets, and services, and not radically different to those living in developed countries. Prices are falling while the realm of potential applications is fast expanding, with more than an estimated two million apps (!) available for Android and iOS operating systems.⁵

Maybe the most important aspect is how *user-friendly* most applications are, which allows people with limited education to search for and manipulate information, transact in multiple virtual spaces, and substitute services for goods in economic activities.

- Information is the building block of knowledge: accessing it with the help of *search engines* (Google, Yahoo, Bing, Baidu in China, and Yandex in Russia) has already radically transformed the way people purposely strive for economic citizenship. And the intelligent use of information is leveraged by distance education as it becomes more available and affordable, allowing people to be educated and trained at a fraction of the usual cost
- Transactions that used to occur in physical settings are occurring on virtual platforms such as *marketplaces*, Amazon and Alibaba being the

⁵ See Frischtak (2017: Table 2).

quintessential examples, in addition to eBay and Flipkart (the latter in India). They perform two fundamental roles: e-commerce and, as importantly, hosting virtual stores at quasi-zero cost, which dramatically lowers entry barriers

- *Fintechs*, capable of providing in the digital realm multiple financial services, an instrument of financial inclusion and business transaction facilitation, will likely capture a growing share of digital payments, business, and consumer finance, without resort to physical banks and branches. It is estimated that between 2016 and 2021, *Fintechs* will grow at an average annual rate of 21.1 per cent, and achieve approximately US\$7 trillion in transaction value, with the fastest expansion in consumer finance⁶

Finally, the very nature of economic activity is changing:

- With distance manufacturing, one will be able to export concepts, ideas, designs, and prototypes—the latter helped by 3D printers—and materialize them close to consumers
- With fast-growing cloud computing,⁷ one does not need in-house or even nearby data-processing machines and/or facilities—only connection to such facilities irrespective of their location; and ditto for storage space, as long as one is connected to remote storage facilities.

These technologies are convergent in a fundamental sense: they point to facility of use and lower entry barriers, as the initial fixed costs of setting up (and operating) a business venture or a manufacturing facility are substituted for variable costs, namely the purchase of a service.⁸ To take advantage of them, the first step is to connect to the internet, and connectedness has been at the core of ‘digital inclusion’.

3. Access to Information and the Connectivity Imperative

It should be said at the outset that although ICTs are having a transformative effect on a global scale, many if not most countries still face significant barriers to their most effective use.

⁶ See Frischtak (2017: Figure 2).

⁷ See Frischtak (2017: Figure 3).

⁸ It is, of course, possible to make the contrary argument, as many point to an emerging fourth industrial revolution, with intelligent systems-driven manufacturing based on intense machine-to-machine communications, the widespread use of robots, and other frontier components (see, for instance, Brynjolfsson and McAfee 2015). This being the case, developing countries would be left behind not only due to the difficulties inherent in using and maintaining such complex manufacturing technology, but the fact that the process becomes more knowledge intensive and value migrates to intellectual property products.

First, the level of education and degree of literacy, which were once quasi-binding barriers, have been softened by the ICT revolution through a multiplicity of user-friendly applications, starting with search engines and the ability to look for answers to literally any question. Yet basic skills remain an important lever to make effective use of such technologies and appropriate extant opportunities. Second, trade and regulatory barriers that, if not impeding, make it more difficult and costly for people to purchase devices (mobile and otherwise), and connect themselves to the internet with the help of broadband providers. Finally, the provision of physical infrastructure—such as energy—is quite critical, although numerous initiatives are attempting to simplify the requirements for the use of new-generation ICTs.

Increasingly (as argued in Section 4), integration in global information, production, and trade networks will depend on enlightened policies and bold public–private initiatives, as well as governments giving up pursuit of contradictory objectives such as protecting telecom incumbents against new service providers or raising revenues by taxing imports of devices. Aligning policy and assuming a proactive stance to enable citizens in developing countries to cross the access threshold is the first step to moving towards a gradual convergence of opportunities across the digital—and income—divide.

While the convergence over the ‘digital divide’ is still in the future, the ongoing ICT revolution launches some bridges across the development chasm. Crossing them depends on developing countries closing in on the *connectivity* frontier—defined in terms of the extent of internet access and the corresponding speed.

Let us discuss each in turn, beginning with the degree of broadband coverage. In this respect there have been pronounced gains among developing and emerging economies, mostly centred on mobiles (Table 3.2). Taking two extremes from a regional perspective, in Europe in 2010 the sum total of fixed and mobile broadband subscriptions per 100 inhabitants was 54.1, expanding to 107.8 in 2015; in Africa the gains were far more pronounced, from 2.0 to 17.9, with the Europe/Africa ratio decreasing from 27 to 6 in five years. There is still a considerable gap, but progress in access seems unmistakable.

As for the proportion of individual internet users, emerging economies have narrowed the gap with respect to the United States, South Korea, and Hong Kong in the last fifteen years, with coverage growing at far faster rates. Indeed, while coverage in the United States grew by 4.5 per cent p.a., South Africa expanded by 17 per cent p.a., and China attained a rate of 25.3 per cent p.a., with half the population still with limited use.⁹ Quasi-universal coverage—that is 85 per cent of the population—will likely be achieved within the next decade.

⁹ See Frischtak (2017: Figures 4 and 5).

Table 3.2. Broadband subscribers (per 100 inhabitants), mobile, fixed, and total, major regions, 2005, 2010–15

Region	Type	2005	2010	2011	2012	2013	2014	2015	2016*	CAGR 2010–15
Africa	Mobile	N/A	1.8	4.6	8.5	10.3	13.3	19.0	29.3	59.2
	Fixed	0.0	0.2	0.2	0.2	0.3	0.4	0.5	0.7	23.2
	Total	0.0	2.0	4.8	8.7	10.6	13.7	19.5	30.0	57.0
Arab states	Mobile	N/A	5.1	13.1	16.1	27.3	35.5	42.8	47.6	45.1
	Fixed	0.3	1.9	2.2	2.6	3.2	3.6	4.2	4.8	16.7
	Total	0.3	7.0	15.3	18.7	30.6	39.1	47.0	52.4	39.9
Asia and Pacific	Mobile	N/A	7.4	11.0	15.3	18.5	29.4	37.7	42.6	33.9
	Fixed	2.2	5.5	6.4	7.0	7.8	7.9	8.9	10.5	11.4
	Total	2.2	12.9	17.4	22.3	26.3	37.3	46.6	53.1	26.6
Europe	Mobile	N/A	30.5	39.4	49.1	56.1	65.6	72.8	76.6	16.6
	Fixed	10.9	23.6	24.8	25.7	27.7	28.3	29.2	30.0	4.1
	Total	10.9	54.1	64.2	74.8	86.0	93.9	102.0	106.6	12.0
Americas	Mobile	N/A	24.6	34.1	41.9	55.7	67.3	74.6	78.2	21.3
	Fixed	7.5	14.0	15.0	15.8	17.0	17.5	18.4	18.9	5.1
	Total	7.5	38.6	49.1	57.7	72.7	84.8	93.0	97.1	16.6

Note: * Estimated.

Source: Based on ITU data (available at www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx) and author's elaboration.

It is worth mentioning that, during that fifteen-year period, sub-Saharan Africa (SSA) countries have also made major strides, with Nigeria, Kenya, Ghana, and Senegal becoming good examples of countries growing from very small bases. Kenya's growth of internet use in such a relatively short period is impressive¹⁰—as is that of Ghana, Senegal, and Rwanda. It is no coincidence that a number of significant mobile-based services initiatives have taken place in Kenya, for internet access and use is fundamentally a phenomenon of the diffusion of mobile devices, mostly smartphones (and advanced 3G/4G networks).

In this chapter, *quality* of access is measured by data transmission speeds.¹¹ While average speeds have increased, the relative gap between the more advanced and other economies seems to have widened in recent years, most likely due to the fact that speed suffered as coverage increased: most providers announce maximum speeds but traffic moves at far lower average speeds. Although coverage, driven by the dissemination of mobile devices, initially outpaced the ability of telecoms and providers to offer high-quality access, they seem to be catching up. Increasing speed generally depends on infrastructure investments, the return on which until recently was less attractive unless one could find a large number of paying users willing to purchase traditional broadband and related services. A number of public and private initiatives targeted at developing economies are attempting to provide low-cost, high-quality (mobile) connections in order for them to jump the speed barrier that separates them from developed countries.

We now define the connectivity frontier as the distribution of countries across the internet use—average speed gap (Figures 3.2, 3.3). The frontier dynamics are captured over the interval 2008–14. The differences between these two years provide country-specific absolute and relative movements. The figure suggests a fast-moving frontier and confirms widespread cross-country gains. Among developed countries, the gains are mostly concentrated in speed, while for developing economies the period shows major strides in coverage.

For these economies, approaching the connectivity frontier is a precondition for the effective use of key technologies and platforms, capable of facilitating the production and export of services (and goods) which until recently

¹⁰ See Schumann and Kende (2013). A combination of government ability and commitment to attract infrastructure investment (such as the East African Submarine Cable System sponsored by the World Bank and the Development Bank of Southern Africa, and the East Africa Marine System, the responsibility of the Kenyan government, with collaboration from Etisalat Emirates Telecommunications Corporation) and to open up to a variety of service providers (as well as device suppliers) has been instrumental in making Kenya a standout in Africa, with the highest bandwidth per person in Africa, the fastest speeds, and one of the lowest costs for use of the internet.

¹¹ See Frischtak (2017: Figures 8 and 9).

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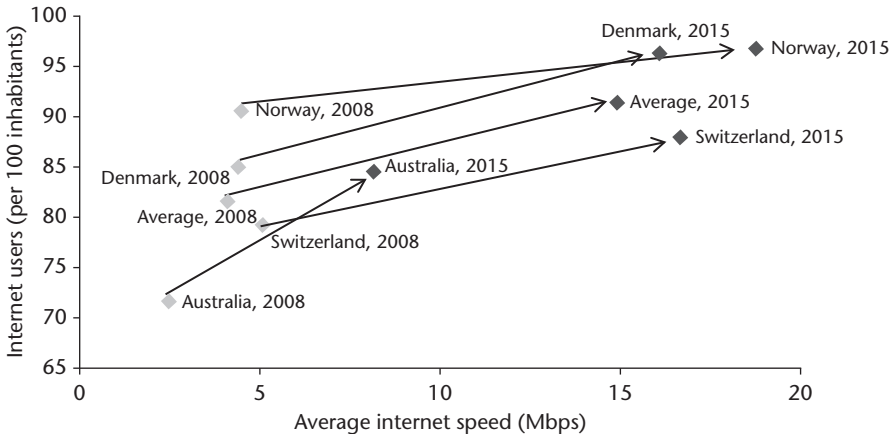


Figure 3.2. The moving connectivity frontier, 2008–14, selected *developed* economies
Source: author’s elaboration based on Akamai Faster Forward, ‘The State of the Internet’ quarterly reports (available at www.akamai.com/us/en/our-thinking/state-of-the-internet-report/state-of-the-internet-connectivity-visualization.jsp) and World Bank data.

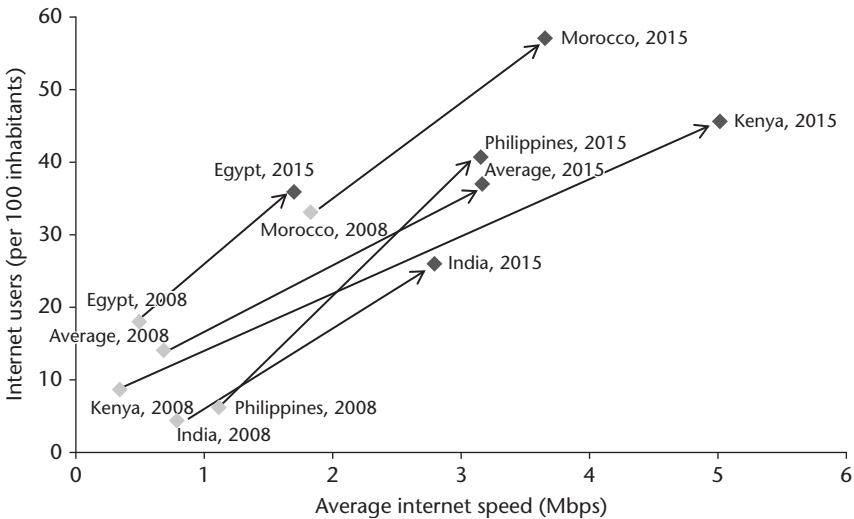


Figure 3.3. The moving connectivity frontier, 2008–14, selected *developing* economies
Source: author’s elaboration based on Akamai Faster Forward, ‘The State of the Internet’ quarterly reports (available at www.akamai.com/us/en/our-thinking/state-of-the-internet-report/state-of-the-internet-connectivity-visualization.jsp) and World Bank data.

were outside their realm, or with respect to which these countries had at most marginal participation.

Despite the importance of the dissemination of hand-held devices and similar general-purpose technologies, their usefulness as a transformative

instrument will still depend on robust connectivity and the quality of ICT infrastructure, as well as the factors that determine the intensity of use. Obviously, the technologies and platforms discussed in Section 2 are not a *deus ex machina* of trade, be it in goods or services. Nevertheless, they do provide the first breakthrough for developing countries that might shorten the long ascent towards relevance in world trade flows, beyond the now-past commodity super cycle. As noted in the next section, countries would do well to mobilize resources required for universal access and high-quality connectivity, and attract providers by lowering entry barriers, in addition to undertaking trade facilitation and related economic reforms to make sure they capture ICT-opened opportunities.

4. ICTs and Services Trade: A Half-Opened Door to Developing Countries

At the outset, it should be noted that trade in services is already responsible for an estimated 25 per cent share of global trade (and 55 per cent in value added) and is growing at rates significantly above trade in goods. It is therefore not hard to argue for the importance of countries investing in the enabling conditions to capture a share of this market. Among those enabling conditions, it appears that ICTs will play a critical role.

When discussing ICTs and trade, it is important to differentiate between first- and second-generation *ICT-based* services trade. India has been the quintessential example of a successful trade strategy focusing on the cross-border supply of business and other advanced services, characterized by intensive use of first-generation ICTs (computers and high-speed satellite and cable links), and high levels of transportability and tradability (see Anand et al. 2015). Grounded on a combination of an elastic supply of English-speaking, well-educated professionals, and telecoms infrastructure that connected the country to the rest of the world, India's service exports have grown at a very fast rate since the mid-1990s. By 2000, India's exports of business services already amounted to US\$16 billion, and since then India's share of world service exports has tripled to over 3 per cent by 2013. A few other developing countries such as the Philippines, which shared some of the same endowments as India, followed the strategy, breaking into the cross-border supply of business services.¹²

¹² The Philippines and India are also at the forefront of ICT service exports, defined as computer and communications services (telecommunications and postal and courier services) and information services (computer data and news-related). In 2015, they made up 70.4 per cent and 67.5 per cent of total service exports. See <http://data.worldbank.org/indicator/BX.GSR.CCIS.ZS?view=map>.

Yet ICTs have moved considerably beyond computers and company-centred technologies capable of connecting them with buyers through exclusive links. This chapter focuses on the *second generation* of service exports, which the ongoing ICT revolution of this decade is beginning to expand to developing countries. The new ICT, as argued in Section 2, is fundamentally different, for it empowers people individually, as entrepreneurs, and as small and medium-sized firms to break into markets that until now have been closed to them. It does not mean that infrastructure is unnecessary, but new ICTs open new doors for connectivity, including to citizens of countries with smaller economies and lower per capita income.

A recent World Bank and World Trade Organization (2015) report noted the importance of ICTs in encouraging trade that benefits the poor. In discussing policies to maximize the gains from trade for the poor, by ‘integrating markets and improving the enabling environment’, the report underlines the importance of access to (and use of, we would add) ICTs. This would be instrumental in facilitating transportation logistics and the management of the supply chain; in allowing for business process outsourcing (in the example of India); and in offering online freelancing and other decentralized modes of connecting customers and providers, and other forms of cross-border trade in services (GATS Mode 1).¹³ Importantly, the report states that ‘export survival rates appear to be significantly higher for firms participating in e-commerce [which] is facilitating the participation of a greater number of smaller firms in international trade’ World Bank Group and World Trade Organization (2015: 46–7).¹⁴

Granted, the evidence is still scattered and of an anecdotal nature for the growth in service exports from developing countries, which can be traced back to new-generation ICT investments. At the same time, as shown in Section 2, such ICTs are changing the competitive landscape in ways that lower entry barriers for countries not as well-endowed as India, among others. *This is what is new*. Exactly because it is new—an emerging trend—it is still little understood and documented, while statistics are fraught with definition problems and data capture.

The scope of activities in this true next-generation ‘industry without smokestacks’, in which developing countries can reposition themselves, is not only large, but also hard to anticipate, as the ICT revolution reduces transaction

¹³ The General Agreement on Trade in Services (GATS) defines four modes of supply. *Cross-border supply* (Mode 1) covers services flows from the territory of one country into the territory of another country. *Consumption abroad* (Mode 2) refers to situations in which a service consumer (e.g. tourist, patient) moves into another country’s territory to obtain a service. *Commercial presence* (Mode 3) implies that a service supplier of one country establishes a territorial presence in another country. Finally, *presence of natural persons* (Mode 4) consists of persons of one country entering the territory of another country to supply a service (e.g., accountants, doctors, teachers).

¹⁴ The reference with respect to e-commerce is Suominen (2014).

costs along a multiplicity of dimensions relevant to exporters. Moreover, the human capital requirements in the new environment are based less on engineering and hard sciences, and more on creativity and tacit knowledge. Even the concept of 'user-friendly' is changing to allow massive deployment of new technologies that will facilitate the production and export of services, without resort to software engineers, computer scientists, and highly skilled professionals.

There are, however, some additional relevant considerations. ICTs in and of themselves do not radically change a country's comparative advantage, but help overcome geographical, language, and other barriers that previously isolated countries and regions. In this sense, they enhance the possibility of a country playing to its advantages. Indeed, as markets become more integrated, economic signals reach agents with less noise, allowing for more effective and timely responses. Critically, the growing flow of information allows economic agents to have a better grasp of available opportunities, while new platforms in a few years have transformed the ability of local entrepreneurs to reach consumers literally quasi-anywhere. Yet, there is considerable 'homework' to be done for developing economies to profit from the ICT revolution.

One aspect that needs attention is the fact that SSA countries are to a large degree excluded from the main discussions around ICT trade, a clear disadvantage for the development of the sector. Thus, for instance, both the Information Technology Agreement (ITA)¹⁵ and the Agreement on Basic Telecommunications Services (BTA)¹⁶ include only Mauritius and Seychelles, and Côte d'Ivoire, respectively. It would be of relevance if more SSA countries were actively involved in the discussions.¹⁷ After all, the potential to exploit new ICT technologies depends on initiatives to improve the so-called enabling environment for trade.

Among the most important are: the progressive reduction of tariff and non-tariff barriers (combined with preference schemes for the least developed); systematic efforts at trade facilitation, including improvements in procedures for border management; and the provision of trade finance (see World Bank Group and World Trade Organization 2015). In addition, the upgrading of transportation and related physical and 'soft' infrastructure (such as trade

¹⁵ The ITA was concluded in December 1996 and includes 82 countries who are committed to completely eliminating taxes and tariffs on ICT products, such as computers, telecommunications equipment, semiconductors, semiconductor manufacturing and testing equipment, software, and scientific instruments.

¹⁶ The BTA is an annex to the GATS, implemented in 1998. The agreement aims to improve telecommunications services and equipment providers by facilitating the use of public basic telecommunication services, such as voice telephone, data transmission, fixed and mobile satellite systems and services, and mobile data services, among others.

¹⁷ Interestingly, neither the ITU (2016) nor the World Bank (2016) mention the importance of African countries being an active part of those agreements.

logistics and regulations), by increasing competition in the provision of such services, has become critical.

In a not so distant past, access to landlines meant people and businesses were connected. Since the 1990s, connectivity has meant the availability of an infrastructure that enabled larger businesses and high-end consumers to link up to the rest of the world. Now connectivity needs to be understood in a radically different way. It means *high-quality (in terms of speed and stability), universal, affordable, open and safe mobile (and desktop) access to the internet*—let us refer to this as the new *access paradigm*.

Infrastructure is still needed, and clearly depends on the country's ability to attract providers of cable and other links, as Kenya—for instance—has successfully achieved in recent years. Historically, most African countries lack adequate backbone services due to the fact that they went straight to mobile networks, without investing in connectivity first. On the other hand, in developed countries fixed-line networks came first, allowing a progressive expansion in the infrastructure required for high-quality, fast connections.

It is likely that in 10–15 years the changes driven by ICTs will far surpass our current ability to predict their impact on developing countries and their ability to access markets. Yet without putting in place a set of solid, enlightened, and forward-looking policies, it is unlikely that countries will be able to capture the opportunities available in a fast-growing market. Their role will be to attract service providers of infrastructure and services, and to create an environment in which agents have both the incentives and the ability to procure the means to leverage the limited resources of these countries with some of the revolutionary ICTs, which bridge in new ways the development cleavage.

Access is the foundation. This chapter posits that what will allow people to acquire the skills to become ICT-literate, more active citizens, and to respond to market opportunities, is a commitment by governments to the adherence to the new *access paradigm*, facilitating the use of services. In particular, access will be increasingly central to exploiting possibilities in export markets hitherto simply unavailable, bridging geographical and economic distance, connecting buyers and sellers of goods *and* services.

The relationship between access and use can be further explored with the help of Table 3.3, which zooms in on ten SSA countries, and looks at the IDI¹⁸ (ICT access and infrastructure, use, and skills). Globally, the data suggest that 'access and infrastructure' are less problematic than 'use', and even more so among the sample of countries considered here. Those can be divided into three groups, with South Africa, Ghana, Nigeria, and Kenya at the top in terms

¹⁸ See footnote 4 for the definition of IDI.

Table 3.3. IDI components, selected African countries, 2016

Country	IDI	Infrastructure and access	Use	Skills
South Africa	5.03	5.46	4.00	6.23
Ghana	3.99	4.74	3.03	4.44
Kenya	2.99	3.54	2.05	3.76
Nigeria	2.72	2.96	2.28	3.13
Average (A)	2.62	3.29	1.74	3.04
Senegal	2.53	3.59	1.64	2.17
Rwanda	2.13	2.65	1.47	2.42
Uganda	1.94	2.37	1.27	2.43
Mozambique	1.75	2.90	0.62	1.74
Tanzania	1.65	2.65	0.30	2.33
Ethiopia	1.51	2.11	0.82	1.71
Global average (B)	4.94	5.58	3.91	5.74
B/A	1.886	1.696	2.247	1.888

Source: Author's calculations based on ITU data (available at www.itu.int/net4/ITU-D/idi/2016).

of IDI; Tanzania, Mozambique, and Ethiopia at the bottom; and Senegal, Rwanda, and Uganda in the middle. Although the 'use' variable seems to be correlated with per capita income, at very low levels this correspondence seems to break down. There appears to be other 'demand-side' factors at work.

'Use' and 'access' are obviously closely related; after all, use presupposes access.¹⁹ If technology—the key driver of access—can be considered exogenous to the countries of our sample, the prices of services (and equipment) are not. This is possibly the key lever. One potentially relevant policy implication is that countries should 'lean with the wind' and improve access further by opening up to competition to force prices of come down and to facilitate access—and thereby use—of improved ICTs by broader segments of the population.

If access is the foundation and entry point for taking advantage of last-generation ICTs, the question for many developing countries is how to adopt the new access paradigm and guarantee more widespread use of ICTs in the face of scarce resources. To what extent can governments leverage appropriate policies, partnerships, and cooperative arrangements in order to make new technologies and platforms as widely available as possible? Although there is no single recipe that fits all, most countries still have significant adoption barriers, many of which are 'self-inflicted'.

From this perspective, a starting point is an assessment of the country-specific barriers that discourage infrastructure investment and reduce competition for the supply of devices (desktop and mobile) and the provision of

¹⁹ A simple regression for the 10-country sample shows that the 'use' variable is weakly related to per capita income, but more strongly associated with 'access'. A one-point improvement in access is correlated with a 0.65 gain in 'use'.

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services. To the extent that such barriers are significant or even binding, they need to be removed, in so far as the price—and quality—of products and services are determinants of their diffusion. From this perspective, policy and regulatory reform that attracts investment in key infrastructure and facilitates entry and promote competition in both markets (devices and services) is the first step for countries to create an enabling environment for ICTs to fulfil their potential.

In the last few years, African countries have experienced an increase in competition for the provision of telecom services, with the entry of new companies into the market. All countries except Ethiopia have between three and six operators, a significant number. Of the ten-country sample, in six known instances market entry has occurred since 2010, with one new entry each in Kenya and Tanzania in 2015, a far cry from the days of state monopolies. The notable exception is Ethiopia, which has a single public operator (Table 3.4). Market dynamism—as evidenced by shifts in the major incumbent market shares—is more clearly observed in Nigeria, Rwanda, Tanzania, South Africa, Mozambique, and Senegal. More generally, the landscape appears to be more, not less, competitive, despite a trend towards technological convergence, which more often than not led to the overlap of markets (despite eventual mergers). Therefore, the ability of countries to attract new players appears to have never been as great as in the last five years or so.

Have these indications of market rivalry translated into lower prices of telecommunications services? Table 3.5 presents services price data for the ten-country sample and SSA economies' average in nominal terms and

Table 3.4. Market share of mobile operators, selected sub-Saharan countries

Country	Number of providers	Market share of the main provider (percentage)		Year of last entry
		2010	2016	
Nigeria	4*	62**	40	2012
Ghana	6	50	48	2011
Ethiopia	1	100	100	–
Kenya	5	70	65	2015
Rwanda	3	76	46	2012
Tanzania	7	40	31	2015
South Africa	5	51	38	n.a
Mozambique	3	60	49	2012
Senegal	3	64**	55	n.a
Uganda	5***	n/a	n/a	2014

Note: * Only GSM providers; ** 2012 data; *** main providers.

Source: Author's elaboration based on national regulatory agencies.

Table 3.5. Price of telecommunication services, selected sub-Saharan countries (US\$)

Country	Least expensive broadband service (1GB)	Normalized by per capita income**	Least expensive smartphone basket*	Normalized by per capita income**
South Africa	5.3	1.5	15.6	4.3
Nigeria	4.8	2.9	6.4	3.8
Ghana	3.9	4.4	7.8	8.9
Kenya	2.9	3.3	21.5	24.5
Senegal	8.4	14.5	8.4	14.5
Tanzania	0.9	1.6	10.3	18.7
Rwanda	4.0	9.0	n/a	n/a
Uganda	3.6	8.4	3.6	8.4
Ethiopia	7.7	19.5	21.1	53.5
Mozambique	2.9	8.7	21.5	64.3
SSA Average	12.4	12.4	67.4	67.4

Note: * Includes 1GB, 100 minutes of voice and 100 SMS (data, voice, and SMS); ** normalized with respect to the ratio of the country's and sub-Saharan Africa's 2015 GDP per capita.

Source: Author's elaboration based on data from Research ICT Africa (available at www.researchictafrica.net/pricing/ramp.php).

normalized by GDP per capita (with reference to the average of SSA countries). Some countries stand out as high-price environments in both nominal and normalized terms, both for fixed-line broadband access and the smartphone basket, such as Ethiopia—a state monopoly. At the other end of the spectrum stand Nigeria, Uganda, and Ghana, while South Africa presents a positive picture in normalized terms.

What inferences can be drawn from both tables? First, and as expected, it does not seem that a state monopoly is conducive to low prices. Second, although one would need to take a closer look to establish the reason why in some instances the presence of a large number of operators has not translated into lower prices for all services, in general this is the case. Tanzania, for instance, with seven operators, offers the lowest priced broadband services and a reasonably priced smartphone basket; so does Ghana. Kenya and South Africa—with five operators each—and Nigeria with four are also quite competitive on broadband and other services, above all when prices are normalized. Overall Uganda is a successful case in lowering entry barriers, attracting newcomers, and offering competitive prices. Third, and more generally, a competitive landscape seems to favour broader access to ICT services, and thus their more intensive use, such as in Kenya and Nigeria. Still, the relationship does not necessarily hold—as in the case of Tanzania, which is significantly 'below the curve'.

Consumers, in developing countries above all, should have at their disposal the best cost–performance combination available in the market with a minimum tariff/tax wedge: inexpensive but powerful devices such as smartphones, and a variety of service providers competing in national (and regional)

markets. Regional trade arrangements may require countries to agree to regional infrastructure investments (such as in fibre-optic rings), and to open their markets in recognition of the importance of new technologies to modernize the provision of services and spur trade.

However, governments can go further by actively engaging key service providers such as Alphabet (Google) and Facebook, which have plans to connect people in developing countries and more isolated regions at a quasi-zero cost. It is their ability to rope in users/consumers—‘the more the merrier’—and the enormous network economies of scale that are making them the economic powerhouses of this age. To a significant degree, by connecting people they serve the public interest. If in the process they capture more consumers to their services, they also provide the means for low-cost digital inclusion.

Similarly, access can be ‘traded’ for advertising time, mainly in urban areas. In other words, such areas can be ‘wired’ and access made conditional on the willingness of users to spend time being exposed to ads. Governments can negotiate—in the name of their citizens—maximum free time for a minimum advertising time. In the face of limited resources, this may be regarded as a feasible—and pragmatic—way for cities (mainly) in poor countries to move up the digital gradient. There will be a growing number of possibilities of this nature in coming years, signifying one more avenue for digital inclusion and crossing the access threshold.

A final point: policy makers need to think creatively, ‘outside the box’, to leverage the market and attract technologies that dramatically lower the cost of access, and recognize initiatives with similar objectives.²⁰ If in wealthier and more advanced economies local and even national governments may have enough resources to ‘wire’ the country in recognition of the importance of high-speed access, in most developing countries that is not the case. Thus, in addition to removing obstacles for people to access devices on the most competitive basis, and lowering entry barriers and promoting competition among service providers, including infrastructure investors, governments need to experiment with new models of public–private cooperation to bring the country the new access paradigm and improve the lives of their citizens.

²⁰ Among the most important are the *Telecom Infra Project*, which look for connectivity solutions in strategic network areas such as access, backhaul, and core and management; and *OpenCellular*, a Facebook initiative for a low-cost, open-source hardware and software solution that will support from 2G to LTE networks, amplifying mobile network signals, with each box supporting up to 1,500 connections and covering a radius of up to 10 km.

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4

Tourism Global Value Chains and Africa

Jack Daly and Gary Gereffi

1. Introduction

Tourism is an important driver of economic growth around the world, supporting an estimated 277 million jobs, generating US\$7.6 trillion in indirect revenue, and supplying 9.8 per cent of global GDP in 2014.¹ Its direct effect on global GDP was 3.1 per cent, which exceeded the automotive (1.2 per cent) and chemical (2.1 per cent) manufacturing industries, while placing it on a similar footing as the banking (3.2 per cent) and education (3.4 per cent) sectors. Moreover, the dynamism of the industry is not confined to any one region: Europe remains the most visited continent in the world, accounting for 51 per cent of all international tourist arrivals in 2014, but Asia Pacific and Africa had the highest growth rates in visitors over the decade spanning 2005–14.

With a wide array of large animals and picturesque landscapes available in many countries, Africa has long captured the imagination of international leisure travellers interested in exploring regions such as the Maasai Mara, the Serengeti, or Kruger National Park. In more recent years, the growing diversity of experiences in countries such as South Africa has helped fuel a record number of arrivals; Africa's 55.7 million visitors in 2014 were a historical apex. Table 4.1 provides context for the contribution of tourism to Africa's economy—its direct effect on GDP, its share of total exports, and its contribution to foreign direct investment (FDI) are all higher than the global average.

¹ The global and regional statistics cited in this chapter are compiled by the World Travel & Tourism Council (WTTC) and the United Nations' World Tourism Organization (UNWTO). The WTTC data can be accessed from the WTTC website: <http://www.wttc.org/datagateway/>.

Table 4.1. Global economic impact of tourism in 2014

	World	Africa	Americas	Asia Pacific	Europe	Middle East
International arrivals (millions)	1,133	55	181	263	581	51
Average annual growth rate in arrivals (2005–14)	3.8%	5.4%	3.5%	6.1%	2.8%	4.7%
Direct effect on GDP	3.1%	3.4%	2.9%	3.0%	3.4%	2.7%
Total effect on GDP	9.8%	8.1%	8.4%	9.2%	9.2%	7.4%
Direct effect on total employment	3.6%	3.0%	3.7%	3.7%	3.6%	3.2%
Total effect on employment	9.4%	7.1%	9.6%	8.5%	9.0%	7.6%
Visitor spending share of total exports of goods and services	5.7%	8.0%	7.0%	5.2%	5.6%	4.6%
Tourism investments as share of total investments	4.3%	5.9%	4.5%	3.7%	4.7%	6.8%

Source: UNWTO (2015); WTTC (2015).

While the economic importance of tourism to Africa is a central characteristic of the continent, there is variance in its profile at both the regional and country levels. Buoyed by the strength of the Egyptian and, to a lesser degree, Moroccan, Algerian, and Tunisian markets, North Africa is the most vibrant tourism destination on the continent as measured by visitors, overall spending, leisure tourism spending, and capital investments.² Southern Africa has the second largest total tourism receipts behind North Africa, with its relatively high leisure spending driven by attractions in South Africa, which had the continent's second highest tourism revenue in 2014 behind Egypt. West and Central Africa are both relatively insulated markets—foreign visitor spending accounted for only 15.9 per cent of overall tourism spending in West African countries, which is the second lowest in the world and the lowest in Africa. Central Africa, meanwhile, has the most underdeveloped tourism industry (as measured by total tourism receipts) of anywhere in the world.

The importance of the industry in East Africa is especially striking. While there are many African countries where total tourism receipts as a percentage of total exports of goods and services exceeded both the global (5.7 per cent) and continental (8 per cent) averages in 2014, Rwanda (24.5 per cent of exports), Tanzania (23.4 per cent), Uganda (17.1 per cent), and Kenya (16.5 per cent) are among the most reliant on tourism (WTTC 2015). As a

² For this chapter, North Africa includes: Algeria, Egypt, Libya, Morocco, Niger, Sudan, and Tunisia. Central Africa includes: Angola, Cameroon, Central African Republic, Chad, the Democratic Republic of Congo, Gabon, and the Republic of Congo. East Africa encompasses: Burundi, Comoros, Ethiopia, Kenya, Madagascar, Mauritius, Mozambique Reunion, Rwanda, Seychelles, Tanzania, and Uganda. Southern Africa includes Botswana, Lesotho, Malawi, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe. Finally, West Africa contains: Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Ivory Coast, Mali, Nigeria, Senegal, Sierra Leone, and Togo.

region, East Africa is the most reliant of any African region on foreign visitors, with foreign visitor spending accounting for 61.4 per cent of total tourism revenue in 2014 (WTTC 2015).

With tourism representing a very significant source of exports and foreign investment in Africa, the industry will continue to be a major economic engine moving forward. While there are opportunities, some characteristics of the global industry can impede Africa's development if policy makers do not recognize and design strategies to alleviate many constraints for firms and other stakeholders. This chapter explores the overall landscape of the tourism industry and how it influences Africa's competitiveness. It first uses the Global Value Chain (GVC) framework to focus attention on important global dynamics before elaborating the implications of those trends for African actors.³ It then discusses two approaches used to assess tourism competitiveness: (1) econometric analyses of the determinants of demand; and (2) the identification of upgrading trajectories that have been observed in tourism GVCs around the world. The chapter concludes by outlining policy interventions that can be employed to eliminate the barriers that countries frequently face when attempting to improve their positions in tourism value chains.

2. Global Tourism: A Value Chain Approach

The GVC methodology has been used to analyse the tourism industry in various regions of the world.⁴ While different types of travel have been described, this chapter is most interested in two broad categories that have distinct actors and global characteristics: leisure and business tourism. *Leisure tourism* can be defined as any trip where the tourist travels internationally for recreation. Although there are many different types of leisure tourism (sun, sand, and surf; environmental or eco-tourism; adventure; cultural; etc.), the term does not describe travel to visit friends or relatives. *Business tourism* involves travel internationally for professional reasons. It includes visits to see clients, scouting trips for potential investment opportunities, and travel for conferences. The conferences segment—Meetings, Incentives, Conferences, and Exhibitions (or MICE)—of business travel is included in the

³ The GVC framework has been developed over the past two decades by a global network of researchers from diverse disciplines to understand how globalization has changed a variety of industries (Barrientos et al. 2011; Gereffi 1999, 2005; Gereffi et al. 2005; Humphrey and Schmitz 2002; Kaplinsky 2004, 2010). It provides a holistic view of how industries are organized by examining the structure and dynamics of different actors involved (Gereffi and Fernandez-Stark 2016).

⁴ Michelle Christian has published many research papers on the tourism industry using a GVC lens (Christian 2013, 2015; Christian and Nathan 2013; Christian et al. 2011).

business tourism GVC. The following sections outline the organization of both the leisure and business tourism GVCs before pivoting to an analysis of the African tourism industry.

2.1. *Leisure Tourism GVCs*

Building upon distinctions outlined by Christian and Nathan (2013), the leisure tourism GVC can be divided into three categories of actors: consumers (or end markets), distribution intermediaries, and service providers.⁵ Lead firms assemble and package individual services into cohesive travel experiences. Their power derives from the ability to draw on the capabilities of large, global networks of service providers, while also having direct access to consumers or travel agents (Christian 2013). Most often, these actors are distribution intermediaries such as online portals, tour operators and Destination Management Companies (DMCs), although in some cases, powerful individual service providers such as international airlines and hotels may act as lead firms by bundling and selling tourism products. The identity, power, and linkages among actors depend on the distribution channels that consumers use to access the product. The dynamics associated with each are outlined below. Table 4.2 includes a description of each actor.

DIRECT BOOKING DISTRIBUTION CHANNEL

Consumers may choose to bypass distribution intermediaries and book directly with service providers. Examples include leisure tourists who book vacations directly through service provider websites (Delta or Marriott, for example) or research excursions independently. In these instances, the flow of consumer money proceeds straight from the customer to international airlines and domestic transport, lodging, hospitality, and excursion businesses.

ONLINE PACKAGE DISTRIBUTION CHANNEL

The 'Online Package' distribution channel accounts for the industry's most dynamic growth in the last decade. While the global industry is largely fragmented, the emergence of online portals Expedia and Priceline has led to an industry evolution. These two companies had combined sales of approximately US\$100 billion in 2014 and have posted the highest growth rate of any intermediary in all distribution channels in the last five years. Their emergence has encouraged consolidation. That trend is likely to continue, with Expedia purchasing rival Orbitz in 2015.

⁵ Daly and Gereffi (2017) provides a graphical illustration of leisure tourism value chain: see Figure 2.

Table 4.2. Major job profiles and skill levels in tourism value chains

Position	Description	Education/Training	Skill level
Distribution Intermediaries			
Global Tour Operator	Manufacturers and wholesalers. Together with DMCs, they purchase services from individual providers and assemble them into leisure tourism products. Access to consumers and knowledge of local market is most significant value addition.	Technical certification/Bachelor's degree for owner or management	Medium/High
Inbound Tour Operator/ DMC	Both inbound tour operators and DMCs can aggregate domestic services and sell to foreign distribution intermediaries. They are differentiated by customers: companies where the majority of sales are directly to consumers are inbound tour operators; DMCs rely on global tour operators to provide the majority of clients and serve as ground-handlers.	High school diploma/technical education	Medium/High
Travel Agent	Retailers who largely sell package tours. As a primary point of contact with consumers, they create trust that the experience will conform with expectations.	Certification programme/technical education	Medium
Service Providers			
Lodging Management	Responsible for hotel operations, budgets, supervising quality standards, hiring and training, enforcing policies, and monitoring profitability.	Bachelor's degree/management training	Medium/High
Airline Agents	Responsible for sales and customer service including reservations, check in, and missing baggage.	High school diploma/on-the-job training	Medium
Lodging Front Office	Responsible for check in and check out, customer feedback and assistance, and managing reservations and room assignment.	Technical diploma or certificate programme/on-the-job training	Medium
Restaurant/ Bar Staff	Operate local restaurants. Coordinate food supplies. Prepare and serve restaurant clients.	Technical diploma or certificate programme/on-the-job training	Medium/Low
Retail	Offers tourist products such as artisanal crafts and souvenirs for tourists to buy.	No formal education/on-the-job training	Medium/Low
Local Guides	Lead local excursions to location-specific sites. Often must be certified.	Certificate programme/on-the-job training	Low/Medium
Drivers	Responsible for transporting visitors to and from airports, hotels, and sites. Most are licensed.	No formal education/on-the-job training	Low/Medium
Housekeeping	Responsible for cleanliness, room preparations, laundry, inventory, and maintenance.	No formal education/on-the-job training	Low/Medium

Source: Authors' illustration based on Christian et al. (2011) data.

PACKAGE BOOKING DISTRIBUTION CHANNEL

The 'package booking' distribution channel includes a network of travel agents, global tour operators, inbound tour operators, and DMCs. Beyond questions of physical infrastructure and in-person communication, a key differentiator between online agencies and the traditional network of travel agents, tour operators, and DMCs is the latter's ability to sell itinerary-based tour packages; thus far, online agencies have largely been unable to replicate this practice. Depending on the location, travel agents, tour operators, and DMCs further distinguish themselves by assisting with visa applications and the acquisition of wildlife and park permits.

Intermediaries in all distribution channels rely on service providers for many of the experiences that travellers associate with tourism products. The broad categories include international and domestic transport, lodging, hospitality, and excursions. In terms of unit costs, the most significant inputs are airline flights and lodging. The consumer usually encounters international and domestic transport first before engaging hotels, restaurants, and other destination-specific attractions. The individual service providers have ranges of quality and scale, as well as different degrees of vertical and horizontal integration. Some products and services fit into multiple segments; restaurants or food and beverage can be considered in both hospitality and excursions. Many excursion experiences, especially related to eco-tourism, are offered through local guides.

Globally, these distribution channels and categories of actors directly supported roughly 105 million jobs in 2014 and indirectly sustained an estimated 277 million jobs (WTTC 2015). There is a wide variance in the value-creation potential as well as the skill levels associated with each group of workers across the value chain. Table 4.2 provides an overview of the major jobs and skills levels associated with each. The highest employment opportunities are regularly found in the service-provider segment of each chain, although these jobs are often lower skilled.

2.2. *Business/Conference Tourism GVC*

Business tourism GVCs can be divided into the same categories as the leisure tourism GVC: consumers, distribution intermediaries, and service providers. There is further overlap between the two chains, with many of the same service providers and distribution intermediaries active in both. There is also frequent spillover, with business travellers regularly extending trips to experience local sights.

There are, however, important differences in the identity, characteristics, and value-addition propositions of the lead firms in the leisure and business tourism value chains. The 'Online Package' distribution channel is used less frequently

in the business tourism segment compared with leisure. Instead, the lead firms in business tourism are Travel Management Companies (TMCs), which offer travel management and analytical services that are designed to help clients reduce costs during trips and overall demand for travel. Compared to leisure, the global market is highly consolidated, with four leading TMCs as measured by annual revenue: American Express Global Business Travel, Carlson Wagonlit Travel, BCD Travel, and HRG Worldwide (Travel Weekly 2015).

Depending on demand for travel to a location, TMCs will either open wholly owned subsidiaries or joint ventures, or pursue partnership arrangements in new markets to manage client travel. Partnership arrangements are the most common (Daly and Guinn 2016). There are significant differences in the skill sets and licences that are required for local firms to participate in the business tourism chain. To ensure adherence to company travel guidelines, TMC affiliates are expected to collect different kinds of information for the parent company, much of which requires some level of training. Additionally, International Air Transport Association (IATA) certification is an obligatory step for TMC partners.⁶

Finally, the MICE segment is an important component of the business tourism value chain, providing a high value-added opportunity to increase overall arrivals. There are two primary distribution channels for conference events: (1) Host organizations may have internal departments that assist with the planning of large and medium-scale meetings, allowing them to perform many of the logistical preparations internally; and (2) consumers may engage conference specialists or convention bureaus to stage events. National, regional, or local convention bureaus can be instrumental in pursuing conference opportunities. These bodies often depend on organizations such as the International Congress and Convention Association (ICCA), the Society of International Travel Executives (SITE), Meetings Professional International (MPI) and the Professional Conference Management Association (PCMA). Globally, ICCA is the most prominent industry association, providing more than 1,000 public- and private-sector actors with access to the marketplace of worldwide MICE events. ICCA gathers information about meetings that rotate among at least three countries and attract a minimum of 50 participants.

3. Africa and the Global Tourism Industry

The organization of the tourism GVC provides a context for understanding how tourism may drive export growth in Africa and the steps that can be taken

⁶ IATA is the global trade association for the airline industry and represents over 260 airlines worldwide.

to improve the continent's position in the tourism GVC. Various characteristics of the African tourism industry vis-à-vis the global landscape are worth accentuating. These include the following:

1. The traditional 'Package Booking' distribution channel has proven to be more durable in Africa than elsewhere
2. Low domestic demand for African tourism elevates the position of global lead firms.
3. The pre-eminence of global lead firms influences the linkages vs. leakages dynamics observed in Africa
4. Business tourism constitutes a greater share of overall tourism receipts in Africa than in other locations
5. Government policy encourages bottlenecks among critical service providers that impair African tourism.

The following sections address each dynamic in greater detail.

3.1. *Package Booking*

While the 'Online Package' distribution channel has gained in importance as Expedia and Priceline have become the largest two companies in the travel industry as measured by annual revenue, the 'Package Booking' distribution channel remains an entrenched feature of African leisure tourism. Data on the experience of travellers in a cluster of East African Community (EAC) countries highlight this feature. A survey of visitors to Uganda reported that 21 per cent of leisure tourists were part of package tours, with nearly 80 per cent of those package tourists indicating that they preferred to travel independently when outside Uganda (World Bank Group 2013). In Tanzania, a recent study of leisure visitors reported that 75.3 per cent were part of packaged tours (Tanzania National Bureau of Statistics 2015).

The 'Package Booking' distribution channel continues to be popular for multiple reasons (Daly and Guinn 2016). These include: (1) The appeal of itinerary-based travel in a region where wildlife and parks are attractive products; (2) the general unfamiliarity of international tourists with the continent; (3) concerns about the ability of inbound operators to deliver quality products; and (4) the difficulties associated with organizing domestic transport and other services independently.

3.2. *Global Lead Firms*

With lead firms earning their position partially through their access to consumers, the source of demand has implications for the composition and

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characteristics of tourism value chains. Domestic consumers allow national or regional businesses to improve their position by eliminating the need to network and share profits with global distribution intermediaries. In a study comparing Asian and Africa markets, Christian and Nathan (2013) noted that tourists tend to use tour operators based in their home region because of trust issues. ‘In Asia’, the authors wrote, ‘domestic tourists far outnumber foreign tourists, resulting in a stronger position for national tour operators, who do not have to rely on sub-contract relationships with global tour operators to receive clients’ (p. 15).

That is not the case in Africa, especially regions that depend heavily on foreign demand. While foreign spending represents roughly 28 per cent of tourism receipts around the world in 2015, it accounted for almost 38 per cent of total tourism spending in Africa (see Table 4.3). In individual countries where there is a strong base of domestic tourism—nations such as China, Japan, Germany, Mexico, the United States, the United Kingdom, France, and Italy—foreign spending represents 10–30 per cent of total tourism revenue.

Local tour operators in certain African locations are constrained by low levels of domestic demand for tourism. East Africa is among the global regions most dependent on foreign visitor spending (61.2 per cent of total spending). Kenya and Tanzania have long been prominent destinations in safari circuits, with national parks such as the Maasai Mara in Kenya and the Serengeti in Tanzania receiving North American and European visitors in high volume. More recently, locations in Rwanda have become mainstays on the itineraries of high-end, luxury clients who consider the country’s mountain gorillas a ‘bucket list’ experience. However, most of these Western visitors use lead firms such as Abercrombie & Kent, Cox & Kings or Wilderness Safaris, which are based outside the region.

3.3. Linkages vs. Leakages

The pre-eminence of global lead firms has implications for the value captured by domestic actors who participate in the chain. With foreign tour operators,

Table 4.3. Breakdown of global foreign and domestic visitor spending, 2015

Region	Total Tourism Spending	Foreign Visitor Spending	Domestic Spending	Foreign Visitor Percentage
World	4,729	1,309	3,420	27.7%
Africa	124	47	77	37.8%
Americas	1,493	297	1,196	19.9%
Asia Pacific	1,426	386	1,040	27.1%
Europe	1,552	507	1,046	32.6%
Middle East	133	72	61	54.4%

Note: All figures US\$ billions.

Source: WTTC (2015).

hotel companies, and investors often controlling supply chain decisions and procurement opportunities, linkages between tourism and supporting industries sometimes remain underdeveloped. The pro-poor tourism literature advanced by Mitchell and Ashley and similar researchers investigates linkages in extensive detail. Mitchell and Ashley (2010) conducted a broad literature review and estimated that the empirical evidence suggests that roughly 25–33 per cent of total tourism revenue is captured by the poor in developing countries through direct earnings and indirect multipliers in the supply chain.

Although tourism and agricultural industries have a complicated relationship that is sometimes characterized by competition for land rights (Torres and Momsen 2011), there are also thick ties between the two. Mitchell and Ashley (2009) mapped the flow of tourism expenditures throughout the Ethiopian economy. According to the analysis, Ethiopian tourists spend roughly US\$55 million on food and beverages; of this, hotels purchased US\$16 million from 6,300 domestic producers to support an estimated 25,000 farm jobs.

Many South African safari lodges also have relatively strong linkages with the domestic food supply chain. Rogerson (2012) surveyed eighty lodges in six distinct regional clusters to examine local sourcing of eight food categories: (1) vegetables; (2) fruit; (3) eggs; (4) dairy products; (5) meat; (6) luxury goods; (7) tinned goods; and (8) dried goods. The average sourcing distance was the shortest for fruit, eggs, and vegetables. Considering the robust demand from each location for all three goods—each lodge, for instance, ordered 250 kilograms of vegetables per week—the potential benefit for domestic actors in each industry is significant.

While 77.5 per cent of the population of lodges in the Rogerson study were owned by South African companies, backward linkages between tourism and agribusiness persist in markets with foreign lead firms. Spray and Agarwal (2016) studied linkages in the tourism industry in Rwanda, which is characterized by high degrees of foreign visitor spending and ownership. Only 3 per cent of the total imports from tourism were from the agriculture, forestry and fishing sectors, which suggests local sourcing suffices to some degree. Instead, the largest imports in the tourism industry in Rwanda were related to construction: base metals, machinery, mineral products, and stone and cement.

3.4. *Business Travel*

Globally, 23.4 per cent of the roughly US\$4.7 trillion spent on tourism in 2015 was for business travel. However, the figure was far higher in Africa than in any other region in the world—30 per cent of total tourism spending on the continent, compared to 25 per cent in North America, 23 per cent in Europe, 22 per cent in Asia Pacific, and 18 per cent in the Middle East. The significance of business travel becomes more apparent if one analyses

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individual country data. Sixteen of the top seventeen countries in the world with the largest share of business travel in their overall tourism portfolio are African nations (WTTC 2015).

The demand demographics associated with business travel are generally domestically or regionally oriented. This promotes the opposite dynamic to the one in leisure tourism GVCs—whereas the lack of local demand inhibits the development of domestic businesses in leisure, high local spending promotes the development of local and regional companies that offer inbound and outbound services to business clients. Satguru is one of the more prominent examples. The TMC, which began in Kigali in 1989, has expanded its services to 43 African countries with more than 800 total employees and moved its world headquarters to Dubai. Satguru serves as a Carlson Wagonlit partner in 19 countries in Africa and accounts for more than 50 per cent of airline bookings in multiple markets (Daly and Guinn 2016).

A high share of business travel is, in some cases, reflective of a low demand for leisure tourism. However, the emerging MICE segment of business travel presents opportunities to increase arrivals and drive spillovers into the leisure chain. Within Africa, South Africa is the leading provider of international association meetings. South Africa's success is partially driven by its wide network of public and private actors that have ICCA membership. South Africa has 24 ICCA members and had 531 ICCA meetings during the period from 2011 to 2015, far surpassing its peers (see Table 4.4).

3.5. Bottlenecks among Service Providers

The most prominent service providers are lodging and airlines. Each segment of the chain has supply constraints in Africa. Lodging has two distinct profiles

Table 4.4. Leadings sites for international association meetings in Africa, 2011–15

Country	ICAA Members	ICCA Events by Year				
		2011	2012	2013	2014	2015
South Africa	24	84	97	118	124	108
Morocco	1	23	23	30	36	36
Egypt	2	22	18	17	13	22
Kenya	4	30	29	38	24	19
Tunisia	0	8	12	18	7	17
Tanzania	2	15	16	12	6	16
Ghana	0	15	10	17	6	13
Rwanda	1	2	—	4	5	13
Ethiopia	3	10	7	8	5	12
Nigeria	1	12	7	12	6	9

Note: (—) indicates data unavailable.

Source: ICCA (2015).

in the leisure and business chains; while small lodges and camps close to national parks are prevalent in leisure, the lodging sector in the business tourism value chain is populated by larger hotel companies. The more notable regional companies include Serena Hotels, which is based in Nairobi, and Protea Hotels, which is a South African-based company that was recently purchased by Marriott.

Government policies sometimes restrict the availability of leisure accommodation. In a comparison between popular leisure tourist destinations in Kenya and Uganda, Christian (2015) noted that a liberal concession policy towards new properties allowed hotels to proliferate in Mombasa, while in Murchison Falls National Park in Uganda, tight control by the Uganda Wildlife Authority over the distribution of new licences favoured the embedded power structure and created a scarcity of new developments.

There are significant bottlenecks surrounding the airline industry as well, with government policy again playing a role. In a review of the EAC's aviation market, Schlumberger and Weisskopf (2014) noted that the emergence of low-cost carriers (LCCs) could bolster tourism value chains by increasing usage of secondary airports, distributing traffic more evenly throughout the year, and offering lower off-peak fares. A critical step towards the development of new carriers is the deregulation of domestic and regional air markets. Although regions in Africa are broadly committed to the Yamoussoukro Decision to liberalize air travel, some rely on bilateral accords between states to accomplish the targets outlined in that agreement.

4. Assessing Tourism Competitiveness

As the economic benefits associated with tourism have become more widely recognized, researchers have attempted to identify the factors that enhance national or regional performance in the industry. There are different methodological approaches that influence findings. This section of the report summarizes two major ones used by social scientists. The first involves the econometric modelling favoured by economists. The second highlights the qualitative and quantitative approach employed by researchers who use the GVC methodology.

4.1. *Econometric Analysis*

The need to add to the academic literature surrounding the factors that determine tourism performance has been recognized by a handful of economists (Crouch and Ritchie 1999, 2005; Blanke and Chiesa 2009). While

organizations such as the WTTC publish annual Travel and Tourism Competitiveness rankings that score individual countries based on major categories of variables, those metrics do not test actual performance against measurable data points. Several studies have attempted to fill the breach.

Assaf and Josiassen (2012) used regression analysis to rank the determinants of tourism performance at a global level and score individual countries. The most important five positive factors were: government expenditure on tourism; GDP per capita; the quality of airline service; the service-mindedness of the population towards foreign visitors; and the stringency of environmental regulations in the tourism industry. The five most important negative factors identified in the study were: high crime rates; fuel prices; hotel prices; CO₂ emissions per capita; and visa requirements. The authors then ranked the 20 countries as the best and worst performers. While no African countries were in the top category, Senegal, Chad, Madagascar, Kenya and Gambia ranked as the lowest five performers in the world. Mauritius and South Africa were also in the bottom 20.

Tsionas and Assaf (2014) built upon this foundation to develop a dynamic stochastic frontier model to measure technical efficiency for tourism markets. Tsionas and Assaf (2015) then extended the methodology by exploring the persistence of technical efficiency over short- and long-term time horizons. The latter study used a variety of quality indicators broadly grouped in three categories (infrastructure, human resource, and natural and environmental) as well as inputs such as hotel capacity, capital investment in tourism, and total number of tourism employees. They then analysed them against outputs such as international tourism arrivals, domestic tourism receipts, international tourism receipts, and average length of stay. Data constraints prevented many African countries from being ranked; however, Mauritius, Madagascar, Kenya, Morocco, and Tanzania were the most technically efficient African markets, while Gambia, Libya, Mozambique, Chad, and Senegal were the most inefficient.

While Tsionas and Assaf provided a dynamic model for global tourism performance, they did not concentrate on the characteristics associated with Africa. Naudé and Saayman (2005) used both cross-sectional and panel data in the period from 1996–2000 for forty-three African nations to identify the factors that influenced demand for tourism on the continent. While the authors detected substantial variation depending on the inbound and outbound country, there were four overarching conclusions: (1) political stability is especially important to American travellers; (2) communication infrastructure as measured by internet usage is a significant consideration for all travellers; (3) the urbanization rate has a positive correlation with tourism arrivals; and (4) travel to Africa is not as price sensitive as developed markets.

4.2. *Upgrading in the GVC Literature*

Upgrading in the GVC literature describes how actors can improve competitiveness and increase benefits from participating in global industries. There are both economic and social dimensions to upgrading: *economic upgrading* describes how firms or countries can add value to production or move into higher value activities; *social upgrading* encapsulates improvements in measurable standards (type of employment, wages, working hours, and social protections) and the enabling rights of workers (rights to collective bargaining, freedom of association, and non-discrimination) (Barrientos et al. 2011).

Economic upgrading includes a variety of forms. *Product upgrading* describes the shift into the production of higher value products or services. *Process upgrading* includes improvements in the efficiency of the production systems such as incorporating more sophisticated technology. *Functional upgrading* is when actors acquire new functions or abandon existing ones to increase overall competitiveness. *Chain upgrading* is when firms or countries move into new—but often related—production activities by leveraging existing capabilities (automotive parts manufacturers generating aerospace material is an example). Finally, *end-market upgrading* describes incursion into new market segments (Gereffi 2005; Gereffi and Fernandez-Stark 2016; Humphrey and Schmitz 2002).

The concept of upgrading provides a useful foundation as African stakeholders consider how to encourage the development of the tourism industry while recognizing some of the organizational features and determinants of demand outlined in previous sections. The following section outlines examples of upgrading that have been observed in Africa.

PRODUCT UPGRADING

Improvements to leisure tourism products that appeal to local and regional customers can help empower the position of domestic distribution intermediaries by providing access to customers without having to rely on sub-contractual relationships with global lead firms. An instructive example can be found in Rwanda, where the Rwanda Development Board (RDB) formed a Public–Private Partnership (PPP) in 2009 with African Parks, which is a conservation NGO based in South Africa, to manage Akagera National Park. Since taking over, African Parks has implemented several product upgrades, which boosted visitor traffic by 130 per cent, mostly by increasing the number of Rwandans travelling to the park. Specific strategies and upgrades have included improving road infrastructure to ensure that visitors can see wildlife from their car (management believes that residents prefer driving safaris), keeping the entry fee low for Rwandans and EAC members, and implementing an expansive marketing campaign. Instead of online advertising, African Parks

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used local print media, billboards, and broadcast media inside Rwanda. Data provided by the park in 2015 indicated that it was projected to break its record number of total visitors (Daly and Guinn 2016).

PROCESS UPGRADING

Given the durability of the 'Package Travel' distribution channel in Africa, domestic distribution intermediaries must be able to forge relationships with global tour operators to access customers. An important process upgrade for leisure tourism business is either to outsource marketing efforts to an external firm or to improve its internal communications skills. Outbound tour operators and DMCs connect most frequently through travel and tourism trade fairs or communication through email. To present their products in the most favourable light, inbound tour operators and DMCs sometimes hire external companies to help sell their products and improve websites. Additionally, tourism boards regularly assist by contracting with outside marketing firms to create location-specific marketing products.

FUNCTIONAL UPGRADING

There are numerous examples of functional upgrading within Africa's tourism value chains. Christian (2013) outlined the traditional trajectory in leisure tourism value chains: distribution intermediaries often begin as service providers (local guides) before becoming local tour operators, and then they progress to DMCs and finally inbound tour operators. While adopting these responsibilities, they may also vertically integrate by adding lodges and/or restaurants. Services providers may functionally upgrade by including capabilities in the other input categories; hotels and lodges can add restaurants (and vice versa) or offer tours to guests.

Steps taken by the Rwandan government illustrate how countries can attract FDI that can facilitate functional upgrading. This can have the dual effect of increasing the value captured by domestic businesses while also augmenting the supply of key inputs. Wilderness Safaris, a Botswana-based tour operator that specializes in luxury safaris, entered a joint-venture agreement with Albizia, which is the parent company of Thousand Hills and Amber Expeditions, two DMCs and inbound tour operators based in East Africa. Together, both groups approached Horizon Group, an equity firm based in Kigali that is wholly owned by the Rwandan government, to provide financing for investments in Rwanda. Those conversations led to the formation of Imizi, a lodge holding company whose shareholders are Albizia, Wilderness Rwanda and Horizon Group. In 2015, Wilderness Safaris then announced that it planned to build two properties in Rwanda that will open in 2017. As part of the arrangement, Wilderness Safaris will provide sales and marketing assistance for Albizia's tour operations (Wilderness Holdings 2013).

CHAIN UPGRADING

Accessing the business tourism GVC can provide reliable revenue streams for leisure tourism distribution intermediaries by serving as affiliates of TMCs. There are, however, potential barriers to entry for new actors. There is a high degree of monitoring and control exerted by TMCs over their domestic affiliates, especially in the early stages of the relationship. Whereas links in the leisure tourism value chain develop through marketing and networking efforts, relationships in the business tourism GVC depend on quantifiable data and certifications.

The MICE sector also provides opportunities for diversification. Conference tourism has its own unique characteristics, with networks of conference specialists, conference associations, and Professional Conference Organizers (PCOs) serving as the primary distribution intermediaries. PCOs overlap in responsibilities with DMCs or the domestic partners of TMCs; however, there are skills that require additional training. One of the reasons for the divergence is the scale of conference events. Whereas distribution intermediaries in the leisure and business value chains rarely deal with large groups, MICE events can attract hundreds or thousands of delegates, which presents logistical challenges that are on a scale not generally encountered in the leisure tourism GVC.

END-MARKET UPGRADING

The ability to tap into North American markets represents end-market upgrading for African countries, with tour operators in some cases charging more for American customers for similar packages. Despite the low volume of Asian visitors in most African destinations, Asia can also represent an end-market upgrade for the following reasons: (1) China is the top source market for outbound tourists in the world and increased its spending by 27 per cent in 2014 compared to the previous year; and (2) tour operators report that Indian and Chinese consumers often travel at different times of the year than European and North American clients, providing business during slow seasons.

5. Policy Recommendations

The tourism industry has been a popular topic among international organizations and academics, which has led to a wide range of recommendations for policy interventions that focus on various areas, including: infrastructure provision; regulating markets such as aviation; setting quality, training, and environmental standards; developing border policy; and stimulating tourism demand and investment (OECD 2014). Employing a GVC perspective for the analysis provides insights that both reinforce the traditional orthodoxies and

offer unique perspectives. Holistic approaches that improve the position of distribution intermediaries and service providers should be prioritized. Although service providers regularly offer the largest opportunity for employment in each chain, it is the distribution intermediaries who often control the sector's upgrading potential by facilitating links with end markets.

Policy makers can play a role in helping to overcome barriers that can inhibit the upgrading described in the previous section. These constraints can be broadly aggregated into the following categories:

- **Access to consumers:** Distribution intermediaries in many regions in Africa are dependent on foreign consumers; travellers in these regions are most likely to use global tour operators to arrange packages in the region. This obstacle can be partially mitigated through both demand- and supply-side strategies. On the demand side, efforts can be made to facilitate product upgrades that appeal to African travellers, such as the ones employed by African Parks at Akagera National Park after the RDB outsourced management to the group (see Product Upgrading section). On the supply side, tourism boards can perform direct outreach to consumers in critical markets through travel and trade shows or concentrated marketing campaigns among African-focused travel agents. Tourism boards also play a role in boosting the communication skills of domestic tour operators or travel agents through professional development events and other training
- **Skills training:** Management, organization, communication and computer skills are critical for distribution intermediaries and service providers that seek to upgrade their position in the chain. There are international programmes designed to teach these skills to students, with the UNWTO. TedQual certification programme being perhaps the most prominent example. The certification process for UNWTO.TedQual targets hospitality institutions and evaluates schools based on the quality of their tourism instruction, training, and research programmes. However, Africa only has two schools that have earned certification—Utalii College in Kenya and the Hotel and Tourism Training Institute Trust in Zambia. Governments can play a role in either exploring the creation of hospitality programmes at existing institutions, or providing funding mechanisms and scholarships for domestic students to study in Kenya or Zambia
- **Concession, investment and management policies:** As Christian (2015) noted in her study of Kenyan and Ugandan tourism investment regimes, government policies affect which governance models take root. Minimal investment regulation has been observed in Kenya, encouraging overdevelopment in certain locations, and thereby weakening the negotiating position of domestic service providers with distribution intermediaries.

Kenya's approach to tourism investments and concession areas contrasts with EAC peers such as Uganda and Rwanda. In Uganda, the Uganda Wildlife Authority exerts significant control over development in and around national parks, limiting the number of concession agreements that are disbursed. While this reduces overall employment, it empowers the position of the service providers that are active in the country. In Rwanda, the government, through the RDB, takes an aggressive approach to cultivating PPPs with conservation-focused organizations that have allowed Rwandan distribution intermediaries to functionally upgrade through agreements with global lead firms

- **Infrastructure:** Infrastructure throughout African markets is a well-known impediment. The constraints associated with air travel—prominent market distortions, mediocre safety records, high input costs, among others (Schlumberger and Weisskopf 2014)—were highlighted earlier in the chapter, and road quality also remains a prominent concern in many locations. Additionally, Naudé and Saayman (2005) detailed how connectivity to the internet and communication infrastructure are important considerations for travellers to Africa from all continents
- **Institutionalization:** Formal institutions such as ministries of tourism and tourism boards can encourage coordination that ensures that stakeholder interests are aligned. Rwanda provides an illustrative example of the benefits of formalizing institutions to attract large-scale meetings. The RDB used a loan through the World Bank to contract with the Business Tourism Company, a firm based in South Africa, and to craft a MICE strategy that was completed in 2014. That document led to the creation of the Rwanda Convention Bureau (RCB). The RCB has helped to attract more events by joining ICCA, the industry association that provides public- and private-sector actors with access to the marketplace of world-wide MICE events. The nascent efforts have led to a quantifiable increase in conferences; Rwanda had thirteen ICCA events in 2015 (see Table 4.4), which was more than its aggregated total from 2006–11. Its 2016 calendar included high-profile World Economic Forum and United Nations Environment Programme events
- **Strengthen linkages with domestic industries:** Underdeveloped linkages between tourism and sectors such as agriculture and construction can inhibit industry development and limit the economic benefits associated with tourism. South Africa has taken a proactive role in addressing these concerns through its Fair Trade in Tourism South Africa and its Responsible Tourism guidelines that seek to maximize local economic benefits (Spenceley et al. 2002). As part of the effort to increase linkages and reduce leakages, the South African Department of Environmental

Affairs and Tourism set guidelines for responsible sourcing—purchases that are made from businesses within 50 kilometres. While adherence to the targets has been uneven (Merwe and Wöcke 2007), the initiative provides a foundation that can be enhanced by addressing the poor communication and mistrust that sometimes characterizes the relationship between food supply decision-makers, intermediary supplier organizations, and local producers (Rogerson 2012).

6. Conclusion

This chapter has identified some of the most prominent features of African tourism, employing a GVC framework to ground its analysis. While the traditional ‘Package Booking’ distribution channel remains strong on the continent, the limited domestic demand for tourism in Africa requires domestic actors to rely on global tour operators to provide customers, which provides those companies with a high degree of market power. It also poses risks that weak backward linkages with supporting industries will cause the economic gains associated with tourism to accrue to foreign actors.

Business tourism is also a significant component of travel to Africa—the percentage of business tourism revenue as part of overall tourism revenue is greater in Africa than in any region in the world. While the high share of business tourism is in some cases a reflection of low demand for leisure products, business tourism provides at least two opportunities for African nations: (1) the demand demographics associated with business travel are generally domestically or regionally oriented, which allows for the emergence of domestic companies; and (2) the emerging MICE segment of business can be targeted to increase arrivals and drive spillovers into the leisure chain.

Policy interventions can be used to increase efficiency and facilitate economic upgrading. This chapter identified six areas where stakeholders can focus attention: (1) access to consumers; (2) skills training; (3) concession, investment, and management policy; (4) infrastructure; (5) institutionalization; and (6) linkages with domestic industries. Although these challenges cut across Africa, nations and regions should prioritize prescriptions that align with individual profiles.

There is variation in the tourism footprint that can be observed in different regions and countries across Africa. East Africa’s reliance on the industry is notable, and South Africa is a leader in institutionalization. With tourism likely to remain a critical source for African exports and FDI, understanding these characteristics, as well as the dynamics associated with the global industry and how it links with local actors, is a critical consideration for improving overall competitiveness in the continent.

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5

Agro-Processing and Horticultural Exports from Africa

Emiko Fukase and Will Martin

1. Introduction

Agricultural exports from sub-Saharan Africa (SSA) include a much larger share of bulk agricultural exports than is the norm on world markets, where processed products have come to dominate.^{1,2} In looking at how Africa might move beyond traditional bulk exports and the resource-based exports that are also disproportionately important in Africa, a few questions appear to be key. Should African exports move into labour-intensive manufactures of the type that have dominated the export-led growth of Asian economies from Hong Kong, Korea, and Taiwan (China), through China, Bangladesh, Cambodia, and Vietnam (Page 2012; Newman et al. 2016b)? Should they pursue alternative approaches such as adding value to existing agricultural exports or developing new high-value agricultural exports? Or should policy makers undertake strategies to encourage entrepreneurs to look everywhere for opportunities, recognizing that it will often be difficult to find successes, but that the rewards from identifying a highly successful export are very great (Hausmann and Rodrik 2003; Easterly and Reshef 2010)?

Export growth is vitally important for a wide range of reasons, as it promotes economic growth, creates jobs (Fukase 2013), and is a source of the foreign

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² The focus of this chapter is on SSA countries. Throughout the chapter, we use the terms 'SSA' and 'Africa' interchangeably.

exchange needed to import goods that cannot readily be produced locally. Domestic and international policies, however, influence both the level and the mix of products that are traded. In recent years, the 'trade in tasks' in the new wave of globalization (Baldwin 2006, 2016) appears to have been creating new opportunities for African countries to tap into export markets, as they enjoy many location-specific comparative advantages. How should African governments act to influence the development of non-traditional exports, such as those from agro-processing operations, or high-value export crops such as horticultural products?

This chapter analyses the principal features of agro-processing and horticultural exports from SSA and explores policy alternatives based on simulation analyses. We first provide a conceptual section focusing on changing patterns of processing and exports (Section 2). We then examine how the pattern of exports from Africa compares with the pattern in other regions (Section 3). Following that, we examine the directions of trade in African agricultural exports and the patterns of protection facing, and imposed by, African countries (Section 4). Next, we turn to simulation exercises to examine the impacts of potential reforms on exports of processed and horticultural exports from Africa (Section 5). With this as background, we turn to consider the options for policy makers in Africa (Section 6). The final section presents a brief conclusion (Section 7).

2. Changing Patterns of Processing and Exports

Prior to the Industrial Revolution and the development of steam transport, international trade was very limited because of high transport and communication costs. Some very high value-to-weight items such as spices and gemstones were traded over long distances, but most foods and manufactures were produced locally. Basic production patterns and income levels were similar across the world.

As noted by Baldwin (2006, 2016), the first wave of globalization frequently involved the production of raw materials in developing countries, with the processing of those products into final manufactured goods generally taking place through vertically integrated production processes in industrial countries. During this phase, communications were not sufficiently well developed to allow coordination of activities at a distance, and the capital needed for industrial development was most readily available in the industrial countries. This pattern of industrialization appeared to generate many gains from learning-by-doing in the industrial countries and to contribute to a major divergence in income levels, with incomes in the industrial countries rising far above the levels in developing countries. Developing countries, understandably, were

unhappy with this model of industrial development and frequently tried to develop their own integrated industrial sectors, often by creating incentives to process the raw materials that they produced, as suggested by Alexander Hamilton in his 'Report on Manufactures' (Hamilton 1791). Unfortunately, this frequently proved to be very difficult to achieve without excessive cost and loss to the producers of raw materials.

In recent years, changes in the costs and allocation of factors have created new opportunities for developing countries in both industrial production and further processing of agricultural commodities. Lower transport and communication costs have made it possible for more parts of the production process to be conducted in different locations. Production of garments, for example, may involve growing cotton in West Africa where agro-ecological conditions are particularly suited; making yarn and fabric (likely using blends of cotton and other fibres) in China; and assembling garments in Bangladesh. To exploit cost advantages created by these developments, firms from more advanced countries are increasingly willing to bring the capital and knowledge needed for successful production via foreign direct investment. This can obviate the very long process of learning otherwise needed to establish an entirely new export activity (Hausmann and Rodrik 2003).

The unbundled approach to global value chains involves much greater transfer of materials and knowledge than the traditional approach and hence is more demanding of logistics. Issues such as low transport costs and smooth customs clearance become important for the organization of production. Once efficient logistics are in place, however, countries with suitable agro-ecological conditions can potentially produce high-value products, such as cut flowers and fresh vegetables, which formerly needed to be produced near their point of consumption. In this case, the logistics and trade facilitation are also vitally important, given the high costs of delay. African producers of products such as green beans, cut flowers, and fresh fruit appear to have seized some of these opportunities.

Easterly and Reshef (2010) find that exports from several African countries are dominated by a small number of 'big hits' with large export shares. Whether African exports are highly specialized or not has important implications for the volatility of export returns because highly concentrated export bundles are much more likely to be volatile than more diversified export bundles. Adding processed agricultural exports to an export bundle dominated by something else—such as resource exports—may reduce volatility. However, switching from exporting a raw product to exporting the same product in processed form might not lead to a substantial reduction in export volatility, if the price received for the processed product is heavily influenced by the price of the raw material. Diversifying from agricultural- and resource-based products to other manufactures seems likely to provide the largest gains from diversification.

Another factor influencing export outcomes is whether markets are expanding or contracting. With income growth, consumers are likely to move from purchasing raw agricultural products to consuming products with additional embedded services (da Silva et al. 2009). For this reason, it seems more likely that markets for processed agricultural products will grow more rapidly than markets for raw products when incomes rise in consuming countries. Investigating the relationship between the share of value-added in agricultural processing to that in total agriculture and GDP per capita, Fukase and Martin (2016: Figure 3) finds a positive relationship between the two variables and that Africa is not an exception. Demand for horticultural products such as tropical fruits and fresh flowers is also likely to grow relatively rapidly as incomes rise, potentially making the exports of these products grow faster than staple agricultural products.

3. Global Perspective on Agricultural Processing and Horticultural Exports

In this section, we first examine the evolution of exports from SSA and other regions. Figure 5.1 shows the composition of Africa’s exports of goods and services, divided into agriculture, resources, manufactures, and services.

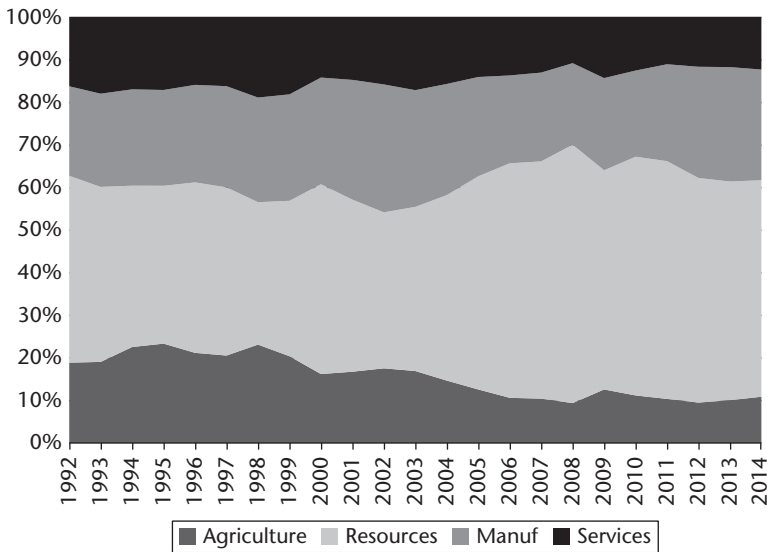


Figure 5.1. Export shares from sub-Saharan Africa

Source: Merchandise export data from COMTRADE, accessed through World Integrated Trade Solutions (WITS) (World Bank 2016a). Exports of Services from World Development Indicators (World Bank 2016b).

Figure 5.1 reveals the small share of agriculture in African exports at around 10 per cent, which is lower than the 12 per cent accounted for by exports of nonfactor services. This low share of agriculture in total exports suggests that the opportunities for expanding total exports by processing existing agricultural exports—some of which are already processed—are likely to be more limited than where exports of unprocessed agricultural products account for a large proportion of total exports.

Between 1988 and 2014, world agricultural exports grew from US\$83.4 billion³ to US\$1,532 billion while SSA's agricultural exports increased from US\$2.7 billion to US\$44.3 billion (UN COMTRADE). As a result, SSA's share in world agricultural exports declined from 3.3 per cent in 1988 to 2.9 per cent in 2014. We distinguish among agricultural products using the Regmi et al. (2005) definitions of bulk, semi-processed, and processed agricultural products, plus horticultural products. As noted by Liapis (2011: 12), bulk and horticultural products are tied strongly to geographic conditions, while semi-processed products such as sugar or cocoa products and processed products such as meat and chocolate are less geographically linked and could potentially be produced using inputs from other locations. With these definitions, we see a sharp difference between Africa and the world. As shown in Figure 5.2, for the world as a whole, bulk agricultural products account for a small and declining share of agricultural exports—decreasing from 25 per cent in 1988 to 17 per cent in 2014. By contrast, processed and semi-processed agricultural products accounted for almost three-quarters of global agricultural exports by 2014. Horticultural exports accounted for around 12 per cent of global agricultural exports in 2014.

For Africa, the corresponding patterns are quite different. The share of bulk agricultural exports also declined, but from around 60 per cent to 42 per cent in 2014, leaving these exports still as a large share of total agricultural exports. The share of processed and semi-processed agricultural products rose, but only to 35 per cent by 2014. If African countries are relatively abundant in raw agricultural goods and scarce in capital, a larger share of bulk exports relative to processed agricultural products is consistent with the Heckscher-Ohlin-Samuelson model, which predicts that countries export products that use relatively abundant factors of production. The share of horticultural exports rose from around 10 per cent in 1988 to 22 per cent in 2014. It seems clear that African exporters are adjusting to changes in the world markets, but doing it in a distinctively African way. The expansion of horticultural exports suggests that Africa has seized new opportunities, for instance, in becoming integrated into global agricultural value chains in flowers and horticultural crops (Minten et al. 2009; Page 2012).

³ In 1988, agricultural exports were 9.6 per cent of world exports of goods and services, and declined to 7.2 per cent in 2014.

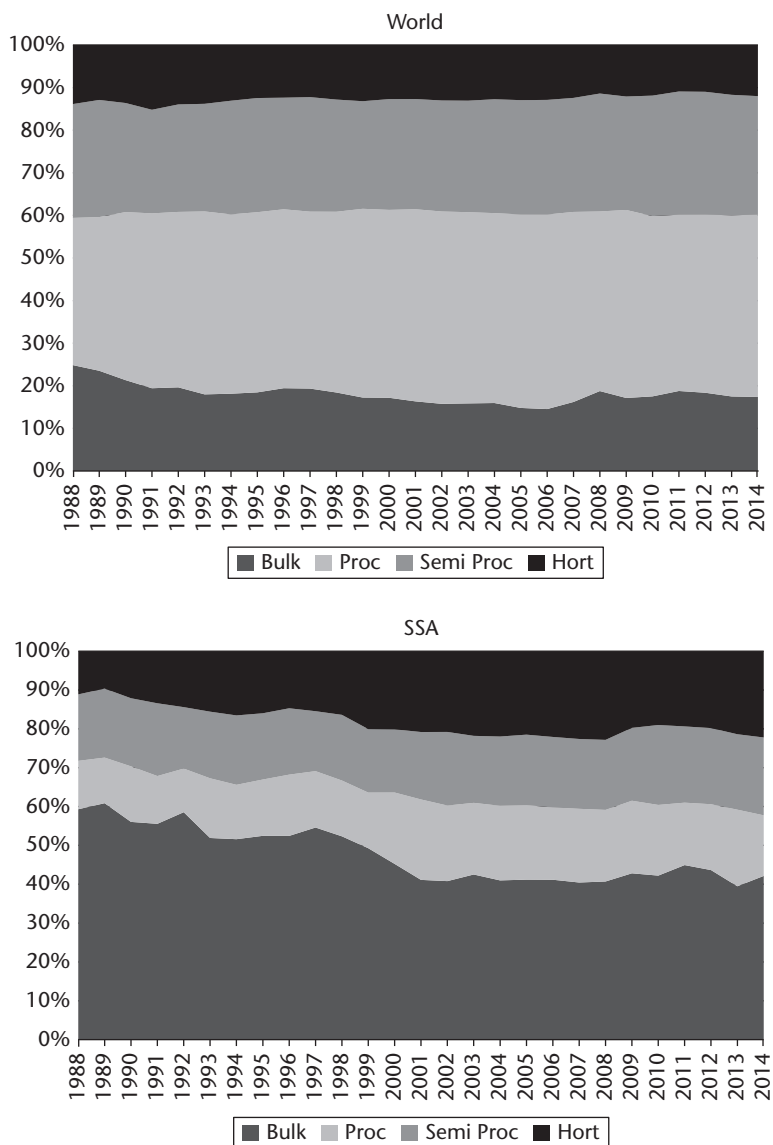


Figure 5.2. Shares of agricultural exports

Source: Merchandise export data from COMTRADE, accessed through World Integrated Trade Solutions (WITS) (World Bank 2016a).

To look in more detail at agricultural exports from Africa, we consider individual six-digit products using the Harmonized System (HS) product definitions—the finest for which internationally comparable measures are available. In Table 5.1, we examine these products for ten focus countries

Table 5.1. Export shares for six-digit agricultural goods, 2013

Rank	Ethiopia	Ghana	Kenya	Mozambique	Nigeria	Rwanda	Senegal	S. Africa	Tanzania	Uganda	SSA as a group	SSA to SSA
1	23.3	59.0	39.6	37.1	32.1	22.1	13.9	7.3	12.2	30.4	12.8	7.9
2	16.9	9.9	15.7	27.6	17.6	18.6	12.6	6.2	11.9	6.8	4.7	4.2
3	15.9	7.9	6.2	4.7	5.6	8.7	6.4	5.3	9.2	6.0	4.7	3.9
4	15.0	4.5	3.2	4.5	5.0	7.9	5.7	4.6	6.8	4.9	4.4	3.2
5	6.5	2.8	2.9	3.3	4.0	5.9	5.5	4.6	5.2	4.2	3.8	2.9
6	4.5	1.4	2.3	2.4	3.5	4.2	4.5	3.4	4.2	3.9	2.7	2.8
7	2.2	1.4	2.0	2.0	3.4	3.2	4.2	2.2	4.0	3.4	2.7	2.6
8	1.9	1.0	1.7	1.6	3.2	3.2	4.2	2.2	3.5	2.9	2.2	2.4
9	1.9	0.9	1.4	1.3	2.6	3.1	4.2	2.0	3.2	2.2	2.1	2.3
10	1.4	0.8	1.2	1.1	2.4	2.9	3.0	2.0	2.9	2.1	1.7	1.9
11	1.2	0.8	1.2	1.1	2.0	2.9	2.9	1.9	2.9	2.1	1.7	1.8
12	0.9	0.7	1.2	0.9	1.5	2.3	2.4	1.7	2.0	2.0	1.6	1.8
13	0.9	0.7	1.1	0.9	1.2	1.8	1.9	1.4	1.9	1.8	1.6	1.7
14	0.7	0.6	1.0	0.8	1.1	1.4	1.9	1.3	1.9	1.7	1.5	1.4
15	0.7	0.6	0.9	0.8	1.1	1.0	1.7	1.3	1.7	1.6	1.5	1.3
16	0.6	0.6	0.9	0.7	1.0	1.0	1.6	1.1	1.7	1.4	1.5	1.2
17	0.4	0.5	0.8	0.7	0.9	0.9	1.6	1.1	1.2	1.3	1.3	1.1
18	0.4	0.5	0.7	0.7	0.9	0.7	1.5	1.0	1.2	1.3	1.2	1.1
19	0.3	0.5	0.7	0.6	0.6	0.6	1.4	1.0	1.1	1.2	1.1	1.0
20	0.3	0.3	0.6	0.6	0.5	0.6	1.1	1.0	1.1	1.1	1.1	1.0
Top 20 share	96.2	95.5	85.4	93.5	90.2	93.0	82.2	52.7	79.8	82.4	55.9	47.8
No of exports	249	362	520	208	299	233	591	655	357	402	670	662
Nos. equiv	7	3	5	5	7	9	17	44	18	9	33	54
Share of initial bottom 2%	46.5	10.1	2.7	7.3	15.5	68.6	8.0	0.0	7.7	12.3		

Source: Merchandise export data from COMTRADE, accessed through World Integrated Trade Solutions (WITS) (World Bank 2016a).

and for SSA overall. The table shows the export value share for each of the top twenty agricultural exports, the share held by the top twenty products, the number of agricultural exports and the numbers equivalent of the Herfindahl Index for agricultural exports (Adelman 1969). This numbers-equivalent measure—measured as $\frac{1}{\sum S_i^2}$ where S_i is the share of each product in the total—shows the number of equally distributed exports that would provide the same degree of diversification as the observed set of exports, assuming independent and identically distributed volatility for each commodity export.

Table 5.1 shows that agricultural exports from African countries tend to be highly concentrated, with the largest export having a very large share of total agricultural exports, and subsequent exports having much smaller shares. The top twenty exports accounted for 80 per cent or more of export returns in each of our focus countries except South Africa, and over 90 per cent in five of our focus countries. While each country has many agricultural exports (between 208 and 655), the very large shares accounted for by the top products mean that these export baskets are much less diversified than they might at first appear. The numbers equivalent of the Herfindahl Index suggests that, for instance, the 362 agricultural exports from Ghana provide the export market diversification that would be provided by having just three equally distributed agricultural exports. The 520 and 208 agricultural exports from Kenya and Mozambique respectively provide little more diversification, being equivalent to only five identically distributed products. In contrast, the agricultural export baskets of Senegal, Tanzania, and South Africa are much more diversified, being equivalent to 17, 18, and 44 products respectively—numbers which should provide considerable diversification.

The last two columns of Table 5.1 show the results for SSA as a group for goods which went to the world and to SSA respectively. The exports which went to SSA turn out to be somewhat more diversified: SSA's top twenty exports to the world and to SSA accounted for 56 per cent and 48 per cent, while the corresponding indexes were 33 and 54 respectively. This may reflect the relatively low entry costs into exporting to SSA countries reported by Mulangu and Olarinde (2016). It may also reflect a tendency to re-export high-value processed agricultural items—often imported from outside Africa.

Table 5.2 shows the composition of SSA's top twenty exports for SSA as a group to the world and to the SSA.⁴ Table 5.2 categorizes the SSA's exports into bulk (B), horticulture (H), and processed agriculture (P). In terms of SSA's exports to the world (first panel), the five top items are dominated by bulk exports such as cocoa beans, coffee, unmanufactured tobacco, sesame seeds,

⁴ See Appendix Table A1 in Fukase and Martin (2016) for the composition of the top twenty exports for our ten selected countries.

Table 5.2. Composition of SSA's top 20 exports to the world and to SSA, 2013

To the world					To SSA				
Rank	hs6	Name	Cat. *1	Share (%)	Rank	hs6	Name	Cat. *1	Share (%)
1	180100	Cocoa beans, whole or broken	B	12.8	1	240120	Unmanufactured tobacco	B	7.9
2	90111	Coffee, not roasted, not decaffeinated	B	4.7	2	240220	Cigarettes containing tobacco	P	4.2
3	240120	Unmanufactured tobacco	B	4.7	3	70990	Other vegetables, fresh or chilled	H	3.9
4	120740	Sesamum seeds	B	4.4	4	100590	Other maize (corn)	B	3.2
5	90240	Black tea (fermented) and others	B	3.8	5	30379	Frozen fish, excluding fish fillets	P	2.9
6	60310	Fresh cut flowers	H	2.7	6	170199	Other cane or beet sugar	P	2.8
7	80131	Cashew nuts in shell	H	2.7	7	170111	Raw sugar	P	2.6
8	100590	Other maize (corn)	B	2.2	8	151190	Other palm oil and its fractions	P	2.4
9	170111	Raw sugar without added flavour	P	2.1	9	220300	Beer made from malt	P	2.3
10	180310	Cocoa paste, not defatted	P	1.7	10	90240	Black tea (fermented) and others	B	1.9
11	30379	Frozen fish, excluding fish fillets	P	1.7	11	210410	Soups and broths and preparations	P	1.8
12	170199	Other cane or beet sugar	P	1.6	12	110100	Wheat or meslin flour	P	1.8
13	70990	Other vegetables, fresh or chilled	H	1.6	13	10290	Other live bovine animals	B	1.7
14	240220	Cigarettes containing tobacco	P	1.5	14	210690	Other food preparations	P	1.4
15	180400	Cocoa butter, fat, and oil	P	1.5	15	80810	Apples	H	1.3
16	80510	Oranges	H	1.5	16	240110	Tobacco, not stemmed or stripped	B	1.2
17	220421	Other wine; grape must with ferment	P	1.3	17	240310	Smoking tobacco	P	1.1
18	80610	Grapes	H	1.2	18	230990	Other preparations for animal feeding	P	1.1
19	80810	Apples	H	1.1	19	40229	Powdered milk or cream	P	1.0
20	160414	Fish, whole or in pieces	P	1.1	20	220210	Waters, including mineral waters	P	1.0

Note: *1 B, H, and P represent bulk, horticulture, and processed agriculture respectively. HS = Harmonized System.

Source: Merchandise export data from COMTRADE, accessed through World Integrated Trade Solutions (WITS) (World Bank 2016a).

and black tea. Fresh cut flowers and horticulture products such as cashew nuts and fresh fruit (including apples, oranges, and grapes) also made the list. Processed agricultural goods such as cocoa paste, cocoa butter, and frozen fish may reflect the availability of local raw materials.

The second panel of Table 5.2 reveals the quite different nature of the top twenty exports which were traded within SSA, with a disproportionately high share of processed goods including such items as cigarettes and tobacco, frozen fish, sugar, palm oil, beer, soup, flour, milk and cream, and mineral water. In value terms, nearly two-thirds of the agricultural products traded within SSA in 2013 were processed agricultural products.

The 'big hits' change from one period to the next (Easterly and Reshef 2010) and a question arises as to whether changes in the importance of agricultural exports are driven by new products. To answer the question, we follow Kehoe and Ruhl (2013) in constructing the set of least-exported agricultural goods which were originally either not exported or exported only in small values. Specifically, starting with the smallest amounts of exports including zero, we add products to the set until the sum of their export values reaches 2 per cent of total export value in the initial period ('bottom 2 per cent' items). The last row of Table 5.1 shows the share of 'new' products, i.e. those which were bottom 2 per cent in the oldest available years in our sample, but made the top twenty in 2013. These statistics show that the shares of the new products vary depending on our focus countries. While the new products represent a large share in total agricultural exports in Ethiopia and in Rwanda, 47 per cent and 69 per cent respectively, none of the top twenty items came from bottom 2 per cent for South Africa.

One potential explanation for the low share of processed agricultural exports in Africa's exports on average is the relatively low income of most African countries. Figure 5.3 shows the relationship between processed agricultural exports as a share of total agricultural exports and the log of GDP per capita. We find a positive relationship with the rate of increase declining as incomes rise. The African countries in the figure appear broadly to follow this pattern. A dummy variable for Africa included in the regression failed to reveal a significant difference between African and other countries. Thus, there is no indication in the plot or from statistical testing that African countries are not following a similar path to other countries.

4. Trade and Protection Patterns

In this section, we use the Global Trade Analysis Project (GTAP) database (Aguilar, Narayanan, and McDougall 2016) to capture both trade and protection, and to prepare for the simulation analysis in the next section. We find

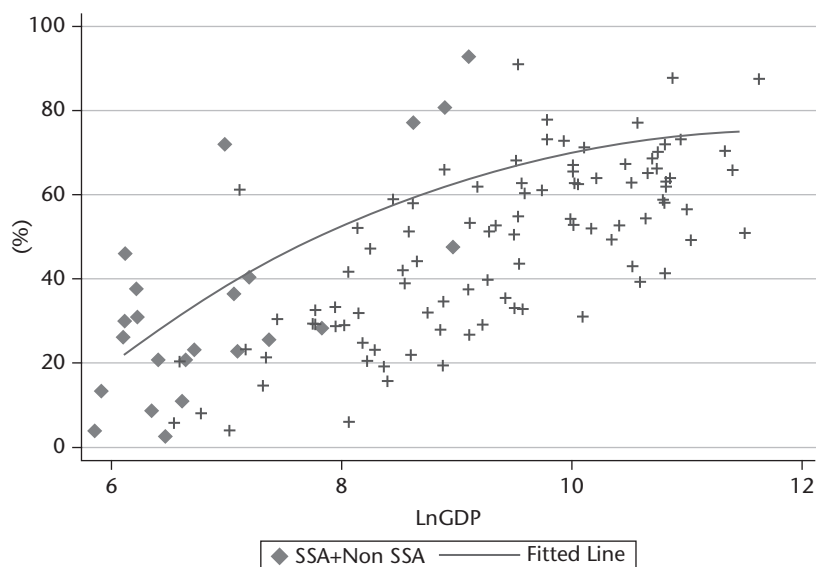


Figure 5.3. Processed agricultural exports in total agricultural exports vs per capita income, 2011

Source: Global Trade Analysis Project (GTAP) database (Version 9).

SSA's agricultural exports were US\$46.0 billion in 2011 of which US\$21.8 billion (47.4 per cent), US\$7.4 billion (16.2 per cent), and US\$16.8 billion (36.5 per cent) were bulk, horticulture, and processed agriculture respectively (GTAP 9 database).⁵ The EU was the largest destination for SSA's exports, taking 39.6 per cent of SSA's exports (Fukase and Martin 2016: Figure 5). Nineteen per cent of SSA's exports went to SSA, with processed agriculture disproportionately accounting for 34.9 per cent of SSA's total processed agriculture exports.

Columns 1–3 of Table 5.3 show the Ad Valorem Equivalent (AVE) protection (Guimbar et al. 2012) that SSA's exports face, the AVE that SSA imposes against its imports, and the world AVE. The last four rows show the summary of AVE for agricultural goods. SSA's agricultural exports face 7 per cent of AVE in its export market (7.7 per cent, 3.8 per cent, 7.6 per cent for its bulk, horticulture, and processed agriculture exports respectively) which were slightly lower than the world average of 8.2 per cent, perhaps reflecting its preferential access to certain developed countries including the EU and the United States. The SSA's own AVE against its agricultural imports of 12.2 per cent was about 50 per cent higher than the world average.

⁵ See footnote 3 of Fukase and Martin (2016) for the composition of 'bulk', 'horticulture' and 'processed agriculture'.

Table 5.3. Structure of ad valorem equivalent (AVE) protection, 2011

		AVE in SSA's exports and imports and world average			AVE in EU			AVE SSA
		SSA's exports (%)	SSA's imports (%)	World average (%)	Against SSA (%)	Against Others (%)	EU Average (%)	Intra-SSA (%)
1 pdr	Paddy rice	1.2	3.5	7.1	0.9	3.8	2.7	1.8
2 wht	Wheat	1.3	6.6	7.0	0.0	11.7	2.5	0.8
3 gro	Cereal grains nec	71.2	3.4	26.0	0.0	2.6	0.6	2.8
4 v_f	Vegetables, fruit, nuts	3.8	10.6	5.2	1.4	4.3	1.6	8.8
5 osd	Oil seeds	7.0	4.6	8.3	0.0	0.0	0.0	2.5
6 c_b	Sugar cane, sugar beet	0.4	0.2	0.5	1.0	1.5	0.8	0.0
7 pfb	Plant-based fibres	1.7	1.9	2.2	0.0	0.0	0.0	1.5
8 ocr	Crops nec	3.4	12.5	4.5	0.0	1.2	0.5	4.9
9 ctl	Cattle, sheep, goats, horses	1.3	1.7	4.6	0.0	2.1	0.2	1.3
10 oap	Animal products nec	2.6	7.7	3.3	0.0	2.5	0.6	5.3
11 rmk	Raw milk	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12 wol	Wool, silk-worm cocoons	16.7	0.0	21.1	0.0	0.0	0.0	1.2
13 fsh	Fishing	3.7	10.3	2.7	1.8	2.7	1.0	9.8
14 cmt	Meat: cattle, sheep, goats, etc.	33.7	12.6	13.9	1.9	54.0	11.7	7.8
15 omt	Meat products nec	5.0	12.3	13.0	2.5	19.1	2.1	5.9
16 vol	Vegetable oils and fats	8.0	12.5	9.3	0.0	2.3	1.1	10.1
17 mil	Dairy products	10.9	10.3	7.9	2.0	23.9	1.1	10.9
18 pcr	Processed rice	5.7	9.9	16.6	0.8	15.8	7.2	7.4
19 sgr	Sugar	9.1	15.6	12.5	1.2	43.8	12.3	23.4
20 ofd	Food products nec	4.8	14.8	6.0	0.9	7.3	1.8	11.0
21 b_t	Beverages, tobacco products	13.4	16.9	8.7	4.3	6.7	1.0	15.9
22 Others	Non-agriculture	1.1	8.0	2.3	0.0	1.4	0.6	5.2
Total		1.7	8.7	2.9	0.1	1.8	0.7	6.1
Summary of Agricultural AVE Protection								
		SSA's exports (%)	SSA's imports (%)	World average (%)	Against SSA (%)	Against Others (%)	EU Average (%)	Intra-SSA (%)
	Bulk	7.7	7.4	8.3	0.1	1.8	0.7	3.3
	Horticulture	3.8	10.6	5.2	1.4	4.3	1.6	8.8
	Processed agriculture	7.6	13.6	8.6	1.3	11.1	2.4	12.6
	Total agriculture	7.0	12.2	8.2	0.8	7.3	2.0	10.1

Source: Global Trade Analysis Project (GTAP) database (Version 9).

Columns 4–6 of Table 5.3 show the AVE that SSA faces in the EU market, the AVE that the EU imposes against its imports other than SSA and the EU, and the EU's average AVE respectively. SSA enjoys preferential access to the EU market. Its preferential rate for agriculture of 0.8 per cent on average is substantially lower than the rate the EU imposes against suppliers other than SSA and the EU itself (7.3 per cent). SSA appears to benefit from the lower preferential rates for its processed agricultural goods (1.3 per cent on average) relative to the AVE the EU imposes against other suppliers (11.1 per cent on average). The preference margins appear to be especially large for such products as meat (1.9 per cent vs. 54.0 per cent), dairy products (2 per cent vs. 23.9 per cent), and sugar (1.2 per cent vs. 43.8 per cent). The last column of Table 3 reports the AVE for intra-SSA trade. Despite the presence of many trade blocs within Africa, AVE protection for agricultural goods within SSA remains relatively high at 10.1 per cent (higher than the world average AVE of 8.2 per cent), with an especially high AVE for processed agriculture, at 12.6 per cent.

In its export markets, SSA faces tariff escalation within many value chains: paddy rice (1.2 per cent) vs. processed rice (5.7 per cent); oil seeds (7.0 per cent) vs. vegetable oils and fats (8.0 per cent); sugar cane and sugar beet (0.4 per cent) vs. sugar (9.1 per cent); raw milk (0.0 per cent) vs. dairy products (10.9 per cent); and cattle, sheep, goats, horses (1.3 per cent) vs. animal products (2.6 per cent), cattle, sheep, goat and horse meat (33.7 per cent) and other meat products (5.0 per cent) (column 1 of Table 5.3). SSA's own AVE against its imports (column 2), intra-SSA AVE (last column) and world AVE (third column) also demonstrate similar tariff escalation.

5. Simulation Scenarios and Results: Trade Effects

In this section, we use the standard GTAP model (Hertel 1997) to analyse the comparative-static impacts of different potential policy reforms. In doing this, we build on the insight from Jensen et al. (2010), that the impact of a trade regime on production incentives requires a general equilibrium treatment. By simulating the removal of protection, these experiments are intended to assess the effects of the existing distortions on SSA's agricultural trade rather than to evaluate specific impacts of any actual trade reforms. As this chapter focuses on agro-processing and horticultural exports, the purpose of the simulations is to measure trade effects.

Column 1 of Table 5.4 shows the simulation result from eliminating tariff escalation by SSA's partner countries, reducing their AVE protection for processed goods to the levels of unprocessed goods in the same value chain identified above (for example, lowering the AVE rate of processed rice to the level of paddy rice) (Simulation 1).

Table 5.4. Simulation results: trade effects (%)

		Sim 1	Sim 2		Sim 3		Sim 4	Sim 5	
		To Wld	To EU	To Wld	To SSA	To Wld	To Wld	To Wld	
1	pdr	Paddy rice	-9.87	-22.14	-2.96	9.01	-5.76	-5.76	9.05
2	wht	Wheat	-7.46	-61.76	-3.08	3.87	-3.24	-3.24	-16.05
3	gro	Cereal grains nec	-1.54	-5.70	-0.44	2.95	-0.59	-0.59	1.76
4	v_f	Vegetables, fruit, nuts	-3.46	-8.58	-3.30	17.42	-1.89	-1.89	4.32
5	osd	Oil seeds	-5.63	1.31	1.09	6.36	-3.21	-3.21	5.16
6	c_b	Sugar cane, sugar beet	-7.21	1.30	1.96	1.42	-4.40	-4.40	8.80
7	pfb	Plant-based fibres	-3.83	0.48	0.67	4.42	-1.92	-1.92	6.21
8	ocr	Crops nec	-5.69	-4.92	-1.73	14.10	-3.03	-3.03	7.06
9	ctl	Cattle, sheep, goats, horses	3.00	-7.04	0.20	2.36	-1.10	-1.10	2.60
10	oap	Animal products nec	2.78	-5.92	-1.08	10.74	0.93	0.93	3.24
11	rmk	Raw milk	-10.48	1.94	1.61	0.00	0.81	0.81	13.71
12	wol	Wool, silk-worm cocoons	-9.48	1.92	1.96	2.02	-0.33	-0.33	26.47
13	fsb	Fishing	-2.80	-1.45	-0.65	16.24	-1.08	-1.08	4.09
14	cmt	Meat: cattle, sheep, goats, horse	5056.80	-95.74	-28.99	48.44	77.81	77.81	8.88
15	omt	Meat products nec	34.23	-72.99	-12.08	67.06	80.20	80.20	3.02
16	vol	Vegetable oils and fats	35.31	-13.27	-1.90	52.56	50.95	50.95	10.16
17	mil	Dairy products	194.54	-75.59	-6.03	90.31	45.98	45.98	36.78
18	pcr	Processed rice	22.76	-50.50	-4.88	38.38	34.96	34.96	3.25
19	sgr	Sugar	60.62	-83.72	-52.15	54.57	37.01	37.01	29.03
20	ofd	Food products nec	-1.82	-21.19	-9.77	29.66	28.63	28.63	7.71
21	b_t	Beverages and tobacco products	-0.49	-4.93	-1.48	20.33	7.87	7.87	7.94
22	Others	Non-agriculture	-2.96	0.41	0.38	-0.18	-1.36	-1.36	9.45
Total			1.10	-2.05	-0.19	4.91	-0.30	-0.30	9.27
Summary of agricultural exports changes (%)									
		To Wld	To EU	To Wld	To SSA	To Wld	To Wld	To Wld	
Bulk		-4.58	-4.60	-1.04	8.24	0.28	-2.48	6.36	
Horticulture		-3.46	-8.58	-3.30	17.42	1.48	-1.89	4.32	
Processed agriculture		114.27	-29.86	-12.20	37.57	13.08	30.31	10.50	
Total agricultural exports		38.96	-14.91	-5.48	28.81	5.14	9.58	7.54	

Source: Authors' simulation results.

SSA's exports of processed goods would increase by 114.3 per cent while its bulk and horticulture exports would decrease slightly by 4.6 per cent and 3.5 per cent, respectively. Overall, SSA's agricultural exports would increase by 39.0 per cent.⁶ These results show that tariff escalation in external markets poses substantial barriers for SSA's exports of processed agricultural products. While SSA receives duty-free access from some partners such as the EU (and it is likely that the preferential access creates incentives for processing in SSA), there appears to remain scope to increase agro-processing exports further with removal of tariff escalation by other trading partners. The dramatic increase in exports of processed agriculture from SSA under Simulation 1 suggests that the provisions in the Doha Agenda proposals on reducing tariff escalation (WTO 2008: 18) may have very favourable effects on exports of processed agricultural products from Africa. They make a case for policy makers focusing on this issue in future trade negotiations.

Simulation 2 explores what happens if the SSA loses its preferential access to the EU market for its agricultural goods, with the EU increasing AVE protection against SSA from the preferential rates to those imposed against other suppliers (columns 2 and 3 of Table 5.4). SSA's agricultural exports to the EU would decrease by 14.9 per cent, which would lead to a reduction of its overall agricultural exports by 5.5 per cent. As the EU's AVE protection for processed agriculture against non-preferential suppliers is especially high, the loss of preferences would result in a sharp reduction in SSA's exports of processed agricultural products—by 29.9 per cent to the EU, and by 12.2 per cent to the world.

Since agricultural trade in SSA tends to occur in the same regions (Fukase and Martin 2016: Figure 6), Simulation 3 investigates the impacts of the Economic Community of West African States (ECOWAS), the Common Market for Eastern and Southern Africa (COMESA) and the Southern African Development Community (SADC) countries reducing their AVE agricultural protection against each other to zero within their regional arrangements (columns 4 and 5). The result shows that the agricultural liberalization within these trade blocs combined would lead to the expansion of intra-SSA agricultural trade by 28.8 per cent, while SSA's total agricultural exports to the world would increase by 5.1 per cent. The results of this simulation reflect the effects of removing agricultural barriers in general, and the tariff escalation within such barriers, and hence result in more rapid growth in exports of processed

⁶ The 5,056.8 per cent increase in the exports of cattle, sheep, goat, and horse meat (cmt) appears to reflect initially very high AVE protection imposed by some partner countries (for example, Norway) against SSA's exports of this category. One caveat on this exercise is that the AVE protection used in this chapter does not include sanitary and phyto-sanitary (SPS) requirements and that SPS issues frequently need to be addressed for new exports to take place.

agricultural products than in total agricultural exports (37.6 per cent and 13.1 per cent increase in processed agricultural exports to SSA and to the world, respectively).

Simulation 4 explores what would happen if SSA countries were to increase total factor productivity in processing of agricultural goods by 10 per cent (sixth column of Table 5.4). This simulation ignores the costs of bringing about such productivity gains and is intended to help identify the areas in which the gains are likely largest. The results reveal that SSA's exports of processed agriculture would expand by 30.3 per cent; its exports of bulk and horticulture goods would decrease slightly by 2.5 per cent and by 1.9 per cent respectively as some goods are processed before being exported; and its overall agricultural exports would expand by 9.6 per cent. This simulation result is consistent with the literature on high productivity associated with exports in Africa (e.g., Mengistae and Pattillo 2004; Newman et al. 2016a) and highlights the importance of improving the productivity of agricultural processing activities for expansion of these exports. This simulation understates the long-run impacts of raising productivity in these sectors because the modelling framework looks only at static gains and does not allow for the emergence of new activities. Thus, it misses the extensive-margin impact of increases in productivity, where higher productivity may cause new export activities to take place.

Simulation 5 involves complete removal of AVE protection against SSA's imports including non-agricultural goods. Not surprisingly, it leads to a much larger increase in total exports than any of the other simulations (last column in Table 5.4). Three effects on processing exports from removing all import protection can be anticipated: (1) the removal of each country's own tariff escalation is likely to reduce production of processed goods for domestic markets; (2) the removal of tariff escalation by African partners increases opportunities for processing; and (3) reductions in the costs of inputs used in processing would be expected to expand processing for both domestic and export markets.⁷ The model's results point to an increase in processed agricultural exports relative to bulk and horticultural exports, suggesting that the reduction in production costs and the increase in market access opportunities would outweigh the reduction in incentives to process for domestic markets. However, the increase in agricultural exports is not much larger than the increase in overall exports.

⁷ Bigsten et al. (2016) find that input tariff reductions are associated with higher firm-level productivity in Ethiopia.

6. Policy Questions

The decision whether to export a raw or processed agricultural product should still be based solely on the economics of the value-adding process. If, for instance, coffee may be exported in fresh or roasted form, the decision on whether to undertake the roasting stage should depend on the costs and returns associated with undertaking that stage. The ‘great unbundling’ (Baldwin 2006) means, however, that other countries may well have become competitors for the bean-producing country in roasting the coffee. Naïve calculations that consider only the value of the roasted beans relative to the value of the raw beans—without considering the costs of the processing phase—are insufficient as a basis for deciding whether to undertake the processing phase in the producing country.

In general, it seems sensible for policy makers to delegate to producing and processing firms the decisions about whether to undertake particular stages of production, and to focus on providing an enabling environment in which producers may be able to take advantage of those opportunities that generate positive value-added. However, in the unbundled trade system, it is now much more important for governments to keep channels of communication open to identify specific constraints that are preventing the emergence of processing stages in the country. If there are, for example, high tariffs on inputs needed in the production process, this may turn out to make it uneconomic to process the good domestically even though doing so would add value at world prices. Another important source of elevated costs is weaknesses in infrastructure, such as transport, electricity and water, or excessive costs of customs clearance, that may make otherwise high-return activities privately unprofitable. A key step for governments is to identify where they can reduce some of these costs to enable firms to undertake processing operations that would be economically worthwhile.

If we find that high tariffs and other charges on intermediate inputs result in negative value-added (at market prices) in at least some processing activities, the disincentive to undertaking these activities may result in economically desirable processing not being undertaken. If the government wishes, it may deal with these problems either by reforming its tariffs and customs regimes or by specific export-focused policy responses such as providing duty exemptions on intermediates used in the production of exports. Responses of this type would not require negotiations with trading partners.

Another potential cause of failure to undertake desirable processing actions arises from distortions imposed by trading partners. A key challenge for processing in developing countries comes from tariff escalation in importing markets. In this situation, the tariff in the importing market is low on raw materials, higher on intermediates, and highest on final consumer goods.

This policy option creates—and typically is intended to create—incentives to undertake processing in the importing country and to discourage processing in the exporting country. Such incentives could be countered by the exporting country, but this action would surely be difficult to undertake successfully. However, information on the extent of such tariff escalation is likely to be useful background for tariff negotiations.

The impact of tariff escalation is likely to be turned on its head when considering exporters that have access to effective preferences for raw and processed products. If we assume that processing a good adds 20 per cent to its initial value, then a tariff margin of 20 per cent between the raw and the processed form of a product creates a 100 per cent effective rate of protection on the processing activity. Under a non-discriminatory tariff regime, this assistance is provided to processors in the importing country. If this tariff applies against imports of most producers but some small producers receive a tariff preference, the 20 per cent effective rate of protection may be available to processors in the exporting market. Comparison of the mix of processing in preference- and non-preference-receiving exporters may provide some indication of the effectiveness of the preference regime in creating incentives for additional processing in exporting countries.

Developing new exports from Africa is both vitally important and very challenging. Some of the barriers that have been identified—such as geography and landlocked status (Freund and Rocha 2011)—are inherent, but their effects may be addressed by adequate policy reforms and associated investments. For instance, in examining the effect of trade times on Africa's exports of new products, Freund and Rocha (2011) report that reducing inland transit times significantly boosts exports (especially for time-sensitive agricultural exports) and suggest the importance of investments on inland transportation and infrastructure. Bouët et al. (2017: Figure 2.4) show that the costs associated with time for border and documentary compliance are high especially for agricultural products for many African countries.

The stylized fact emerging from the recent literature on exporting firms that a small number of highly productive firms generally dominate exports (Bernard et al. 2007) would seem to allay the concerns expressed by Hausmann and Rodrik (2003) that firms investing in costly discovery of successful exports lose the returns from export success through entry of copycat firms. Approaches to creating incentives for innovative exports by providing protection to sales on the domestic market appear to have little applicability in Africa. Large domestic markets for these products only rarely exist, and they are likely to become saturated relatively rapidly, leaving innovators with low returns on their investment. While export subsidies for developing countries are only loosely constrained by World Trade Organization (WTO) rules (Creskoff and Walkenhorst 2009)—and are almost unconstrained for least developed

countries and countries whose per capita GDP is under US\$1,000 in 1990 dollars—the fiscal costs of such export subsidies are likely to be very high. The approach of grants and subsidies to chosen firms suggested by Hausmann and Rodrik (2003: 630) seems likely to be very costly if the subsidies are large enough to make a difference, and Farole (2011: 173) finds that such incentives are associated with poorer performance in African economic zones.

In contrast, providing a relatively level playing field on which exporters can experiment to identify successful exports seems promising. One approach to providing an environment for experimentation is to allow exporters to access intermediate inputs for use in production of exports at world prices. In China, duty exemptions were a central feature of reforms, allowing exporters to use imported materials and to increase processed exports in a wide range of labour-intensive activities (Ianchovichina 2004). Other successful exporters of industrial goods—for instance, Cambodia, Mauritius, Tunisia, and Vietnam—also established a ‘free trade regime for exporters’ through a variety of mechanisms such as tariff exemptions, duty drawbacks, and rebates of indirect taxes (Newman et al. 2016a).

Duty exemptions and Value Added Tax (VAT) refund mechanisms are frequently part of more comprehensive export promotion mechanisms such as Special Economic Zones (SEZs) (Farole 2011). SEZs typically involve other features, such as improved infrastructure, and a different regulatory environment from the rest of the economy. Frequently, this environment is designed to attract foreign direct investment. Collier and Page (2009) point to strong advantages if they are in geographically favoured regions near good infrastructure. Farole (2011: Ch. 8) finds that African SEZs have encountered difficulties in many areas, including unreliability of power supply relative to Asian zones, slow customs procedures, and wage rates that are high relative to labour productivity. Following Farole (2011: Table 8.2), Fukase and Martin (2016: Table 6) show that wage rates in African SEZs are almost 90 per cent of wage rates in four comparator countries, even though GDP per capita, and, hence, likely the opportunity cost of labour to the zone, is only 42 per cent of the level in the comparator countries.

Drawing on the lessons of recent decades, it seems more likely to us that deep, sustained growth in exports from SSA will result from policies that provide as much scope as possible for entrepreneurs to search and discover, in the sense suggested by Hausmann and Rodrik (2003), the products that will be the highly successful exports of the future. Current, generally closed, SEZs do not seem to have worked very well in doing this, despite the provision of duty exemptions on intermediates, improved infrastructure, and fiscal incentives. Perhaps one way to overcome these challenges is to draw from China’s experience and to extend the duty exemptions for intermediates used in the production of exports to export processors of all kinds throughout

each country. Once processors of agricultural products, along with producers of other potential exports, have access to intermediates at world prices and to labour and other inputs at domestic prices, their experimentation may lead to identification of exports that will become the future big hits and mainstays of higher levels of future exports. As argued by Newman et al. (2016b), it is not enough just to improve the investment climate—which nevertheless remains a high priority—but what is needed is a broader push for export development of the type seen in successful Asian exporters.

7. Conclusions

The recent focus on the potential for agricultural processing and horticultural exports as growth engines for Africa appears to be driven in part by pessimism about the prospects for growth of manufacturing exports of the type that have been so stunningly successful in driving export growth from many Asian countries. Key questions include whether this pessimism is warranted, and whether the agricultural processing and horticultural exports can become the engine of growth so much needed to promote African development.

When we look at the pattern of exports from African countries, we find that the share of agricultural exports has declined to around 10 per cent of the total, somewhat less than the 12 per cent of exports accounted for by non-factor services. This is a small share on which to build if the goal is to stimulate dramatic growth in exports through exports of horticultural or processed agricultural products. Within agricultural exports, the share of traditional, bulk agricultural exports has fallen sharply, from 60 to 42 per cent, although this is now twice the share of such exports in global trade. Where Africa does stand out is in the share of horticultural products in total exports—more than 22 per cent of agricultural exports in 2014 as against 12 per cent for the world. The relatively low, but rising, share of processed agricultural exports from Africa may reflect the relatively low incomes in African countries. When we look at the relationship between the share of processed agricultural exports relative to total agricultural exports and per capita income, it seems to follow the same broad relationship as other countries, a quadratic response of the ratio to income growth.

Simulation analysis is used to examine the response of processed agricultural exports from Africa to changes in protection rates and productivity growth in processing. The results suggest that tariff escalation in export markets within the same value chains has powerful impacts. Cutting protection on processed agricultural products to the levels of bulk products in export markets would substantially increase exports of processed products from Africa. Cutting agricultural protection within main African trade blocs and

extending liberalization to all the trading partners and to all the goods would similarly increase exports of processed agricultural products.

Our overall assessment is that increased exports of processed agricultural products could be a worthwhile contributor to an overall upturn in African agricultural exports. Horticultural products could also contribute to such a turnaround. However, our view is that policy makers should think much more broadly and develop an export promotion strategy that works both for these products and other export-oriented goods and services. Most definitely, policy should not target ‘value-addition’ for these products, a strategy that often results in value subtraction at the expense of low-income producers. As trading costs in Africa remain relatively high, including import duties, transportation costs, documentary and border compliance costs, and other nontariff measures (Bouët et al. 2017), policy reforms and associated investments appear to be necessary. For instance, one of the promising ways to encourage a surge in agro-processing and other exports would be to reduce the cost of intermediate inputs generally. Reducing this disadvantage for exports—ideally by reducing protection, but perhaps initially by ensuring that all exporters have access to intermediates at world prices—is likely to stimulate growth in a wide range of exports as entrepreneurs discover what exports best use the country’s skills and resources.

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6

Air Transport in Africa

A Portrait of Capacity and Competition in Various Market Segments

Heinrich C. Bofinger

1. Contextual Setting of Air Transport in Africa

Air transport in Africa is a vigorously growing sector. However, the growth, though an important element of the sector, does not provide a complete perspective on its health. Several important facts play a role in truly understanding where Africa's air transport has been, is now, and where it might develop.

Air transport volumes in Africa are still very low when compared to the rest of the world: with 104 million seats, on all types of routes, sub-Saharan Africa (SSA) is far behind the country of Brazil, with 120 million seats, of which nearly 100 million are domestic traffic only. Other comparisons are as staggering. In the area of Washington DC in the US, three airports (Reagan National Airport, Dulles Airport, and Baltimore Washington International Airport) had 68.5 million passengers in 2015, which would translate to 90 million seats at a load factor of 76 per cent. This is nearly all of the capacity offered in all of SSA. The distribution of these capacities is also important: the main air transport corridors are along the East, stretching from South Africa to Kenya and north to Ethiopia, all three being important hubs. No such hubs exist in West Africa, and Central Africa has minimum service. Another factor is the fact that Africa still leads in hull losses due to accidents,¹ and still retains a safety record

¹ Hull losses are only one measure of accident rates, and can be skewed: the newer the airplane, the less likely the airplane is to be written off after an accident rather than repaired. This means, however, that higher hull loss rates may also indicate older aircraft being in service.

that is in most need of improvement when compared to the rest of the world. Though there has been significant improvement from 2010 until 2013, the sharp increase since then (in 2015 at 3.49) is well ahead of the Commonwealth of Independent States (1.88), and much above of the world average (0.32); see Figures 6.1 and 6.2.

The notion of the national flag carrier is still deeply ingrained in the politics of the air transport sector, and though various privatization attempts have been made (e.g. PPP arrangements for Air Senegal after the disbandment of Senegal Airways), many governments are reluctant to (a) completely hand over airlines to the private sector, or (b) completely depend on airlines from the outside if a national airline is not economically sustainable.

Both anecdotally and empirically the new challenges for African air transport market development are not so much around liberalization, but rather affordability and the rise of airport charges. Liberalization amongst African countries is taking place, as evidenced, for example, by the expansion of fifth freedom routes of Ethiopian Airlines.² However, new and sometimes overambitious investments in airports and terminal buildings are increasingly being financed by higher per passenger airport charges.

2. Airlines and Routes

2.1. Overview of Traffic and Intercontinental Capacities

The overall air transport capacity in SSA has seen *significant* growth starting in 2002, from 47.6 million seats to 104.7 million seats in 2015. Overall, traffic grew at an annual rate of 5.8 per cent between 2001 and 2015, and between 2003 and 2010 the rate jumped to 7.6 per cent. The years of global economic downturn, between 2009 and 2012, showed a growth rate of 4.9 per cent, followed by a rate of 5.3 per cent during the subsequent recovery.

Route types in the African market can be divided into different segments: intercontinental traffic, international traffic within SSA, international traffic between North Africa and SSA, and domestic traffic within SSA (Table 6.1).³ The highest amount of capacity can be found in the intercontinental capacities, followed very closely by domestic seat capacity. Though a small player in overall capacity, the routes connecting North Africa with SSA show the highest growth rates, at 12 per cent. The growth in routes with North Africa may

² Fifth freedom flights are defined as flights leaving, for example country A, landing in country B and dropping off passengers and picking up passengers, some of whom would then go on to Country C. The right to pick up passengers in a country other than the airline's, and then dropping them off in another country than the airline's, is what distinguishes this freedom of the air.

³ See Bofinger (2017: Figures 5 and 6).



Figure 6.1. Global aircraft positions over continents and oceans, 9 July 2016

Source: flightradar24.com (2016), captured 9 July 2016 at 11:25 a.m. EST, reproduced with permission.



Figure 6.2. Global aircraft positions over continental Africa, 9 July 2016
Source: flightradar24.com (2016), captured 9 July 2016 at 11:28 a.m. EST, reproduced with permission.

have to do with hubs in North Africa providing connections for travellers from the underserved SSA, especially in West Africa.

Recent developments include first the rise of Ethiopian Airlines' role on the continent, displacing South African Airways as the leader. Both Ethiopian and Emirates seemed to have appeared rather rapidly, without much of a share in 2001 (Table 6.2).

In general, small state-owned carriers are not economically sustainable, and create market distortions that can cause more harm than good to the industry: often routes operated by small, state-owned airlines are (at times unofficially) protected, lowering service standards and preventing competition. Many of

Table 6.1. Estimated seats and growth rates in African air transport markets

Market	Estimated seats 2001 (millions)	Estimated seats 2004 (millions)	Estimated seats 2007 (millions)	Estimated seats 2012 (millions)	Estimated seats 2015 (millions)	Growth 2001–4	Growth 2004–7	Growth 2007–15	Growth 2001–15
All markets	47.6	53.2	70.2	89.7	104.7	3.7%	9.7%	5.1%	5.8%
All within Sub-Saharan Africa	29.2	31.4	42.8	54.2	64.2	2.4%	10.9%	5.2%	5.8%
Sub-Saharan domestic	17.1	18.4	26.5	31.9	37.6	2.4%	12.9%	4.5%	5.8%
Sub-Saharan international within Sub-Saharan	11.3	11.8	14.0	18.9	22.7	1.5%	5.9%	6.3%	5.1%
Sub-Saharan intercontinental (no North Africa)	18.4	21.8	27.3	35.5	40.5	5.8%	7.8%	5.0%	5.8%
Between North Africa and sub- Saharan Africa	0.8	1.2	2.4	3.4	3.8	15.8%	24.9%	6.2%	12.0%

Note: Numbers differ slightly from the 2007 version of the study because of improvements in adjusting seats for multi-destination flights.

Source: Author's calculations based on data by Diio (2016).

Industries without Smokestacks

Table 6.2. List of the top 25 airlines serving Africa, with annualized growth rates between 2007 and 2012

Rank	Airline	Estimated seat KMs 2001 (billions)	Estimated seat KMs 2007 (billions)	Estimated seat KMs 2015 (billions)	Market share 2015	Annual growth rate 2007–15	Annual Growth rate 2001–15,
1	Ethiopian Airlines	4.02	11.82	35.68	11.5%	14.8%	16.9%
2	Emirates	1.72	11.03	32.68	10.5%	14.5%	23.4%
3	South African Airways	33.80	32.53	28.61	9.2%	-1.6%	-1.2%
4	Air France	13.55	18.24	23.57	7.6%	3.3%	4.0%
5	British Airways	19.67	15.89	15.01	4.8%	-0.7%	-1.9%
6	Kenya Airways	5.05	10.71	14.37	4.6%	3.7%	7.8%
7	KLM	5.99	9.40	10.64	3.4%	1.6%	4.2%
8	Turkish Airlines	0.42	0.59	8.99	2.9%	40.5%	24.5%
9	Delta Air Lines	0.00	2.95	7.96	2.6%	13.2%	
10	Air Mauritius	7.26	8.55	7.93	2.6%	-0.9%	0.6%
11	Lufthansa	3.17	5.84	7.24	2.3%	2.7%	6.1%
12	Qatar Airways	0.11	2.35	6.72	2.2%	14.0%	34.0%
13	Comair Ltd.	0.00	3.90	6.42	2.1%	6.4%	
14	CORSAIR	1.84	2.78	5.84	1.9%	9.7%	8.6%
15	TAAG—Linhas Aereas de Angola	1.32	2.39	5.41	1.7%	10.8%	10.6%
16	Air Austral	0.40	3.92	5.26	1.7%	3.7%	20.3%
17	Royal Air Maroc	0.45	2.61	4.99	1.6%	8.4%	18.8%
18	Arik Air	0.00	0.46	4.55	1.5%	33.3%	
19	Brussels Airlines N.V.	2.94	2.31	4.43	1.4%	8.5%	3.0%
20	TAP—Air Portugal	1.43	3.14	3.98	1.3%	3.0%	7.6%
21	Virgin Atlantic Airways	3.02	5.14	3.59	1.2%	-4.4%	1.2%
22	Egyptair	0.99	2.42	3.44	1.1%	4.5%	9.3%
23	Mango Airlines	0.00	0.55	3.42	1.1%	25.7%	
24	Etihad Airways	0.03	1.02	2.82	0.9%	13.5%	39.8%
25	Qantas Airways	2.04	2.25	2.73	0.9%	2.5%	2.1%

Note: The airlines represent 82.4% of total market share in estimated seats.

Source: Author's calculations based on data by Diio (2016).

the small state-owned carriers, such as Air Malawi and Air Tanzania, had an extremely small number of seat kilometres served compared to the established carriers, and proved not to be sustainable.⁴

SUB-SAHARAN AFRICA INTERCONTINENTAL CAPACITIES

Intercontinental traffic (external traffic not including North Africa) has been growing by an average of 5.8 per cent between 2001 and 2015, from 18.4 million seats to 40.5 million. During this period there was not one year of negative growth, even during the economic slowdown. Direct routes grew from 260 to 363.⁵

⁴ See Bofinger (2017: Tables A2.1 and A2.2) for a listing of airlines.

⁵ See Bofinger (2017: Figures 7 and 8).

For a long time, Johannesburg has been by far the most important intercontinental gateway to SSA. And as traffic has grown overall, so has that of Johannesburg, albeit at a slower pace. Significant is the emergence of Addis Ababa as a prime gateway and hub, now, with 5.10 million estimated seats, nearly as busy as Johannesburg (6.69 million estimated seats).⁶

The emergence of Emirates and Ethiopian as the prime providers of intercontinental services is a recent phenomenon, since this role has traditionally been held by South African Airlines. The decline of South African Airways from its prominent position is the result of unanticipated challenges and, in hindsight, ill-advised management decisions.⁷

British Airways has traditionally been one of the leading airlines from Europe into East Africa, which is mostly English-speaking. However, this role has declined, as the airline has gone from serving thirteen SSA in 2001 to only seven in 2015. By contrast, Air France has held her ground, serving twenty-one to twenty-five countries each year between 2001 and 2015, most of them French-speaking, with no presence in East Africa. The top three airlines offering intercontinental services now consist of Emirates, Ethiopian Airlines, and Air France.⁸

2.2. *International Traffic within Africa*

After a short decline in capacity between 2001 and 2002, international traffic within Africa showed strong growth, especially within SSA, though international traffic between SSA and North Africa also increased.⁹

INTERNATIONAL CAPACITIES WITHIN SUB-SAHARAN AFRICA

There has been some increase in direct international connectivity measured in airport pairs served between SSA. This dwarfs the significant increase in overall capacity, from 10.3 million seats in 2001 to 22.7 million in 2015. Average growth has been 5.1 per cent for the period.

For a long time, Johannesburg has been by far the most important intercontinental gateway for SSA and as traffic has grown overall, so has that of Johannesburg, albeit at a slower pace. Significant is the emergence of Addis Ababa as a prime gateway and hub, now edging up to South Africa. Some of the top connections involve South Africa and its neighbours (Zimbabwe, Namibia), but also interestingly the islands of Mauritius and Réunion. The significance of the connection between Kenya and Tanzania is easily explained—their border shares some of the most important tourist destinations in East Africa.

⁶ See Bofinger (2017: Figure 7).

⁷ For a discussion of the rise and fall of carriers in Africa, see Bofinger (2017: Box 1).

⁸ See Bofinger (2017: Table 5).

⁹ See Bofinger (2017: Figure 9).

It is in the international markets within SSA where Ethiopian Airlines' strategy of expansion, often using fifth freedom flights (hopping from country to country on a single flight), has paid off. Between 2007 and 2015, the airline has nudged the long-leading South African Airways into second place, with 10.87 billion seat kilometres as compared to South Africa's 6.76 billion.

INTERNATIONAL CAPACITIES BETWEEN THE NORTH AND SUB-SAHARAN AFRICA

Between 2003 and 2008 some of the highest annual growth rates in seat capacity in Africa can be found between North and SSA, topping 30 per cent in 2004. Overall, the market averaged 12.3 per cent annual growth between 2001 and 2015. The number of routes more than doubled between 2001 and 2015, from thirty airport pairs to over sixty in 2015. Much of this has to do with the new role of Royal Air Maroc: with scarce connections within West Africa, the airline developed its connections into the region. The top fifteen routes include routes with Morocco and Senegal, Mauritania, Cote D'Ivoire, Mali, Guinea, Congo, Nigeria, Cameroon, and Sierra Leone. Royal Air Maroc ranks first in the intra-North and Sub-Saharan market, with a 45.9 per cent market share, followed by Egypt Air with 31.4 per cent. Not surprisingly, the airport in Casablanca ranks first in this market, albeit by a small margin over Cairo.¹⁰

THE RISE OF FIFTH FREEDOM FLIGHTS IN SUB-SAHARAN AFRICA

The Yamoussoukro Decision of November 1999 aimed at liberalizing international travel between African countries by promoting free pricing, lifting capacity and frequency restraints, and by allowing fifth freedom flights. Given the overall small size of the African air transport market, allowing fifth freedom flights is a significant step, since it allows the capacity of an aircraft to be spread amongst multiple international destinations on one marketed flight. This allows, for example, a flight to originate out of Addis Ababa, land in Nairobi, Kenya to drop off and pick up passengers, continue on to Kilimanjaro in Tanzania to drop off passengers destined there, move on to Dar es Salaam, drop off passengers there from both Addis Ababa and Nairobi, and pick up passengers for the last leg back to Addis Ababa.¹¹

The success in the implementation can be measured in the number of international airport connections served by multi-stop flights in Africa. Sub-Saharan services have thrived, and multi-legged connections have increased significantly. The share of seats on those flights as compared to the overall

¹⁰ See Bofinger (2017: Tables 9–11).

¹¹ Note that there are no passengers being picked up in Kilimanjaro for Dar-es-Salaam, since this is a domestic route, and a foreign airline serving domestic routes in another country would consist of cabotage, which in air transport generally does not occur.

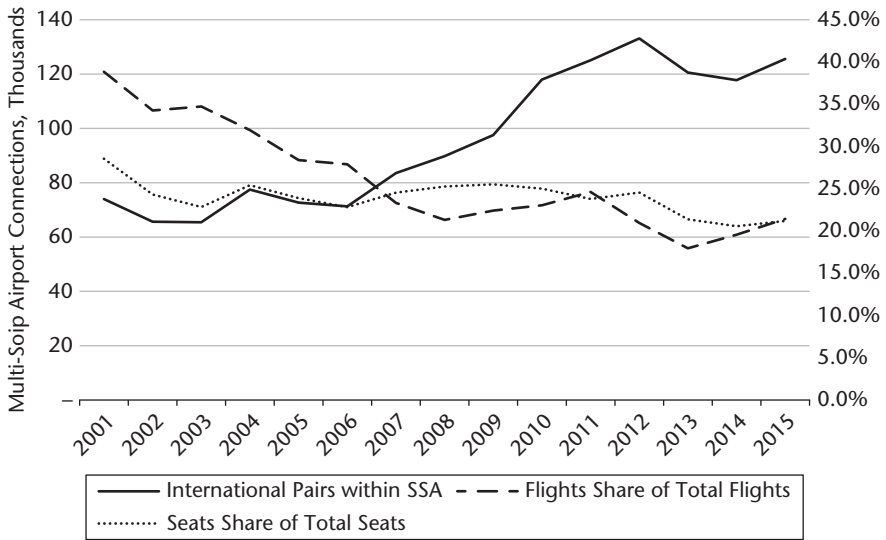


Figure 6.3. Number of international airport pairs served on multi-stop flights in sub-Saharan Africa, and the share of total international routes and seats

Source: Author's calculations based on data by diio (2016).

total has remained within a 20 per cent to 25 per cent band, showing the importance of these flights as being about one-quarter of the overall capacity. The total percentage share of the flights themselves over total international flights in SAA has declined, indicating that the multi-legged international flights are using larger aircraft with higher seat capacities (Figure 6.3).

The fifth freedom route model has become the keystone of the development of services by key African airlines, with both Ethiopian and Kenyan Airlines having drastically increased the number of these segments. It also appears to be the cornerstone strategy of some newcomers, such as RwandaAir, which has grown 55.1 per cent annually since 2007 and now holds an 8.8 per cent market share.

2.3. Domestic Traffic

Domestic traffic in SSA has been climbing steadily, from 17 million seats in 2001 to nearly 38 million seats in 2015, with the only decline being between 2011 and 2012. However, as passenger volume has skyrocketed, the number of direct domestic routes has declined between 2001 and 2009 from above 450 to below 300. One may, incorrectly, assume that the decline in direct connectivity may have to do with the emergence of hubs such as Bole International Airport in Addis Ababa; however, the decline of routes was a universal

phenomenon, with the number of routes involving hubs such as Bole also declining between 2001 and 2009 as domestic traffic actually grew. Another theory could be the increasing urbanization centred on larger African cities, with less populated destinations falling off the domestic air transport grid. Also there could be modal shifts between destinations as the road networks improve.

By far the largest domestic air transport market is South Africa with an estimated 18.56 million seats in 2015, with Nigeria being a distant second with 6.62 million seats. Both Kenya and Tanzania have the rift valley as an important tourist destination, which is also a driver for domestic services. South Africa also dominates in the number of seats for domestic airports, and nine out of the top fifteen domestic routes are in South Africa. The three top domestic airlines, Comair, South African Airways, and Mango Airline are all based in South Africa, and command over 50 per cent of all domestic seat capacity in SSA.¹²

2.4. Competition

A common measure of competitiveness in a given market is the Herfindahl-Hirschmann index (HH Index), which is a measure of market concentration used both by the US Department of Commerce and the Department of Justice in allowing corporate mergers. Conceptually, the HH Index is a simple measure: it is simply the sum of the squares of each market participant's market share. The result of the sum allows an interpretation of market concentration.

One way to compute this index would be to total all the seats in a given market segment, such as intercontinental travel with SSA, and then create the same summation by airline in the market, with the percentage share. This, however, would miss the fact that true competitiveness should be measured on a per route basis. A better measure of competitiveness would be to analyse the competitiveness of each route in a market segment, and then find an overall percentage of routes that fall within a given state of market concentration.

The competitiveness of each route would be calculated as follows:

$$H = \sum_{i=1}^n s_i^2$$

Where n = the number of airlines serving the route, and s ($i = 1$ to n) = the individual market shares per airline.

The following sections present the results of the calculations for each market segment.

¹² See Bofinger (2017: Figures 15, 16, and Tables 13–16).

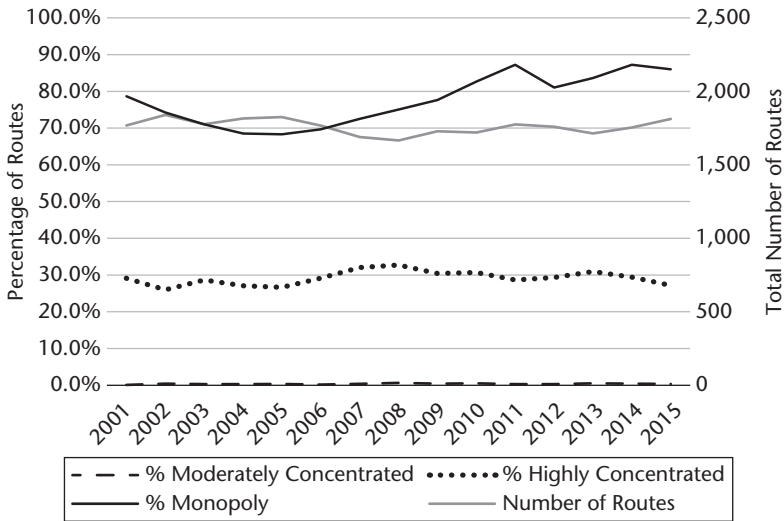


Figure 6.4. Percentage of routes by market concentration, all travel with Africa, and total number of routes

Source: Author's calculations based on data by diio (2016).

OVERALL COMPETITIVENESS

Routes in general show an almost symmetric pattern of swinging between being highly concentrated and a complete monopoly with only one airline serving (Figure 6.4). The percentage of routes that are moderately concentrated is very low—their share hovers between 0.1 and 0.6 per cent of all routes, with 2006 having had the highest share. Overall competitiveness rose between 2005 and 2007, with the number of highly concentrated routes gaining at the loss of monopolized routes. This trend reversed itself in 2008, and as the number of total routes rose, there are indications that the new routes may have been single-airline routes.

The symmetry of these patterns is common in all market segments, with some differences in severity. Intercontinental routes with SSA will, for example, show that over 80 per cent of routes are in a monopoly state, whereas in northern Africa the percentage has dropped from over 70 to slightly above 60.

COMPETITION IN SUB-SAHARAN INTERCONTINENTAL ROUTES

Even as the total number of intercontinental routes has risen from a low of 300 in 2003–4 to a high of 440 in 2012, the share of routes in a monopolized state has risen from 69.5 per cent in 2001 to 81.5 per cent in 2015 (Figure 6.5). This implies relatively thinly travelled routes, where airlines may not see fit to compete with another market entrant on a given route. There is

Industries without Smokestacks

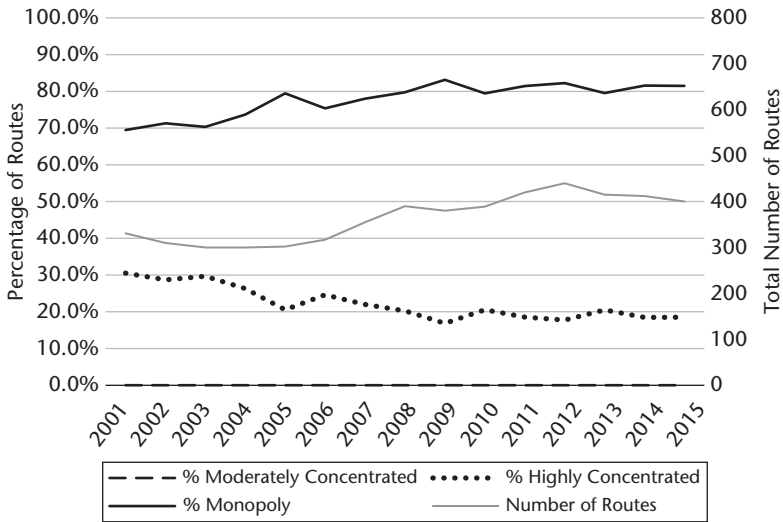


Figure 6.5. Percentage of routes by market concentration, intercontinental with sub-Saharan Africa, and the total number of routes
Source: Author’s calculations based on data by Diio (2016).

not much divergence in the pattern—the percentage of sub-Saharan intercontinental routes that are a monopoly has steadfastly been above 70 per cent.

COMPETITION IN INTERNATIONAL ROUTES WITHIN SUB-SAHARAN AFRICA

Competitiveness in international routes within SSA was in a dead heat between routes with only one carrier and highly concentrated, but not monopolized routes in 2001. Since then, single-carrier routes have gained, rising from 51 per cent of routes to 70 per cent of routes in 2015 (Figure 6.6). A very similar pattern evolved with international routes within North Africa.

COMPETITION IN INTERNATIONAL ROUTES BETWEEN NORTH AFRICAN AND SUB-SAHARAN AFRICA

The international routes between the north and SSA feature the least competition, and the highest percentage shares of monopolies. Royal Air Maroc and Egypt Air combined hold 77.3 per cent of this market in seat kilometres, with other competitors being minor. Over 90 per cent of routes are a monopoly (Figure 6.7).

COMPETITION IN DOMESTIC ROUTES WITHIN SSA

Between 2001 and 2009, as the number of routes served declined from 577 to 322, competitiveness actually increased, with 90 per cent of routes being

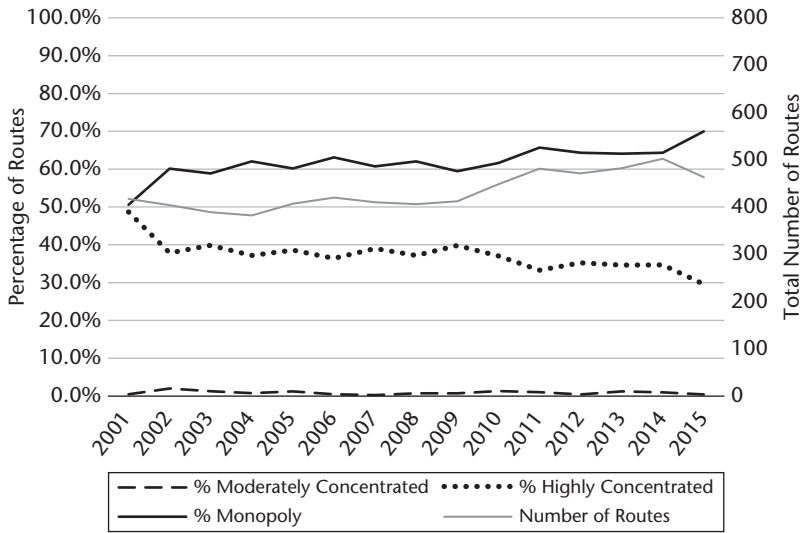


Figure 6.6. Sub-Saharan Africa, and total number of routes
Source: Author's calculations based on data by Diio (2016).

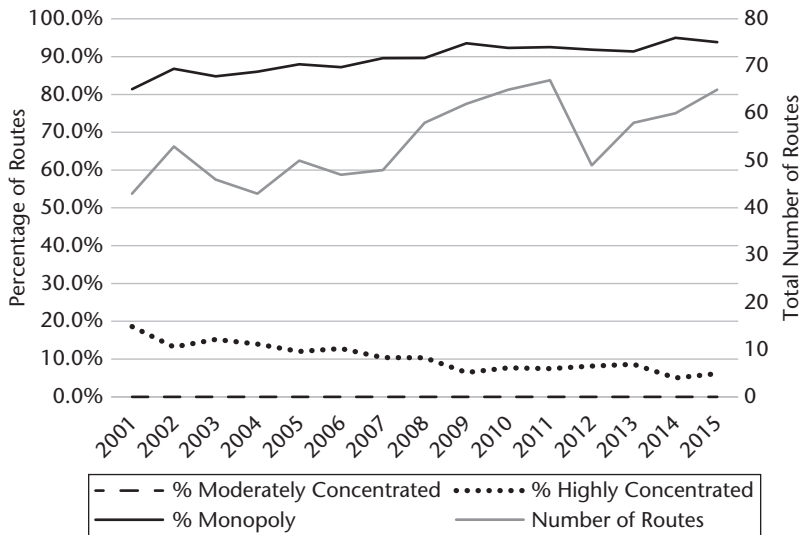


Figure 6.7. Percentage of routes by market concentration, international travel between North and sub-Saharan Africa, and the total number of routes
Source: Author's calculations based on data by Diio (2016).

Industries without Smokestacks

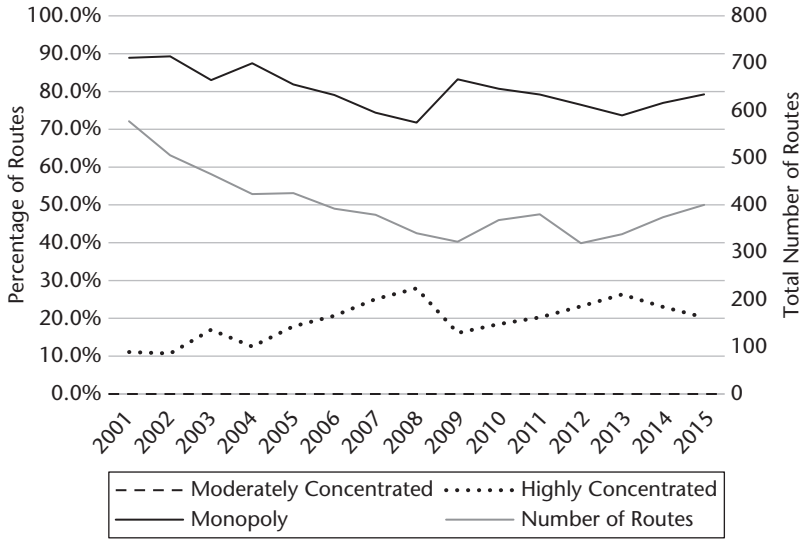


Figure 6.8. Percentage of routes by market concentration, domestic travel within sub-Saharan Africa, and total number of routes

Source: Author’s calculations based on data by Diio (2016).

monopolies falling to 72 per cent in 2008, and 11 per cent of being highly concentrated rising to 28 per cent in 2008 (Figure 6.8). A reversal took place at the oncoming of the global slowdown, and between 2008 and 2009 competitiveness trended downwards, followed by a mild recovery that lasted until 2013. The trend is now towards further consolidation.

POSSIBLE CAUSES FOR THE OVERALL CONCENTRATION IN AFRICAN AIR TRANSPORT MARKETS

Overall, African markets suffer from very low volumes. There are only three truly competing sub-Saharan carriers providing viable international services within Africa: Kenya Airways, South African Airways, and Ethiopian Airlines. Many of the routes flown are not sustainable by themselves: only by introducing fifth freedom ‘round robin’ flights can load factors reach sustainable levels. An indicator of the density of traffic can be seen in the number of runways at key airports: only OR Tambo International Airport in Johannesburg has two parallel runways, while Nairobi’s Jomo Kenyatta International Airport does not even have a parallel taxiway for the entire length of the runway. In another perspective, of the 328 international and intercontinental airport pairs served in 2015, only 57 had over 100,000 seats, approximately the viable breakpoint at which competition enters the market. The number of monopolized routes decreases with the number of estimated seats, the seats being an indicator of the market size (Table 6.3).

Table 6.3. Number of international routes with monopolies by estimated seats per route

Route estimated seats	Routes with HH=1 (monopoly)	No. of total routes	Share of routes with monopolies
<100,000	200	271	73.8%
>= 100,000 and < 200,000	11	36	30.6%
>= 200,000 and < 400,000	2	13	15.4%
>= 400,000 and < 1,000,000	0	8	0.0%

Source: Author's calculations based on data by Diio (2016).

The question of why air transport demand is so low on these routes could be a factor of costs, or perhaps protectionism does play a role. However, most likely the low demand represents the overall weakness of the economies involved: Senegal's Senegal Airlines attempted to build a cross-regional network in West Africa by throwing high-quality capacity at the market (several Airbus A-320s on leases), but the overall effort failed significantly, with only operators flying small turboprops being able to sustain service.

Though liberalization is not equally implemented in SSA, the overall framework Ethiopian Airlines invokes when negotiating with potential partner countries is centred around the Yamoussoukro Decision. The seventeen SSA countries not served by Ethiopian Airlines are mostly islands, smaller states, or not densely populated. This would further support the notion that the lack of service or competition for service in SSA is no longer a function of restrictions of access (protectionism), but rather lack of demand based on other economic factors.

THE ROLE OF THE PRIVATE SECTOR IN AIRLINE OWNERSHIP

A common refrain amongst economists and consultants is that airlines should not be owned by governments, but be owned and operated by the private sector. The US and the EU are held up as models for how the industry should function. Many smaller countries, though, pride themselves in having a national flag carrier that represents the country in air transport. Often the marketing towards tourism is cited as a reason.

Travel & Leisure annually ranks the best airlines according to their quality of service. The magazine also ranks the worst airlines in terms of service. The 2016 lists are interesting, because the top four 'worst' airlines (Spirit, Allegiant, Frontier, and EasyJet) are privately owned in highly competitive domestic markets, while the top four best airlines are all government-owned flag carriers (Singapore, Emirates, Qatar, and Etihad). When advised not to reinvest in a failing flag carrier, and to move towards private sector participation, a counter-argument by policy makers is 'but why, look at the success of Ethiopian, Singapore, or Emirates', which are all state-owned flag carriers.

There are, however, many reasons why airlines succeed or fail, and both private sector and publicly owned airlines do both. In an open system with publicly owned airlines there is price competition, and though you may see airlines fail, the consumer benefits through lower prices. In closed, monopolized systems there is no competition, prices may be higher, and an airline may still fail if there are (a) no economies of scale and (b) no management of the airline in a truly commercial framework, as is often the case.

2.5. Air Freight

STATISTICAL OVERVIEW, SUB-SAHARAN AFRICA

The air freight market, as measured in ton kilometres, has grown from roughly 1,800 million to nearly 2,900 million between 2008 and 2015. As expected, the global slowdown is reflected between 2006 and 2008 (air cargo tends to be a leading indicator). The most recent data shows a slowdown of growth to about 0.5 per cent, significantly down from the post-recession recovery, where annual growth was as high as 17.8 per cent between 2009 and 2010.

Ethiopian Airlines has followed an aggressive strategy in expansion, and the freight ton kilometres for Ethiopia show the results. Both Kenya and Ethiopia have horticultural (cut flowers) exports, which mean long-haul flights to Europe.¹³

DESCRIPTION OF THE AIR FREIGHT MARKET IN THE NORTH AND SUB-SAHARAN AFRICA

Unlike the passenger market in air transport, the air freight market is difficult to quantify and analyse, in part because there are different variations of service within the air freight market, and also because of the lack of publicly available data.

A large portion of air freight (between 30 per cent and 50 per cent by weight globally) travels within the bellies of passenger jets, along with checked luggage. The capacity to transport this freight is deeply dependent on passenger flights. Air freight in general is considered to be more liberalized in terms of movements between countries and allowing routes, including fifth freedom routes. However, though the limitations on air freight theoretically are less, belly capacity realistically places a larger portion of air freight into the same realm as passenger services, which generally tend to be less liberalized. This affects the belly capacity for air freight travelling within Africa.

Scheduled cargo services are hard to measure statistically, since markets are highly competitive, and keeping route data and current and potential clients

¹³ See Bofinger (2017: Figure 22 and Table 22).

confidential is a necessary *modus operandi* in the air cargo industry. A true understanding of the industry, therefore, needs incorporation of anecdotal evidence, and also an understanding of the underlying sources of demand. The sector can be described as having three variations in implementation:

- Belly cargo for within and intercontinental freight transport: perishable exports such as cut flowers may be loaded into the bellies of wide-bodied passenger planes leaving Nairobi or Addis Ababa for, say, Europe, where they are brought to purchasers.
- Dedicated scheduled cargo flights, either from carriers having both passenger services or being strictly cargo, may on a regular basis jump from country to country (fifth freedom flights), using dedicated cargo aircraft.
- Random charters or industry-specific flights might be undertaken, on a less formal basis, to export cargo such as mineral products or perishable food products, with chartered dedicated cargo aircraft. These flights can be with normally operated airports, or can be bush flights, as is the case in remote mining operations such as in Congo, DRC.

Africa's air freight in the past has mostly been of the third variation above: with minimal industrial exports, the largest bulk of air freight exports were perishables with Europe (Boeing 2015: 33). The markets vary in their state of development: Kenya's flower exports are well studied, and the industry can now be considered well established. Similar attempts are now being made in Mwanza, Tanzania. Ethiopia is building its flower exports. Critical factors for success are the underlying infrastructure in getting cut flowers to the airport: Kenya's flower-growing region (Lake Naivasha, 90 km north-west of Nairobi) is well connected by road to Kenya's international airport, whereas Ethiopia's flower-growing region in the past has had poor road connectivity to Bole International Airport in Addis Ababa, with a 40 per cent spoilage rate.

3. Safety Oversight

Air safety in Africa has been one of the aviation industry's biggest concerns. For years, Africa ranked the worst in jet hull losses and other types of safety measures. A rash of eight serious accidents between 2002 and 2009 put aviation safety in Africa into the spotlight: of those eight accidents, four were in Nigeria, and a concerted effort began to bring safety issues under control, including a World Bank programme for increasing effective oversight in several countries in West Africa.

The causes of the high rate of accidents and fatalities are numerous. For several years, African countries became a favourite destination for older

soviet-made aircraft, and aircraft age (including western manufacturers) and overall quality became an issue. The old aircraft ‘dumping’ onto Africa also reflected a basic lack of capacity by, and independence of, regulatory agencies that often fell under political influence. A potential operator would use political influence, for example, to have an older cargo aircraft certified for commercial use even though the aircraft would never pass properly enforced safety inspections.

ICAO’s Universal Safety Oversight Audit Programme (USOAP) provides a yardstick with which countries can be measured comparatively with respect to their implementation of aviation safety standards and recommended practices. The audit also issues alerts when a country’s regulatory oversight is so poor that safety concerns are significant. Four out of the globally eight countries flagged as such are in SSA, namely Angola, Djibouti, Eritrea, and Malawi. Overall fifteen SSA countries have deficits in meeting global averages in implementation of all eight categories being measured.¹⁴ What is important in understanding USOAP averages is that these global averages are (a) just averages of implementation and *below* the optimal level of implementation and (b) as averages, are mathematically pulled lower by poor performers. Three other global safety assessment programmes exist that have a significant impact. Beyond ICAO’s USOAP, there is the US FAA’s International Aviation Safety Assessment (IASA) programme, which also audits safety oversight in countries, the IATA Operational Safety Audit (IOSA) registry, which audits individual airlines’ safety mechanisms, and the EU blacklist, which bans either countries or individual airlines from countries from entering the EU.

The FAA’s IASA programme is comprehensive in that it does not audit specific airlines, but rather the regulatory oversight system of countries. A country that wishes to fly into the US is required to complete this audit, and pass the coveted ‘Category 1’ rating, while failing results in a ‘Category 2’. To date there are only four SSA that carry the Category 1 rating: Ethiopia, South Africa, Cape Verde, and recently (as of 2010) Nigeria.

IATA requires all member airlines to pass the IOSA, after which the passing airline appears on the IATA registry. Currently there are thirty-one sub-Saharan airlines on the registry, including the major carriers (Ethiopian Airlines, Kenya Airways, and South African Airways).

The EU blacklist is unique in two aspects. The list works by country, airline, and even specific aircraft, where for example all aircraft from a mentioned airline may be banned from the EU except for one or two with specific registry numbers. The list also mentions airlines that do not fly into the EU, and have no intention of flying into the EU: the list warns European nationals about

¹⁴ See Bofinger (2017: Table 24).

what airlines to avoid when travelling abroad. In 2012, the list contained 284 airlines, of which 130 were African, and 24 countries, of which 17 were African (Ohaeri 2012). The list of 12 August 2016 still includes 24 countries, of which 15 are Sub-Saharan (European Union 2016).

The silver lining in the cloud is that the shock of the series of accidents between 2005 and 2006 in Nigeria resulted in significant changes in the leadership of Nigeria's civil aviation authority. On 23 April 2010 Nigeria received the coveted Category 1 rating by the US FAA. In 2012, the African Union signed the Abuja Declaration on Aviation Safety in Africa, which is now being implemented in cooperation with IATA.

4. Policy Recommendations

Three significant challenges face the aviation sector in SSA: aviation safety (a reflection of institutional oversight); non-sustainable national flag carriers; and expensive infrastructure investments that overestimate demand and fail to recognize the key functions of airports. Policy makers should be fully aware of where the separation of private sector service provision and public infrastructure should occur. Three general policy recommendations are:

1) Aviation safety cannot be compromised for any short-term economic gain or interim policy objective.

Preventing accidents requires a rigorous institutional approach in implementing international standards and recommended practices. Regulators, airport authorities, and airlines should be institutionally separated and have clear firewalls between them

2) Small, state-owned flag carriers tend to drain state funds, are not sustainable, hinder the sector from developing, and often even pose a safety hazard.

There is a list of about-to-be defunct and actually defunct small flag carriers that have accumulated extensive losses for their treasuries. Airlines appear, some survive, and some fail, and the private sector should assume this risk

3) Airport investment should be done carefully, keeping in mind that most airports serve as gateways, not as hubs, and that creating a hub requires players who desire a hub.

Three notions need to be kept in mind when looking at airport investments:

a) Airports are, by their very nature, monopolistic. But airports are also complex systems: there is, for example, no shortage of runways in Africa given the current traffic levels. However, terminal space can run out as traffic grows, and terminals can be developed with private sector participation. It is

becoming more and more common for governments without the capital reserves to invest in new terminals to use PPP concessions to finance new investments

b) Many countries dream of developing passenger or logistics hubs at the airports, often spurred on by hearing news that a neighbouring country has the same plans. The fact is that there can only be so many hubs globally, and most likely the airport in question really serves as an all-important gateway

c) In Africa, new airport development is often financed through very high ticket surcharges. These have the effect of reducing traffic and demand. If a US\$400 ticket has a US\$80 to US\$100 airport development surcharge, the extra 25 per cent added to the ticket price will have a dampening effect.

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7

How Trucking Services Have Improved and May Contribute to Economic Development

The Case of East Africa

Charles Kunaka, Gaël Raballand, and Mike Fitzmaurice

1. Introduction

An efficient and properly functioning transportation and logistics system drives competitiveness, particularly in this era of tightly integrated global supply chains and cross-border trade.¹ There has long been consensus in the literature and among policy makers on the importance of good logistics in order to make manufacturing and exports grow (Huria and Brenton 2015; Oqubay 2015; Haralambides and Londoño-Kent 2004). The regional dimension of infrastructure and trade facilitation policies is considered as an important determinant of countries' ability to connect to global value chains (Shepherd 2016).

Good logistics means efficient services, such as trucking services, freight forwarding and handling, and terminal operation, as well as those provided by a whole chain of service providers. In this regard, there is a common paradox:

¹ The authors are grateful for the guidance and suggestions of several colleagues and reviewers, among them Richard Newfarmer, John Page, and Phil English, as well as participants at a workshop organized by UNU-WIDER in July 2016. The authors are also indebted to Olivier Hartmann, who provided data and shared his tremendous knowledge of the trucking industry of East Africa. They also appreciate the generosity of many of the trucking firms and drivers, who provided data during surveys on the industry. Mike Fitzmaurice has been involved in many such surveys and is particularly grateful for their willingness to share their views on the improvement of the trucking industry of the region. Last and by no means least, the authors acknowledge the support and resources provided by UNU-WIDER and the World Bank, without which this work would not have been possible.

- On the one hand, it is clear from experiences on the ground and the perceptions of traders and exporters/importers that efficiency in logistics services is crucial for trade growth
- On the other hand, as mentioned by Porter (2014), research on transport services efficiency has mainly been a ‘forgotten factor’ in the literature on infrastructure efficiency.

Trucking services are crucial to the development of African economies. Access to regional markets is very sensitive to the efficiency of trucking services, as these are the dominant mode of transport. More efficient transport services and increasing trucking industry productivity are crucial to the development of various industries, such as horticultural products, including fresh fruit, vegetables and flowers.

Efficiency in logistics services is also crucial to regional trade integration: if trucking services are not efficient, the economic impact of infrastructure investments is limited (Teravaninthorn et al. 2009). When access is granted regionally to foreign-owned logistics firms, the export of services can grow in line with increased efficiency.

In East Africa, there have been numerous concerns over logistics efficiency (for example, Kamarudeen and Söderbom 2013 for the case of Rwanda; World Bank 2013 for Kenya; Hartmann and Asebe 2013 for East Africa as a whole). Balistreri et al. (2016) find that trade costs have become a greater barrier to trade integration than tariffs. So, even as tariffs have been abolished within the East African Community (EAC), high trade costs, of which transport is a major component, still hamper the free flow of commerce.

However, East Africa is making progress in logistics performance—at least according to the Logistics Performance Index (LPI).² East African countries were among the most improved countries between 2014 and 2016. Kenya, Rwanda, and Uganda out-perform their income group peers (see Figure 7.A1 in the Annex). This is mainly due to: (a) port and border post improvements; (b) transit management reforms; and (c) reduction in en-route physical checks and controls.

With a focus on East Africa, this chapter will not only assess the efficiency/inefficiency of the trucking industry in comparison with other regions of the world, but also present the various industry trends (in terms of productivity/competition/innovation) in order to supply information usually overlooked by policy makers and trade researchers. Through this lens of fleet characteristics and management, the chapter will explain why there have been major price reductions along the Northern Corridor but not along the Central Corridor.

² For details on the methodology of the LPI, see <http://lpi.worldbank.org/>.

In terms of methodology, we utilize a combination of unpublished data surveys and published data (mainly port data). We present unpublished material obtained through trucking and border surveys to assess the extent of trucking services integration.

Based on these various types of data on the trucking industry, several important messages can be drawn:

- There has been a noticeable price reduction of long-distance trucking services along the Northern Corridor (the corridor from Mombasa, Kenya, to Uganda/Rwanda/Burundi/eastern DRC).
- The integration of trucking services is moving fast in East Africa (along the Northern Corridor), with three-quarters of trucks serving Rwanda foreign-owned.
- Trucking fleet characteristics and management have improved tremendously and are now comparable to those of South Africa, which has the most developed market in sub-Saharan Africa.
- The facilitation of border clearance processes has played a major role in improving fleet productivity.
- Regional harmonization of infrastructure, improvements in vehicle standards, and the facilitation of market access seem to be bearing some fruit along the Northern Corridor, as evidenced by the rapid development of larger and more efficient truck fleets (with several companies operating more than 500 trucks in this sub-region).
- However, some forms of protection remain in place, taking effect through the prohibition of cabotage, the imposition of permits, or restrictions on vehicle configurations.

Overall, transport price decreases along the Northern Corridor derive from increased competition and a reduction in border-crossing delays that led to increased mileage and lowered traffic. There has been an incentive to invest in new fleets and an increase in professionalism.

The remainder of the chapter is structured as follows. The next section presents the stylized facts on trade volumes and transport prices trends. Section 3 presents the characteristics of the truck fleets and the main trade facilitation reforms that have taken place in East Africa in recent years. Section 4 provides estimates of the extent of competition in the trucking industry regionally and an assessment of the remaining obstacles. The final section presents conclusions and suggests what should be done to further improve trucking efficiency in the sub-region.

2. Trade Volumes and Transport Prices

International trade volumes of EAC countries have increased significantly in recent years. For instance, over the period between 2010 and 2014, total trade increased from US\$3.7 billion to US\$5.6 billion. However, the increase in trade volumes was even more visible in the growth in international trade flows through the main trade gateways of the ports Mombasa and Dar es Salaam. At Mombasa, the volume of traffic increased by half between 2004 and 2011, while at Dar es Salaam it doubled between 2002 and 2010. In the last decade, traffic flows have increased from over 400,000 TEUs³ to over 1 million TEUs. Even if port traffic in East Africa remains marginal compared with other regions of the world, traffic has increased dramatically in the last decade.

While the coastal states of Kenya and Tanzania account for much of the growth in traffic through their ports, the growth in the volume of transit traffic to and from the landlocked countries has been just as significant. A combination of infrastructure and border management improvements has led to greater volumes being shipped faster and more efficiently to economic centres in Burundi, eastern DRC, Rwanda, and Uganda. In fact, the region is beginning to develop a regionally integrated and increasingly sophisticated logistics system with infrastructure and services connecting the seaports and container freight stations with the inland container depots (ICDs)⁴ and other customs clearance facilities. This is despite the fact that some of the infrastructure, especially off-dock facilities, was initially designed as a quick-fix solution to overcome port congestion.⁵ Off-dock facilities were initially established in 2007 in the vicinity of the ports of Mombasa and Dar es Salaam to alleviate terminal congestion but have since become established as extensions of the ports, as well as being designated to handle specific types of cargo.

In contrast to the situation in the colonial period when rail transport dominated, road transport is by far the most important mode of transport in East Africa (see Figure 7.1), with a market share of over 90 per cent for the EAC region as a whole and for Tanzanian traffic (out of the port) and over 80 per cent for Zambia and DRC, despite the long distances involved. This explains why trucking services efficiency is critical to logistics efficiency and, consequently, manufacturing growth in the sub-region.

Limited capacity and unreliability due to operational constraints limits the market share of the railways, the only other feasible mode, to about 6 per cent of total volumes in both the Northern and Central Corridors. The railways

³ Twenty-foot equivalent units.

⁴ In East Africa, ICDs are secured facilities far from the port that help importers and exporters to process goods clearance. They are mainly along railway lines in East Africa.

⁵ For a more detailed presentation of the implemented reforms, especially for Dar es Salaam, see Raballand et al. (2012).

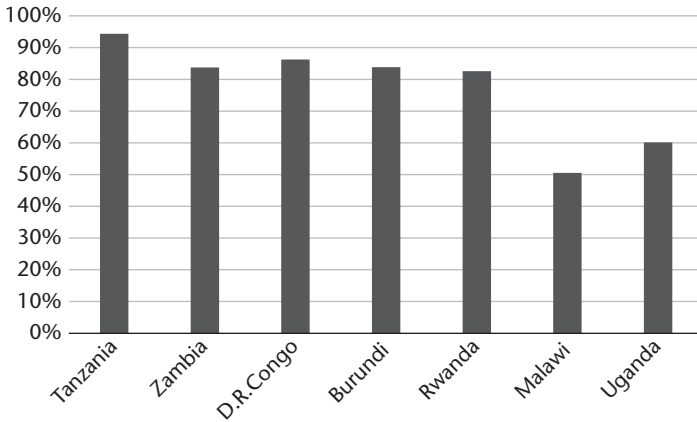


Figure 7.1. Road transport share of different destinations out of Dar es Salaam, 2015
Source: Authors' estimates based on data from Tanzania Ports Authority.

suffer from many years of low investment and poor reliability; even after concessioning, they are yet to attract traffic from the roads. However, it is expected that the new standard-gauge railway network that is under construction across the region will offer faster and more reliable services and be more competitive with road transport.

With the rapid growth of traffic, many companies have invested in new trucks in recent years (especially in Kenya). However, in the last two or three years, traffic has not increased as before; in a competitive environment, supply being in excess of demand, prices should therefore have decreased. This has been partially true in East Africa (and is a proxy for remaining obstacles to competition in the sub-region, as will be illustrated later).

In recent years, there have been conflicting trends in East Africa:

- Transport prices along the Northern Corridor have gone down significantly (by 30 per cent from Mombasa to Kigali between 2011–15 and by 26 per cent to Kampala during the same period).
- Transport prices along the Central Corridor have increased significantly in this same period, with an increase of 79 per cent from Dar to Kampala and 36 per cent to Kigali.⁶

It is all the more puzzling that Tanzania has had such a price increase when traffic has increased even more than in Kenya, which should have led to the same investments and trucking professionalism improvements. As we will show later, the Tanzanian industry is the most protected of the region and

⁶ Shippers Council of Eastern Africa (2015).

this probably explains at least partly why transport prices are still high despite growing traffic.

The possible impacts of improving logistics performance can be seen from the results of the East Africa Trade and Transport Facilitation Project (EATTFP) financed by the World Bank in East Africa (see Box 7.1 below). Financing through the project totalled US\$219 million, distributed across four project countries: Kenya, Rwanda, Tanzania, and Uganda.⁷ The project financed improvements to infrastructure (border posts, weighbridges); modern IT systems in the port and for trade portals and national single window systems; and the rehabilitation of vessels on Lake Victoria. It also financed policy reforms for border management in all the project countries.

One of the most effective ways to assess the impact of improvements along a trade corridor is to look at the changes in the costs incurred by the supply chains along the corridor. A supply chain approach helps to disaggregate the costs associated with each activity along the supply chain and allows for the

Box 7.1 THE EATTFP

The EATTFP was developed as a response to a request by the EAC and its member countries. Following its promulgation, the EAC sought World Bank and African Development Bank support to enhance the regional integration agenda in East Africa. The project was conceived with three main aims:

- i. to support the improvement of the general trade environment through effective implementation of the customs union and related free market;
- ii. to support actions for improving the efficiency of supply chains in and out of the region as well as along the trade routes linking the main gateways to the main economic centres;
- iii. to support the governments of Kenya and Uganda in the joint concessioning of the Kenya and Uganda Railways.

The project was designed to reduce delays and uncertainty caused by poor transport systems and logistics. The weaknesses in logistics performance showed themselves through:

- port clearance delays
- poor infrastructure and services conditions along the main corridors
- long clearance times at border crossings
- poor general transport and transit organization
- inefficient intermodal interfaces and inland clearance processes.

Project interventions were a mix of seemingly discrete actions, as shown below, but which all contributed to the development objective.

⁷ The amount included a partial risk guarantee of US\$60 million for the concessioning of the railway between Kenya and Uganda.

assessment of the impact of facilitation and regulatory or investment measures (Arvis et al. 2010). Direct and indirect costs can be estimated for each activity, including the costs and time associated with the clearance of goods through a port or a border post, the cost of storage of goods in warehouses (and related opportunity costs of stock-outs and tied up capital), and the costs of mitigating the risk of unreliability in system operations. Uncertainty in delivery time can impose a significant cost on shippers of goods and is often one of the most important cost items to estimate. Using a supply chain approach in East Africa, it was established that the main cargo delays at the ports, especially Mombasa, were reduced by simplified processes, as were clearance times at border crossing points, and there were improvements to intermodal interfaces and inland clearance processes.

As argued above, most of the growth in traffic in East Africa has been accommodated by road transport. The economic analysis of the EATTFP suggested savings to the four economies where the project was implemented totalling US\$800 million by 2012 from an initial investment of US\$200 million. The savings were distributed as shown in Table 7.1.

Even though a majority of the benefits concerned the transit countries (Kenya/Tanzania), Uganda and Rwanda benefited from annual transport savings of over US\$200 million and over US\$35 million, respectively, or 3–4 per cent of total import costs.

Reforms during EATTFP implementation have had an even greater impact on reducing uncertainty than on delays and transport costs (see Figure 7.2). A graphical illustration of the impacts makes it clear that whereas the benefits of the reductions in delays and uncertainty were expected initially to be felt largely in the coastal countries, Kenya and Tanzania, such benefits are also significant in the landlocked countries, Rwanda and Uganda. Still, contrary to the conventional wisdom that the benefits of regional projects should be largest in landlocked countries, the analysis clearly shows that Kenya and Tanzania, the coastal countries, have benefited much more from trade facilitation interventions.

The analysis also shows that the return on investment from soft interventions is much larger than from any infrastructure project. The internal rate of return (IRR) for the project, if all the effects are attributed to it, is over 100 per cent. Even if only a third of the impacts are attributed to the EATTFP, the project has still brought significant benefits to the private sector in East Africa. The impact of the types of intervention supported by the project, especially on shippers and transport companies, was most visible at the border posts. At the Malaba border post, between Kenya and Uganda, a dramatic reduction in clearance times was observed. These reduced from an average of twenty four hours to an average of four hours between December 2012 and January 2013. The reduction was due to a cocktail of measures,

Table 7.1. Savings resulting from EATTFP interventions in 2012 (in million US\$)

	Transport	Delays	Uncertainty
Kenya	0	126.4	176.1
Uganda	92	49.2	50.8
Rwanda	21.2	8.1	7.2
Tanzania	0	52	223.3
Total	113.2	235.7	457.4

Source: Data from Waithaka et al. (2014).

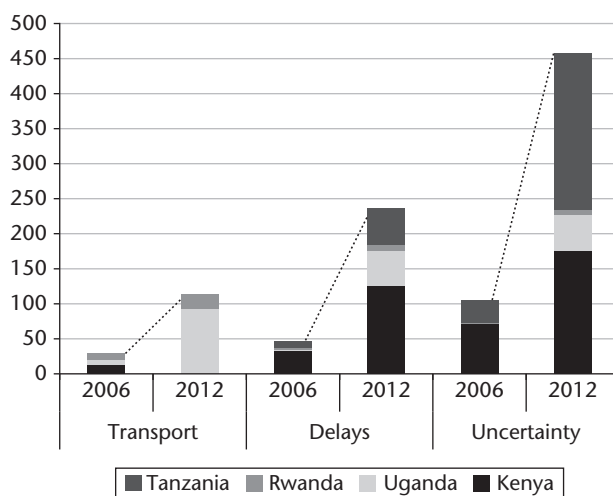


Figure 7.2. Composition of logistics cost savings as a result of EATTFP

Source: Authors' estimates based on World Bank project monitoring data.

chief among them (i) better coordination and data-sharing between the border agencies of the two countries; (ii) mandatory pre-arrival lodgement of declarations; and (iii) the imposition of traffic and truck parking rules to decongest the Customs Controlled Zone.

Improvements in the performance of the Northern Corridor, combined with other reforms (especially the introduction of a single customs territory), have led to a reorganization of some logistics services. Especially in Kenya, Rwanda, and Uganda, the traditional trucking firms and clearing and forwarding enterprises are increasingly offering combined services, covering clearing and forwarding, storage, and transportation. Over time, in line with empirical evidence from other countries, it can be expected that some of the operators will offer even more value-adding logistics services, including packaging, labelling, and distribution.

3. Fleet Characteristics and Developments

Even though there remain numerous problems, trucking services efficiency has improved significantly in recent years (especially along the Northern Corridor) among Kenyan fleets, some of which are now on a par with those in South Africa.

We present in this section the results of (unpublished) trucking surveys in East Africa carried out in 2012–13 (see Table 7.2 for the number of enterprises surveyed).⁸ These have generated new data, which shed new light on the road transport industry in East Africa, as presented in the rest of this chapter.

The main findings are the following:

- East African fleets are catching up South African companies in terms of productivity, fleet age, use of GPS devices, and tracking.
- However, in the sub-region, Tanzanian fleets still lag behind Kenyan fleets.
- The market continues to be concentrated, with a small number of companies owning a large share of the total fleet and a multitude of family-owned companies.⁹
- In terms of employment generation, direct employment of trucking services remains rather limited (since it is a capital-intensive activity).

As in the more sophisticated trucking markets of the USA and Europe, the ownership of the road transport industry in East Africa is concentrated: 5 per cent of the enterprises operate 45 per cent of the truck fleet in Kenya, while that proportion is 40 per cent in Tanzania. There is a dual market, with large enterprises co-existing and competing with much smaller enterprises. In 2014 the Tanzania Transport Operators Association (TATO) had 838 members, of which 692 (83 per cent) owned between 1 and 15 trucks and 146 (17 per cent) had 16 trucks or more. In fact, in Tanzania more than

Table 7.2. Enterprises surveyed versus total per country

	Kenya	Tanzania	Rwanda	South Africa
Total enterprises	1,574	732	220	1,296
Total fleet	17,066	12,356	444	73,787

Note: Figures include domestic transportation.

Source: Data from Hartmann and Asebe (2013); and NP & Associates for South Africa.

⁸ The surveys were the result of a collaboration between corridor authorities and national road transport associations (NRTAs) and increased the visibility of the NRTAs for the industry.

⁹ This is not specific to Africa, but is also a characteristic of this industry in the USA and Europe (Teravaninthorn and Raballand 2009).

Industries without Smokestacks

50 per cent of the enterprises operate 7 trucks or fewer, while in Kenya a similar proportion operate 4 trucks or fewer. In Rwanda, almost 80 per cent of the enterprises operate only one truck. At the other end of the spectrum, several companies operate over 500 trucks, especially in Kenya.¹⁰

Although some enterprises are large, most road transport enterprises in East Africa are family/individual owned (see Table 7.3). In general, shareholding companies are rare, particularly in Tanzania, and they are mostly controlled by national enterprises. Foreign shareholding and investment is practically non-existent, largely due to the relatively low attractiveness of transportation services compared with other services that are open to foreign direct investment.

This should not imply that individual ownership prevents a firm from being managed professionally. The survey depicts an industry in which the top management is highly qualified,¹¹ the fleet is carefully managed and maintained, employees are paid comparatively well, and modern operational techniques are used.

As an illustration of the openness to modern techniques, the level of utilization of ICT for fleet management is high, particularly in Kenya and Rwanda, and there is a high use of GPS management for large fleets (see Figure 7.3). It is particularly striking that half of the enterprises with fewer than ten trucks in Kenya and in Rwanda (where they actually tend to have fewer than seven trucks) are equipped with GPS-based fleet management systems.

The introduction of GPS devices has enabled firms to better monitor vehicle utilization and drivers' practices and has led to transport time reduction as well as better tracking of vehicles and cargo. GPS has also helped to improve the performance of other logistics services users and service providers. Shippers are able to better track and trace their shipments, while customs and other

Table 7.3. Ownership structure of road transport enterprises in East Africa

	Kenya (%)	Tanzania (%)	Rwanda (%)
Individual/family-owned	71	89	74
Local shareholding	16	2	16
Foreign shareholding	3	2	0
Publicly-owned	1	0	0
Others	6	1	0
Not specified	3	7	11
Total n	101	117	19

Source: Data from Hartmann and Asebe (2013).

¹⁰ In South Africa, 36 companies operate more than 500 trucks.

¹¹ In both Kenya and Tanzania, most top managers are graduates or post-graduates and have professional experience—typically 5–15 years, but frequently more.

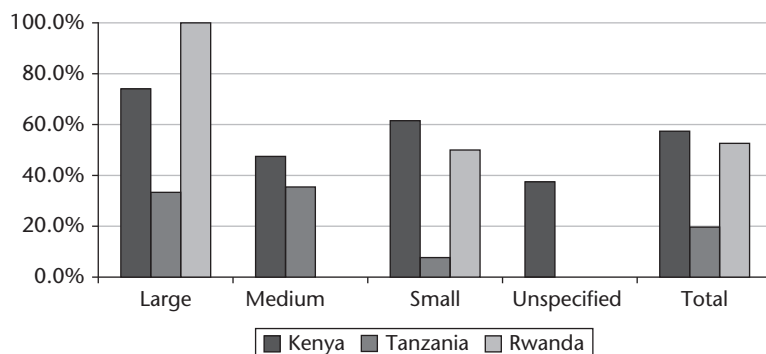


Figure 7.3. Percentage of use of GPS fleet management according to fleet size

Note: Large = 100+ trucks, Medium = 11–99 trucks, Small = 1–10 trucks.

Source: Hartmann and Asebe (2013).

border agencies can monitor shipments of high-risk commodities, especially for transit operations.

To some extent, the characteristics of the fleet are in line with prevailing ICT techniques, as the acquisition practices of the road transport enterprises differ, as shown in Table 7.4—in Kenya the majority of trucks were purchased new, in Rwanda second-hand trucks are slightly in the majority, and in Tanzania an overwhelming majority are second-hand purchases. The average age of the fleet reflects those practices: 7.5 years in Kenya, 12.6 years in Rwanda, and over 16 years in Tanzania.

As a result, the total Kenyan fleet may even perform better than the total South African fleet. In terms of fleet productivity, according to logistics performance surveys, almost one-third of the interviewed fleets operate trucks covering more than 15,000 km per month (which is more than the South African fleet record).¹²

4. Trade Facilitation and Public Policies

Numerous public reforms have been undertaken in the last decade in East Africa to facilitate trade, with a mix of ‘hard’ measures (mainly infrastructure investments such as road rehabilitation and new border facilities) and ‘soft’ measures (simplification of processes, harmonization of rules, etc.). An example of reforms based on soft rather than hard interventions is the East Africa Trade and Transport Facilitation Project (EATTFP) (see Box 7.1).

¹² Around 10,000 km per month, according to Shippers Council of Eastern Africa (2015).

Industries without Smokestacks

Why is trade facilitation so important for trucking efficiency? According to Hartmann and Asebe (2013), even though investing in infrastructure is essential, it is often not sufficient to enhance the efficiency of border management but must be accompanied by close cooperation between border agencies in one country as well as with those of the neighbouring country. In many instances this increases revenues for countries but also reduces costs for the private sector. The impacts of the interventions through the EATTFP and complementary initiatives were significant, leading to greater fleet utilization and savings in other costs running to several millions of dollars.

Government authorities have striven to reduce procedural obstacles in order to speed up clearance processes. A study by the SSATP (2013) at the Malaba border post (at the Kenya–Uganda border) found that reforms to clearance processes had resulted in a drop in average crossing times for all trucks from twenty-four hours to four hours (forty-eight hours to six hours for loaded trucks) (see Figure 7.4), while the value of the time saved by trucking companies and traders was equivalent to US\$70 million per year.

Table 7.4. Age of truck at purchase and fleet age

	New, %	Second-hand, %	Unknown, %	Total operated	Average age (years)
Kenya	56	23	21	4,531	7.5
Tanzania	18	80	2	4,322	16.2
Rwanda	38	60	2	133	12.6
South Africa (cross-border fleet)	80	20		33,942	7

Sources: Data from Hartmann and Asebe (2013), and NP & Associates for South Africa.

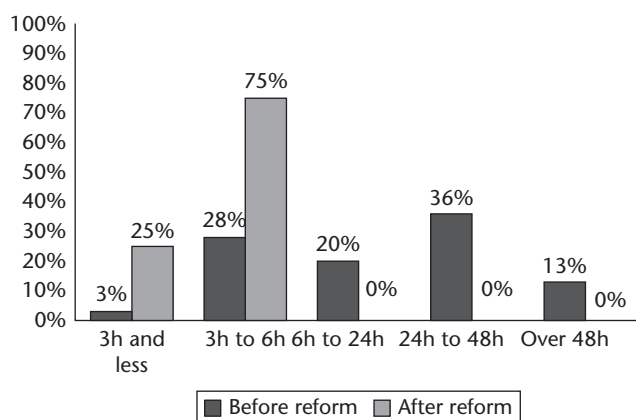


Figure 7.4. Time spent at Malaba border post before and after reform

Data source: SSATP (2013).

Along with the simplification of processes, one-stop border posts (OSBPs) have been set up in East Africa at major crossing points in order to reduce the number of controls and therefore border processing time. It seems that, in East Africa, border crossing times are on a downward trend (despite increased traffic).

In parallel with national reforms, the EAC (the major regional integration body) has developed regional rules in areas relevant to trucking efficiency. These are aimed at harmonizing road and vehicle standards, vehicle insurance policies, and even market access. The main legal instrument governing trucking operations is the East African Community Tripartite Agreement on Road Transport. This agreement was originally signed by Kenya, Tanzania, and Uganda in 2001; Rwanda and Burundi became parties to it on joining the EAC. The agreement is complemented by specific instruments such as axle load controls and other protocols for the two main trade routes, the Northern and Central Corridors. Taken together, the various regional or corridor instruments seem to have led to the rapid development of new and efficient truck fleets, especially on the Northern Corridor.

5. Employment

Trucking surveys have enabled us to estimate the extent of employment in trucking services in East Africa (Kenya/Tanzania/Rwanda). On average, each truck has approximately 2.5 staff (one driver and one or two additional staff—usually a mechanic/second driver and, in the case of large companies, an administrative/support staff person) (see Table 7.5). For those three countries, there are approximately 30,000 trucks, amounting to approximately 75,000 total staff, compared with total employment in manufacturing of just over 400,000.

Trucking is becoming increasingly integrated in East Africa, and Kenyan transport services are being exported along the Northern Corridor. However, trade in transport services remains low compared with trade in goods.

Table 7.5. Estimate of total employment generated by trucking industry

	Trucks	Drivers per truck	Employment per truck	Total employment
Kenya	17,066	1.11	2.73	46,590
Tanzania	12,356	1.18	2.23	27,554
Rwanda	444	1.11	2.77	1,230
Total	29,866			75,374

Source: Data from Hartmann and Asebe (2013).

6. Competition

Competition in the trucking industry, while it has been generally ignored, seems to play a major role in price determination and therefore in trade and development. Lall et al. (2009) considered the function of scale economies, market structure, and competition between transport providers as determinants of transport prices in Malawi and concluded that market structure and competition play a major role in determining prices. Teravaninthorn and Raballand (2009) demonstrated that, along the major corridors in Africa, transport prices (the prices paid by users) were high, whereas transport costs (the cost of 'producing' the transport) were no higher than in Europe on some corridors—the most problematic region being West Africa, where bilateral trade agreements divide the trucking market between transit countries and landlocked countries, the latter operating a 'tour de role' system¹³ that creates rents by non-transparently allocating access to freight. Finally, USAID (2012) demonstrated in the case of West Africa that trucking liberalization could save over US\$400 million in transport costs and increase the value of transit trade by around 8 per cent.

In East Africa, with rapid growth in traffic have come large fleet investments in recent years (especially in Kenya), with the result that access to freight has become even more critical to the viability of trucking operations. Kenya's trucking industry has developed very much along the lines of the South African trucking industry and can be compared to it. Trucking in Kenya, unlike Tanzania, is not centred around cross-border trade and has a large local and regional component. Imported goods are moved by local trucking fleets from the port of Mombasa to the hinterland and the area around Nairobi.

A major concentration of demand is to be found in the ports. Access to freight volumes in ports is therefore a significant factor in trucking efficiency in East Africa. That there is competition, at least in Rwanda, is clear. Although there are no publicly available data on market share breakdown among fleets, we have been able to compute them based on surveys on the ownership of trucks conducted at border posts compared with port data on cargo destinations. At the Gatuna border post (Rwanda–Uganda border), Rwandan companies operate only 20 per cent of the flows (see Table 7.6). However, the figure of 280 trucks a day is not the total market share market of Rwanda, since this country is a transit country for flows to Burundi and DRC. Taken from the Uganda trade diagnostic (World Bank 2013), approximately thirty trucks a day from each country transit through the Gatuna border post to Burundi and DRC. The total market for Rwanda is therefore approximately 220 trucks a day, meaning that Rwandan

¹³ Trucking companies load cargo based on approvals from the shippers' council and/or trucking associations.

Table 7.6. Average daily number of trucks crossing at the Gatuna border post by nationality

Nationality	Trucks
Rwanda	61
Uganda	92
Kenya	87
Burundi	23
DRC	15
Tanzania	2
TOTAL	280

Note: The nationality of trucks is determined by the vehicle registration.

Source: Authors' own trucking surveys.

companies operate more than a quarter of Rwandan trade. But it also means that the bulk of Rwanda trade is transported by foreign-owned trucks (mainly Kenyan and Ugandan).¹⁴

From these data we can estimate the value of trucking services from Kenya to Rwanda. Based on the price of a truckload from Mombasa to Kigali (US\$4,500 in 2015 (Shippers Council of Eastern Africa 2015)) and assuming a minimal figure of fifty trucks a day,¹⁵ we estimate the value of transport services from Kenya to Rwanda to be US\$50 million per annum. This compares with the total value of trade between the two countries in 2013 of US\$169 million. While not often included in official statistics, transport services are therefore a large share of the trade exchange between the countries.

Competition is less intensive along the Central Corridor. The road transport industry in Tanzania is regulated by the Transit Goods Permit System, which restricts the movement of foreign-registered vehicles through the country and therefore favours Tanzania-registered transporters. Local transporters pay only US\$10 per trailer unit for an annual Transit Permit, which is required by the Tanzania Revenue Authority (TRA) to transport cargo through Tanzania to neighbouring countries or other landlocked countries. It is also an EAC requirement that all transit trailers have the words 'TRANSIT GOODS' painted or stuck on the side of the chassis in large, clearly visible letters. On the other hand, foreign-registered vehicles are required to pay US\$300 per trailer unit per annum for the same Transit Permit from TRA. Moreover, most southern African countries have adopted the South African-designed Interlink trailer configuration, which means that they have to pay US\$600 per annum for a two-trailer combination. On top of this, the Tanzania National Road Agency

¹⁴ It is impossible to compute the market share of the various fleets, since some of them also transit to Burundi and DRC. The largest market share is held by Kenyan trucks, especially for imported goods from overseas, since they are mostly based in Mombasa port area.

¹⁵ Based on observation of 87 trucks per day and assuming that the remaining transit fleet for Burundi and DRC is Kenyan-owned.

(TANROADS)—which is opposed to these trailers coming into the country, claiming that they damage the road infrastructure—has made it a requirement that Interlink trailers must obtain an Abnormal Load Permit on entry at the border post, at a cost of US\$20 per crossing. This makes it difficult for foreign-registered vehicles to participate or compete in the Tanzania trucking industry. Moreover, foreign-registered transport companies are opposed to having the words ‘TRANSIT GOODS’ permanently on their trailers. All these measures discriminate against foreign-registered trucks and restrict competition with Tanzanian fleets along the Central Corridor.

The Tanzanian case illustrates the fact that some forms of protection remain in place in the sub-region. The most common regulations are: discriminatory prices on transit permits; different axle-load regulations,¹⁶ prohibiting some trailer combinations; discriminatory road use charges for foreign-registered vehicles; taxes at borders,¹⁷ prohibition of cabotage.¹⁸ However, thanks to increasing integration and competition in East Africa, transport prices charged to manufacturers/importers and exporters have been on a decreasing trend, which makes production and trade to/from East Africa more competitive.

7. Conclusions and Recommendations

There are some positive signs regarding the trucking industry in East Africa:

- transport quality and fleet management have rapidly improved in recent years
- regional integration, though not perfect, is taking place in the Northern Corridor
- competition has increased
- consequently, transport prices decreased by 30 per cent along the Northern Corridor between 2011–15.

It should be emphasized that not all hard infrastructure has the same impact and that hard and soft investments may be complementary. Road rehabilitation along busy corridors is economically justified. However, creating One-Stop Border Posts (OSBPs) without changing procedures and processes will not have a major economic impact.

¹⁶ For more information on the various types of protection in the trucking industry, see Raballand et al. (2008).

¹⁷ This mainly concerns the DRC.

¹⁸ Using foreign-registered vehicles for the domestic movement of merchandise. Even in the EU, cabotage was prohibited until 1992.

Since increasing trucking industry productivity is crucial to the development of various logistics-intensive industries (e.g. fresh fruit, vegetables, flowers),¹⁹ these recent trends are encouraging. However, prospects for industries without smokestacks depend on even greater regional harmonization and integration. It is important for policy makers in the region to give even greater priority to the implementation of regional regulations over national and bilateral approaches in order to make trucking services even more productive, thereby facilitating the trade expansion of African countries.

Improving logistics performance in East Africa can have a transformative impact on the economic development of the region. Reductions in transport and logistics costs are expected to serve as a stimulus for the reorganization of economic activity. As a result of such reductions, a manufacturer could change the source of inputs or the destination of exports or relocate production, thereby reconfiguring the topology of their supply chains. They could also enter into the production of new products. Ultimately, therefore, improvements in transport and logistics can affect the real economy and also the spatial economy of a country or region.

Annexe

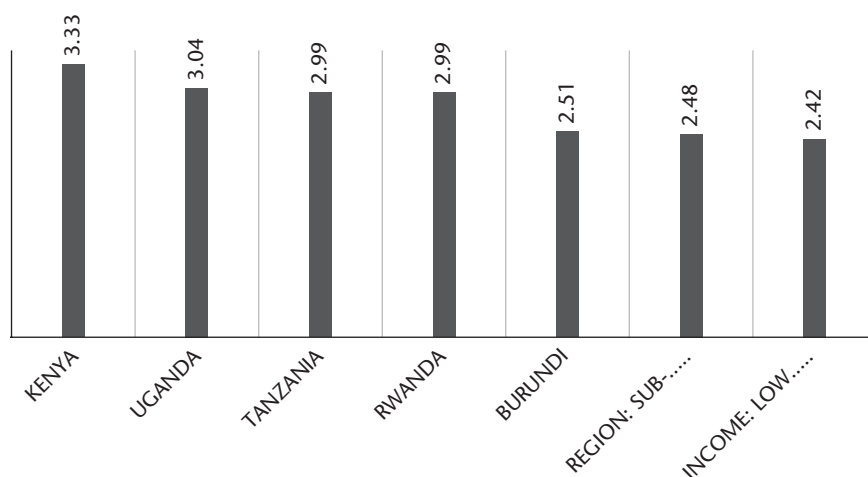


Figure A7.1. LPI scores in 2016

Source: Authors' compilation based on data from World Bank (2016).

¹⁹ Constraints along the value chain are not always related to transport issues.

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8

Trade in Services

Opening Markets to Create Opportunities

Bernard Hoekman

1. Introduction

African trade is heavily concentrated in agricultural and natural resource-based commodities and the agricultural sector continues to be a major source of employment and economic activity—especially when indirect ancillary linkages are taken into account.¹ Although trade volumes have risen since the 1990s, and exports of some industrial and processed products have been increasing, intra-regional trade remains well below potential, and the challenge of diversification continues to prevail. There are encouraging prospects for accelerating trade growth as a result of policy reforms, ranging from trade facilitation efforts to the high-level political ambition to achieve regional integration objectives—e.g. through a continental free trade agreement. Much depends on the willingness and ability of African leaders to deliver on their stated objectives. A premise of this chapter is that a precondition for leveraging trade opportunities is a substantial reduction in trading and transaction costs for African firms, and that this must go beyond the current focus on actions to facilitate trade and focus more on improving the performance of a variety of services, including transport, logistics, and related services.

Reducing trade costs in Africa is in (large) part a challenge of increasing productivity in a variety of service activities—most obviously in the areas of transport and logistics, less obviously in areas such as communications and

¹ I am grateful to Richard Newfarmer and other participants in the June 2016 Helsinki conference for helpful comments. This chapter draws in part on joint work with Matteo Fiorini and Dominique Njinkeu.

finance, services that enable cross-border movement, and more generally the quality and costs of a variety of intermediate services that are inputs into the production of trade goods and services. The lower the productivity of firms providing intermediate services, the more disadvantaged the sectors that source from them.

Trade in services—broadly defined to include cross-border exchange through telecommunications channels, the temporary movement of service suppliers or consumers, and foreign direct investment (FDI) (establishment in a host country by foreign affiliates that produce/sell services)—is one potential channel for productivity growth. As in the case of goods, trade in services allows specialization according to comparative advantage. What is different is that trade in services requires a movement of providers, whether legal entities (firms) or natural persons (service suppliers). This implies that a (much) broader range of policy instruments and underlying public policy concerns arise than in the case of trade in goods. Another difference, at least in degree, is that many services are critical inputs for a large number of industries, and thus that imports of services may be a particularly important channel for productivity growth.

This chapter reviews some of the literature on trade in services, with an emphasis on recent analyses of services trade policies and their effects. The plan of the chapter is as follows. Section 2 briefly reviews the role of services in development and growth, the potential role of trade in services, and recent evidence of the magnitude of services trade costs. Section 3 discusses the indirect effect of services trade and investment policies on the productivity of downstream firms and presents some research indicating that market opening can bring significant gains in productivity. Section 4 turns to the direct effects of trade barriers on services trade and the potential for services trade liberalization to expand trade in Africa, drawing on recent case study evidence. Section 5 argues that the extent to which countries will benefit from open services regimes depends on the quality of economic governance. This appears to be particularly significant for services trade, in part reflecting the role that FDI plays as a channel for foreign suppliers to provide services, which suggests that policy needs to go beyond a focus on services trade barriers to span regulatory regimes and institutions. Section 6 discusses what could be done through regional integration to reduce services trade barriers, the state of play in this regard in Africa, and what research on services trade policy suggests should be on the agenda looking forward. Section 7 concludes.

2. Services, Trade, and Structural Transformation

The share of services in total output and employment for the world as a whole has been increasing over time as countries become richer. This is nothing new,

but for any level of economic development the role of services in the economy is today more important than in the past as a result of advances in information and communication technologies and transport. Efficient services are critical for economic development because they are determinants of the productivity of capital and labour (think of the role that financial services intermediaries play in providing funds to firms that have been generated by households seeking to invest their savings and the role that health and education services play in enhancing the skills and quality of life of workers). Services are also the backbone of connectivity—‘facilitating’ the physical movement of goods and people (transport services) and the exchange of knowledge and information (communications services). Many business and professional services such as accounting, legal services, and management consulting are important inputs into the production process of firms. Thus, the performance of the services sector matters for economic growth and the overall productivity of the economy as a whole.

An increasing share of services in GDP and employment is part and parcel of economic development and thus a key feature of structural transformation. From a growth perspective there is nothing inherently negative about shifting resources into services, or in countries pursuing a development strategy (growth path) that involves rapid expansion in service activities and less in the way of manufacturing production than was the case in the past for countries that were successful in becoming high-income economies. Successful (desirable) structural transformation is not conditional on achieving significant growth in the share of manufacturing assembly operations; it is conditional on expanding the share of economic activities that generate higher average real wages (higher productivity). Such activities need not involve a preponderance of the types of industries and production that drove development in the past, because technologies today (e.g. regional or global value chains) allow firms to specialize and outsource services that used to be provided within the firm. Most of the value added embodied in products—whether goods or services—reflects services inputs, whether provided through the market or within the firm.

Services lend themselves just as much to productivity growth as does manufactured goods production. Structural transformation is in part an intersectoral dynamic—from low-productivity agriculture and informal services to higher-productivity work in the formal sectors (both goods and services)—but just as important are shifts within sectors, including increasing demand for intermediate services (Berlingieri 2014). Within services, resource allocation shifts are a driver of productivity growth in the same way as in goods-producing sectors. Young (2014) finds that average productivity growth in services is similar to that in other sectors. The presumption that most services are unproductive, best illustrated in Baumol’s (2012) celebrated view of the

inherent ‘cost disease’ that accompanies a rising share of services in GDP, is incorrect. Growth in the production (and consumption) of services as countries grow richer is not just a function of final demand patterns and income elasticities (Herrendorf et al. 2013).

Historically many services could be characterized as non-tradable as a result of their non-storable and intangible nature. An implication was that international trade in many services required the cross-border movement of providers—in turn involving the movement of capital and labour. The need for such factor movement has been declining as the result of technical change that allows services to be digitized and provided cross-border through ICT networks, as well as of improvements in transportation, connectivity, and information networks that allow firms to both identify market opportunities and exploit them. However, trade costs for services remain much higher than trade costs for goods, and the rate of decline in such costs has been less than is often realized (Miroudot and Shepherd 2016).

One consequence of high trade costs is that many services tend to be traded indirectly, embodied in goods or in people (service providers). At least 50 per cent of global trade on a value added basis comprises services: the sum of the value of services output that is traded directly and is captured in BOP statistics (some 20–25 per cent of total exports), plus the value of services that is embedded in trade goods (another 25–35 per cent).

An increasing number of studies and reports have analysed the role of services trade and related policies from an economic development perspective (see, for instance, Mattoo and Payton 2007; Saez et al. 2015; Dihel and Goswami 2016; Balchin et al. 2016), complementing studies of developed economies (e.g. Breinlich and Criscuolo 2011; Wagner 2012). This literature has generated findings that apply to both developing and developed country contexts, e.g. that firm heterogeneity plays an important role in shaping patterns of services trade, much as is the case for trade in goods, as do barriers to trade and regulatory regimes for product markets. What follows is a discussion of one important determinant of services performance and thus economy-wide productivity—policies towards trade and investment in services—focusing on the role that services play as inputs into production of both goods (manufactured) and other services.

3. Services Trade Policies and Economic Performance

Services trade policies matter for many dimensions of economic performance. For example, services trade policy has been shown to matter for product differentiation and diversification. Building a gravity framework for more than 100 countries, Nordås (2011) finds that price-reducing liberalization in

business services is associated with greater product differentiation, particularly in the motor vehicle industry. On the basis of these findings, she argues that opening services markets should be considered as an element in strategies for industrial upgrading in developing countries. Miroudot and Shepherd (2016) find that a 10 per cent increase in the level of services trade restrictiveness is associated with an increase in trade costs of 2.7–3.1 per cent, using trade costs data compiled by Arvis et al. (2016), the biggest effects being in postal services and telecommunications. Borchert et al. (2017) note that many landlocked African countries restrict trade in services that could have a significant effect on overall trade performance; for example, air transport policies tend to be significantly more restrictive than in other countries, reducing connectivity with the rest of the world. The consequence is more concentrated market structures and less access to transport services. Even moderate liberalization of air transportation services by landlocked sub-Saharan countries could generate a 20 per cent increase in the number of flights.

This type of research has become possible as a result of new datasets. Research on the effects of services trade policies has traditionally been impeded by data limitations. Policy information is often patchy at best, time series data on key policy variables generally not being available on a cross-country, comparable basis, and such information frequently not existing at country level either. This situation has changed recently with the publication of a new dataset by the World Bank that characterizes the restrictiveness of policies towards services trade and investment (Borchert et al. 2014). The World Bank database covers five services sectors and three modes of supply: cross-border trade, commercial presence (FDI), and temporary movement of service suppliers. Not all of these are relevant for all sectors, and in some cases policies affecting a mode of supply apply to many or all sectors. The Services Trade Restrictiveness Index (STRI) is a numerical summary of applied services policies believed to affect trade flows. The more restrictive a country is towards trade and investment in services, the higher its STRI.

Figure 8.1 summarizes the data, which are available for only one year at present. The reported STRIs present an overall indicator, in the sense of a summary number that covers all sectors and modes. The average STRI for the sub-Saharan countries included in the database is 32. The general picture that emerges is that African countries are relatively liberal when it comes to Mode 1 (cross-border supply of services), but have higher levels of trade restrictiveness in place for Mode 3 (sales through establishment by foreign affiliates, i.e. FDI) (not plotted). However, policy measures vary considerably by sector and country. Although Africa is relatively liberal (open) on the basis of the STRI measures, it should be kept in mind that the STRI covers only one dimension of services policies—the extent to which policy discriminates against foreign providers. It does not capture the types of trade costs associated

Industries without Smokestacks

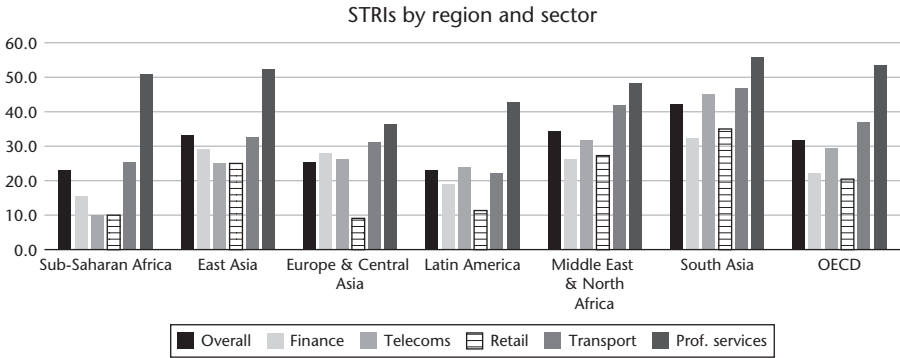


Figure 8.1. Services Trade Restrictiveness Index, 2009

Source: Author's illustration based on World Bank Services Trade Restrictions Database.

with corruption and inefficient border clearance for services suppliers or the performance of services sectors such as transport and logistics. As discussed below, the available evidence suggests that the quality of economic governance broadly defined plays an important role in determining the extent to which African firms and households benefit from reductions in services trade restrictions.

Of particular interest from the perspective of this chapter is the effect of policies that limit the ability of (raise the costs for) foreign firms in providing services in a market. A positive association between policy reforms in services and inward FDI in services, and between total factor productivity (TFP) growth in the performance of downstream firms and FDI is perhaps the most robust finding to emerge from the limited empirical research on the impacts of services reforms (Francois and Hoekman 2010). FDI is a particularly important channel for the transfer of services-related know-how and technology, as foreign firms introduce new types of services that may be better suited to the needs of clients, or provide existing services at lower cost than was available before they entered the market. International trade and investment in services provides local firms and households with more choice. Greater competition in services markets and access to a broader range of differentiated services should increase the total factor productivity of firms in proportion to the intensity with which services are used. Thus, firms that are relatively intensive users (buyers) of services should benefit the most from measures that increase the availability of services in an economy.

This applies as much to lower-income countries as it does to high-income economies. Arnold et al. (2008) use data from over 1,000 firms in ten sub-Saharan African (SSA) economies to analyse this question, and conclude that there is a statistically significant positive relationship between the observed TFP of these firms and their assessments of the performance of financial and

telecommunications services industries. More recent research on individual economies that focuses on the effects of (changes in) services policies over time finds that more open services markets are associated with the better productivity performance of downstream industries. This has been shown by Arnold et al. (2011) for the Czech Republic, by Bas (2014) for India, as well as for OECD nations (Barone and Cingano 2011; Bourlès et al. 2013).

Greater competition on services markets also matters for the productivity of (other) services sectors, as different services industries all source inputs from each other. Miroudot et al. (2012) use a gravity model setting to estimate cross-border (Mode 1 and Mode 2) trade costs in twelve services sectors for sixty-one countries and find that lowering services trade costs by 10 per cent is associated with a 0.5 per cent gain in services TFP. Similarly, Van der Marel (2012) shows that services trade and investment policies (notably FDI regulations) are a determinant of TFP growth in services sectors. All of this research therefore demonstrates the importance from a policy perspective of recognizing the 'input role' of services when it comes to efforts to improve the productivity performance of the economy.

Hoekman and Shepherd (2017) build on these types of analysis using more recent data for a large sample of firms and developing countries. Using World Bank enterprise survey data for 58,000 firms in over 100 developing countries, they find that services sector productivity matters for the productivity of downstream firms producing goods, with services productivity mattering more for those firms that use services relatively intensively in their overall input mix, as is to be expected. The strength of the productivity linkages vary substantially across the African countries in their sample, reflecting differing intensities of use of services inputs in the production process. They also find that the relationship depends on services trade: lower barriers to services trade and investment increase the productivity performance of domestic manufacturing industries. They find that, at the average rate of services input intensity, a 10 per cent improvement in services productivity is associated with an increase in manufacturing productivity of 0.3 per cent, as well as higher exports of manufactures. While the effects are statistically significant, they are relatively small in magnitude compared with the findings in the above-mentioned country case studies, suggesting that country-specific and institutional variables may play an important intermediating role. As in the country-specific analyses briefly mentioned above, less open FDI regimes appear as the core causal channel for this link.

Hoekman and Shepherd (2017) also use a gravity regression framework to analyse the relationship between levels of services trade policies and merchandise export performance, using the services trade restrictiveness index (STRI) compiled by Borchert et al. (2014). They find that exports of manufactured products depend in part on policies towards trade in services, and this finding

holds up if one controls for the effect of other variables such as trade policy towards goods sectors. For any given country pair, on average a 2 per cent rise in the level of services trade restrictiveness is accompanied by a 1 per cent decline in the value of bilateral merchandise trade. While this type of analysis does not consider general equilibrium effects, the magnitude of the effect is substantially greater than what is obtained from estimates using firm-level data. Hoekman and Shepherd (2017) find that policies that restrict trade in transport and retail distribution services have the largest negative impact on merchandise exports. This is intuitive, as global value chains and international trade more generally depend on access to reliable and low-cost logistics services, the quality of transport and logistics services being particularly important for higher-value products (World Bank 2014).

Results for specific countries help to provide a sense of how variation in STRIs impacts on trade performance. Focusing on the East African Community member states, which tend to be somewhat less restrictive towards trade in services than the average nation in SSA (although three of the five EAC member countries have an average services trade restriction score of 30 or higher), Hoekman and Shepherd (2017) argue that if the EAC countries as a group were to reduce their average level of services trade restrictions to that of Ghana (the African country with the lowest services trade barriers, with an STRI of 18), their merchandise exports could increase substantially: by 13 per cent for Rwanda, and some 20 per cent for Kenya, Tanzania, and Uganda.

The upshot of the foregoing is that opening services markets can have substantial positive effects on economic activity and welfare. Computable general equilibrium models for specific African countries that incorporate estimates of the ad valorem equivalent of services trade and regulatory policies, including barriers to FDI, suggest that the opportunity cost of not focusing on the reform of services policies can be very high. Jensen et al. (2010), for example, estimate that removing restrictive services policies would increase welfare (real consumption) in Tanzania by 16 per cent in the long run. In the case of Kenya, Balistreri et al. (2009) conclude that welfare gains would be even greater, with real consumption increasing by some 50 per cent.

4. The Potential for Services Trade Expansion in Africa

The foregoing discussion has focused on the role of services as inputs into production and thus as a determinant of sectoral productivity and overall performance. Services are of course also important in themselves as sectors of activity and as potential drivers of direct exports (as opposed to their indirect role embodied in traded goods). Recent technological changes are

making it increasingly feasible to trade services directly, both digitally through ICT networks and the internet/cloud, and through the temporary cross-border movement of suppliers (facilitated by better information on demand, price differentials, and in some cases reductions in the cost of transportation as a result of improvements in transport infrastructure and connectivity).

The weakness of services data makes it difficult to analyse the effects of such developments on services trade. This is true even for OECD member countries, as much of what is exchanged digitally is not measured—in part because it often occurs within the boundaries of a multinational firm, and in part because it is very difficult to measure sales of services provided by suppliers that cross borders on a temporary basis. The data challenges are even greater for low-income countries. Data for many African countries are very weak; many countries do not report detailed statistics and some do not report at all. This implies that analysis of available statistics is likely to give a misleading picture of the reality ‘on the ground’ in Africa. On average, services account for some 50 per cent of GDP in SSA, while services trade is equal to about 10 per cent of GDP. This compares with 62 per cent and 13 per cent, respectively, for the world as a whole, suggesting that African services trade intensity is quite similar to that of the world as a whole (WDI database). Travel (including tourism) is the major export category and has been growing faster than other categories of services. That said, a number of African countries have experienced significant growth in trade in commercial services.

Case studies provide a sense of both recent developments in services trade and illustrate the potential for services trade growth for African countries. This goes much beyond the well-known potential to exploit natural endowments such as good weather, beaches, and unique wildlife/nature preserves. Tourism is an important activity for many African countries in terms of contributing to employment and GDP. Tourism is dependent on many other services, ranging from telecommunications and transport to hotels and restaurants. There is substantial scope for countries to diversify beyond sun, sea, and sand tourism (beach holidays) and safaris into other types of tourism services, e.g. the medical and business tourism subsectors, and a number of countries are seeking to do so, e.g. Rwanda. A necessary condition for fully leveraging tourism potential is to have an adequate tourist-related infrastructure and a workforce that has the skills needed to interact with tourists and to provide the many ‘back office’ services that are inputs into the production of high-quality tourism services. Skills development, an open skies policy with liberalized bilateral air service agreements, and improved linkages between foreign travel companies and local firms are actions that are required in many African countries.

While tourism is an important sector that deserves priority attention in many countries, the potential for services trade goes far beyond tourism. Innovative firms and entrepreneurs operating in a variety of services sectors

have demonstrated that Africa can compete on world markets. Equally importantly, recent research has documented that there is scope for greatly increased intra-regional trade in services. Indeed, it is noteworthy how much trade in services already occurs. Based on surveys of firms and complementary innovative data collection methods in a set of Common Market for Eastern and Southern Africa (COMESA) countries, Dihel and Goswami (2016) conclude that more than 16 per cent of the interviewed accounting, architectural, engineering, and legal firms engage in exports, mainly to neighbouring countries. They also document substantial trade in education, health, banking, insurance, and accounting services. Importantly, too, they document that barriers affecting trade in services—for all modes of supply—lead many African service suppliers to engage in informal trade and/or significantly reduce their productivity. The case studies included in Dihel and Goswami (2016) demonstrate that entrepreneurs are able to circumvent formal barriers to cross-border trade in services and that there is substantial demand for services imports, suggesting that liberalization and services trade facilitation—to remove the need for bribes and more generally to lower transaction costs and reduce the ability of incumbent services industries (e.g. professional associations) to restrict foreign entry—have great potential to both further expand trade and increase welfare (the gains from trade).

Dihel et al. (2012) provide a case study of Kenya and discuss how new ICT technologies and improvements in ICT infrastructure and mobile internet connectivity have expanded mobile phone and internet access and supported the emergence of globally competitive services suppliers such as KenCall (business process outsourcing—BPO), Ushahidi (open source software platforms to visualize information in real time on mobile devices), and Safaricom (mobile telecoms; mobile payment services—M-Pesa). Kenyan services exports include insurance, accounting, non-bank financial, and BPO services. The regional market—the EAC—is often the largest one for smaller firms providing professional/business services. More than half of Kenyan services exporters have clients in Tanzania and/or Uganda and one-third have clients in Rwanda. Regional markets are important for exports of accounting, architecture, engineering, insurance, and legal services. In BPO, Kenyan firms export an array of services, ranging from inbound/outbound customer voice, email, and SMS support to phone-based marketing services and surveys of the customers of client firms, as well as a variety of back-office support services, including database management, storage, and back-up facilities. Kenyan firms have also become exporters of software design services, apps such as games for mobile devices, and user interface systems, as well as high-value technology services such as data recovery. While Kenya has developed a comparative advantage in such modern ICT-based and enabled services, similar trends can be observed in other African countries, including Nigeria, Mauritius, Ghana, and Senegal. Space constraints prohibit an extensive discussion of specific cases; the main

point of this subsection is to illustrate that there are already substantial levels of trade in services in Africa, that there is great dynamism in services trade, and that much of this is regionally focused.²

5. Regional Cooperation to Integrate Services Markets

Regional integration has long been a stated priority of many African countries, as is reflected in numerous integration efforts among subsets of African economies. An increasing recognition by African leaders that the patchwork of partially overlapping regional economic communities was sub-optimal led to a decision to gradually move towards the creation of a continent-wide free trade area (the CFTA). A feature of regional integration efforts in Africa as well as the PTAs that African countries have been negotiating or have signed with non-African nations—most notably the Economic Partnership Agreements (EPAs) with the EU—is that the focus has been on policies affecting trade in goods. This is unfortunate from the perspective of the economic relationship between access to services and measures of economic performance, including the role that services play as determinants of productivity in agriculture, mining, and manufacturing. For example, overall, across Africa, the temporary cross-border movement of service suppliers is often quite restricted and much remains to be done to address opposition by incumbent operators and sector associations to the regional liberalization of services trade. Karingi and Davis (2016) note that the average African citizen needs to obtain a visa in advance of travel for 55 per cent of the countries he or she may want to travel to. Dihel and Goswami (2016) and Dihel et al. (2012) document that there are still many regulatory barriers as well as outright discrimination against foreign professional service providers in the East and Southern African context.

Insofar as barriers to trade in services and differences in regulatory regimes pertaining to services impede services trade, regional integration efforts will have less impact on performance. Moreover, insofar as incumbent (national) services suppliers and industries oppose the opening of markets to competition from foreign firms, the exclusion of services from PTAs implies an opportunity cost, as the role that PTAs can play in changing political economy equilibria to allow the pursuit of efficiency-enhancing reforms is removed from the table. While services have been left to the future in the context of the EPAs with the EU, intra-Africa regional economic communities increasingly include a focus on services. Although in many cases the extent to which PTAs liberalize trade in

² Dihel and Goswami (2016) provide a number of excellent case studies and informed discussion of trade in services in Africa. See also Cattaneo et al. (2010), Saez et al. (2015), and Balchin et al. (2016).

services and result in domestic reforms is still limited, significant progress in some dimensions has been made in some contexts. An example is the EAC Common Market Protocol, which spans trade in services and has as its objective the progressive liberalization of all four modes of supply. The Protocol imposes a standstill on new measures restricting intra-regional trade in services, and liberalization follows a so-called positive list approach (as in the WTO), where governments make commitments to liberalize specific sectors and modes of supply. The sectors chosen for initial liberalization were business and professional services, communications, distribution, education, financial services, tourism and travel-related activities, and transportation. Commitments in these sectors vary across EAC members and were to be implemented by the end of 2015.³ They are complemented by efforts to mutually recognize professional qualifications obtained by services suppliers in EAC states. As noted below, assessments of the extent to which commitments have been implemented suggest that progress has been slow.

There are several reasons to focus more on services in the context of regional integration efforts. One important reason is that the potential for trade between neighbouring or regional countries is significant and in many cases is greater than is realized, especially if informal trade is taken into account. The case study evidence noted above illustrates that intra-regional trade in many services is already occurring and has been dynamic. Creating conditions to move transactions out of the informal sphere and to facilitate cross-border exchange will not only support existing regional trade by lowering transaction costs but also allow trade to grow by encouraging firms to invest in higher value-added services offerings and move along the extensive margin of trade.

In principle it should be easier to pursue services trade liberalization in a regionally cooperative setting. One reason for this is that the type of political economy dynamics that prevails for trade in goods may in fact be easier to overcome in the case of services because of their role as inputs into the production of firms in many different sectors as well as many, if not all, households. Thus, the inclusion of services on the agenda of regional integration initiatives may help to overcome resistance by domestic services interest groups by mobilizing a much larger number of stakeholders who stand to benefit from liberalization. More generally, international cooperation will often be a necessary condition for liberalization, as there needs to be mutual acceptance or recognition that regulatory norms and requirements in different countries are equivalent and/or satisfy minimum levels of quality. While the unilateral opening of services markets will often be feasible and beneficial—subject to compliance with prevailing domestic regulation and norms—this

³ Of the EAC members, Tanzania made the fewest commitments (59) and Rwanda the most (101) (World Bank and EAC 2016).

does not ensure access to partner country markets. Pursuing reforms in the context of a trade agreement can help to address political economy constraints on reforms by generating additional market access opportunities.

Various factors may explain the limited attention given to services in the context of regional integration efforts and the neglect of using trade agreements to pursue mutually beneficial reforms that would support greater trade in services. One is a lack of understanding of the importance of services for growth and productivity. While this has little to do with trade per se, it may be a factor that has led the services trade to be neglected in trade agreements. Another likely reason for the relative neglect of services is that even when policy makers recognize the need to deal with the services policy agenda, there is uncertainty about how to do so in the context of trade agreements in a way that ensures that the domestic economy benefits (households and firms obtain greater access to better services; firms and workers will be able to utilize improved access to partner country markets; local service providers will not be swamped by foreign suppliers, etc.). This raises issues concerning the design of trade agreement commitments (e.g. sequencing; safeguarding provisions; adjustment mechanisms) and points to the need to ensure that regulatory institutions are adequate. A third possible factor centres on the political economy of trade agreements. As noted above, in principle the political economy of services reform should be less difficult to manage than the liberalization of trade in goods, as there are many more industries and groups in society who would benefit from better access to services. However, if this is not evident to these groups or, as is often the case (especially if the focus is mostly on goods), these groups are not consulted and have no voice in trade negotiations, these pro-reform dynamics may remain weak. One implication is that analysis is required to enhance understanding of the costs of status quo restrictive policies and the magnitude of the benefits (rents) that accrue to incumbent vested interests.

There are mechanisms that can be used in the context of regional integration efforts to identify both the need to address regulatory weaknesses and the priorities for joint reform by the parties to a trade agreement (i.e. liberalization). One template is to create knowledge platforms that bring together all groups with a stake in a given set of activities that jointly impact on the performance of a sector or value chain. Take the case of trade facilitation, a priority for many countries. This goes beyond matters of customs clearance and the operation of border crossings. Enhancing regional connectivity through trade facilitation and cooperation between customs and tax agencies to establish joint border posts and single windows needs to be complemented by cooperation to create efficient road corridors and effective transit regimes that allow trucks and people to move across borders and along transport routes, and cooperation in the setting and enforcement of health and safety standards and the

certification/licensing of service providers. Knowledge platforms that bring together groups with a stake in a given sector, including industries that use a given service as an input, can help governments better understand where and why specific services reforms matter and areas where joint action by governments are needed (Hoekman and Mattoo 2013).

An example of what such an approach might generate is provided by Rwanda. The National Logistics and Distribution Services Strategy was developed to help mitigate Rwanda's logistical challenges. The strategy: (i) provided an enhanced role for Rwanda's logistics system; (ii) incorporated logistics services with value-added activities; (iii) strategically aligned logistics and distribution facilities to production centres; and (iv) led Rwanda to export logistics services. The strategy supported the development of projects and the mobilization of investment in logistics facilities to capitalize on longer value chains in the horticultural sector; regional logistics centres and land bridge improvements for the extended market's transit traffic; and air cargo market development to respond to overlapping market opportunities. This provides an illustration of how African countries can move up global value chains by leveraging regional opportunities (see Njinkeu and Hartmann 2015).

These considerations point to the need to think through (re-think) the design of and approach towards negotiation and implementation of international trade agreements to support welfare-enhancing opening of services markets. The empirical literature on the design (content) and effects of services trade agreements suggests that most have not been very effective at opening services markets (Miroudot et al. 2010). Instead, unilateral reform appears to be the prime channel through which steps towards liberalization have been made. Djiofack-Zebaze and Keck (2009), for example, show that the effect of GATS commitments on the economic performance of the African telecommunications sector is rather weak in comparison with the positive effect of unilateral reforms. This points to the need to focus on national services trade policies. But that will not be enough, especially given the many countries in Africa and the many economies that are landlocked. As discussed in greater depth in Hoekman and Mattoo (2013), it is important that liberalization strategies/reform programmes go beyond questions of market access and include efforts to improve and strengthen regulatory regimes. Beverelli et al. (2017) find that economic governance quality plays an important role in determining the magnitude of the net gains from services liberalization.

Regional reform programmes need to go beyond a focus on specific technical issues and pay attention to the political implications of the status quo—understanding who benefits and who loses, or who perceives that they will benefit or lose, from a policy or a proposed reform. This requires identifying the interests of the different stakeholders, how they are represented, how pro-reform coalitions can be built and strengthened, and how anti-reform interests

can be accommodated. The organized (formal) private sector will play an effective and proactive role if and when it sees clear business opportunities. In East Africa, as Kenyan firms have increased their investment in other EAC partner states, they have increasingly lobbied their government to implement the EAC protocols of direct relevance to their sectors.⁴ This is particularly true of trucking companies interested in servicing the regional market, which have aggressively lobbied for more competition and improved efficiency, and have generally supported efforts to eliminate restrictions on foreign competition in the transport sector.

Other businesses that are more focused on the domestic market have acted in a different way. For example, the Kenya International Freight Forwarders and Warehousing Association and the Tanzania Freight Forwarders Association have seen regional integration in the transport sector as a threat to their business and as a result have been lobbying for less competition. Some members of these associations oppose allowing foreign clearing and forwarding agents to handle domestic cargo, while others see this as an opportunity for partnerships and mergers between the Tanzanian and/or Kenyan forwarders and their counterparts in landlocked partner countries. Business associations with memberships that span multiple countries may promote harmonization of business processes and better engagement with governments. In the case of the EAC, the East Africa Business Council, the Kenya Manufacturing Association, and the Kenya Private Sector Alliance, among others, play such a role. The transport sector associations, such as the Kenya Shippers Council and the Uganda Shippers Council, have made the Shippers Council of East Africa a powerful advocate for regional integration. Partly as a result, EAC member states are making some progress on regulatory harmonization in the transport sector, particularly with regard to axle load harmonization, through which all EAC member states use the same policy for axle loads.

An implication of such successful examples is that pragmatic acceptance of variable geometry-based approaches should be encouraged in pursuing regional cooperation to lower trade costs and integrate markets (Hoekman and Njinkeu, 2017). Tanzania, and to some extent Burundi, has for a long time preferred slower integration of EAC members than Kenya, Rwanda, and Uganda. The heads of state of the latter three countries have supported a variable geometry-based timetable in such areas as infrastructure development, the single tourist visa, and enhanced labour mobility. This has facilitated the implementation of a Single Customs Territory along the Northern Corridor and has led to reduced border crossing times, the elimination of many weighbridges and police checkpoints on the roads, and growing compliance with weight

⁴ What follows draws on Njinkeu and Hartmann (2017).

restrictions. For example, a Regional Customs Transit Guarantee scheme covers transit goods from or to the ports and has eliminated multiple national transit guarantees. The regional scheme is accepted throughout the customs territory and this has supported greater intra-EAC trade and lowered costs for firms using the Northern Corridor. This in turn has had positive spillover effects on Tanzania and Burundi, as well as South Sudan and Eastern DRC.⁵

Flexibility in the design of cooperation and use of deliberation mechanisms such as knowledge platforms needs to be complemented by information on prevailing policies and objective analysis of their economic effects. Given agreement to commit to specific reforms, it is also important to monitor implementation so as to inform stakeholders and policymakers on progress and to identify areas where progress is not being made and assess why. The EAC has developed a mechanism (supported by the donor community through TradeMark East Africa and the World Bank) to generate information through a 'scorecard' that tracks compliance in implementing EAC services liberalization commitments. The latest scorecard (World Bank and EAC 2016) indicates that the two large EAC countries are lagging behind other EAC members on road transport liberalization and that most instances of noncompliance—across all EAC members—are for professional services (some three-quarters of all nonconforming measures). The scorecard process makes transparent where progress has been achieved and where attention needs to be focused. Between 2014 and 2016, only six out of 63 nonconforming services restricting measures were removed and two new ones were put in place. The fact that most nonconforming measures in the EAC pertain to professional services and that there are fewer nonconforming measures for transport may be explained in part by the types of regional mechanism mentioned previously, which focus on transport and logistics.

6. Concluding Remarks

Services play a critical role in economic growth and development. Trade in services is a key channel through which countries can exploit their comparative advantage. Sectors such as tourism and business process outsourcing can generate substantial employment and foreign exchange earnings. More generally, however, it is important to recognize that services activities affect economic development through a variety of indirect channels. Opening trade and investment in services to foreign competition is a source of new knowledge and new products that can have a major impact on the productivity,

⁵ See Kunaka et al. (2016) for a detailed discussion.

and thus competitiveness, of many firms in the economy. Services account for a substantial share of the total costs of production of many firms in many sectors. Reducing these costs and increasing the quality of available services is therefore a mechanism through which to increase economy-wide performance.

That said, the economic research literature also makes clear that services liberalization is not a panacea. The quality of prevailing economic governance, implementing institutions, and regulatory regimes will determine how much a country stands to benefit from opening services markets to foreign competition. This strengthens the case for a concerted and consistent focus on improving economic governance as a necessary condition for sustained growth. The more trade agreements are designed to promote that goal, the more valuable they will be from a development perspective. The question is how to do so, a subject that has not attracted the attention it deserves. Mechanisms of the type that have been put in place in the EAC context are steps in the right direction, but a precondition is that governments are willing to use regional integration processes to liberalize services trade and to identify where this needs to be complemented by regulatory reform and regional regulatory cooperation.

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Industries without Smokestacks

Implications for Ethiopia's Industrialization

Mulu Gebreeyesus

1. Introduction

Exports can promote economic growth through multiple channels and also provide opportunities to initiate structural transformation. In recognition of this, many countries have made attempts to diversify export product bases. Likewise, the Ethiopian government adopted an (export promotion strategy) EPS in 1998 that was later (in 2002) developed into a full-fledged industrial development strategy (IDS). The government has made notable efforts to promote exports in selected priority industries, and particularly light manufacturing (textile, leather, and other agro-industries) through setting targets and providing multifaceted support to meet these targets.

Despite these efforts, Ethiopia's export sector has remained a very small contribution to the envisaged structural transformation. According to Gebreeyesus and Kebede (2017), Ethiopia's merchandise export receipts can finance only about one-fifth of the import bill. The trade deficit is increasingly high and unsustainable, reaching about US\$15.2 billion in 2015. The export basket has remained less diversified despite efforts to diversify in the last two decades. More than three-quarters of the merchandise export revenue in Ethiopia still comes from agriculture. The surge in imports and sluggish export growth has led to a shortage and, thus, rationing of foreign currency that is crucial for importing capital goods and other intermediate inputs that are required to sustain growth in manufacturing and other sectors.

Although the manufacturing sector is known to have a unique role in structural transformation, the potential of other sectors, such as natural resource-based activities and tradable services, to provide exports and drive growth must not be underestimated. The industries without smokestacks that include tradable services (for example, IT, tourism, transport), horticulture,

and agro-industry can provide new opportunities for export development in low-income countries, including Ethiopia, which in turn can drive economic growth. The development of these sectors can also provide significant opportunities to build new areas of comparative advantage, including in the manufacturing sector through resolving the shortage of foreign exchange, lack of inputs, and poor logistic and infrastructure services. The growth in the productivity of services and agricultural inputs is found to be closely linked to the productivity growth of the manufacturing sector and exports of manufacturing (for example, Lee and McKibbin 2013).

With vast natural and man-made tourist attractions and diversified agro-ecological opportunities, Ethiopia is particularly well positioned to exploit the opportunities in sectors without smokestacks, especially horticulture, tourism, and transport. The extent of knowledge regarding these sectors is, however, very limited. Moreover, to date the importance of the development of these sectors to the transformation of the economy has received little attention—at least in practice. The main objective of this case study is, thus, to show the current state and contribution of these sectors to the economy and exports, as well as to improve our understanding of the major bottlenecks and required solutions to unlock the potential of these sectors. A special focus is given to the horticulture and tourism industries, given the huge unexploited potential of these sectors in Ethiopia. It is our belief that this study can also serve as an input for policy makers when reviewing the existing strategies on these industries and their implementation.

The methodology we have applied here is mainly descriptive. Towards this, and in addition to the standard review of the literature and policy documents, we use data from several sources, including the database from Ethiopian Central Statistics (CSA), the National Bank of Ethiopia (NBE), the Ethiopia Revenue and Customs Authority (ERCA), Ethiopian tourism organizations, the World Bank, United Nations tourism organizations, and other sources.

The rest of this chapter is organized as follows. Section 2 describes some conceptual issues regarding exports diversification and structural transformation. Section 3 briefly reviews the evolution of Ethiopian export promotion policies. Section 4 presents the recent performance and structure of the Ethiopian economy, especially exports. Sections 5 and 6 examine the opportunities, performance, and bottlenecks in the two selected sector cases: the travel and tourism and horticulture industries. Section 7 concludes with some remarks.

2. Export Diversification and Structural Transformation: Conceptual Issues

Manufacturing has long been hailed as the main engine of structural transformation. Diversification into manufacturing has, thus, been advocated as

the primary goal of national development strategies of low-income countries. A substantial part of the empirical literature provides evidence in support of the manufacturing sector as an engine of growth. For recent reviews on this, see Szirmai (2012) and Szirmai and Verspagen (2015).

The flipside of this argument is that diversification into primary commodities and natural resources can have detrimental effects on countries' growth prospects—commonly referred to as the 'resource curse'.¹ However, the 'resource curse' view is not consistent with the historical evidence demonstrated in several natural resource-rich OECD countries (e.g. Australia, Canada, Scandinavia, the United States) and non-OECD countries (e.g. Brazil, Chile, Uruguay). The experience in these countries shows that resource-based activities can lead growth over long periods and can be a source of knowledge and technological advancement (Lederman and Maloney 2002).

The economic structural transformation in Asia in the last half-century has been mainly driven by the growth of the manufacturing sector. Replication of this growth path in other developing countries, including those in sub-Saharan Africa, however, has remained challenging. This is because, first, even with the low-wage advantage, many African countries' transition to manufacturing might be limited due to internal factors such as initial conditions (poor infrastructure, human capital, and institutions), geography (many small and/or landlocked countries), and richness in natural resources. Second, the windows of opportunity used by Asian countries are no longer available to newcomers. The global setting and industrial environment have significantly changed and this has altered the way enterprises and countries compete (Lall 2005).

According to Perez et al. (2014), the information and communication technology (ICT) revolution and its paradigm in the organization of global corporations, the process of globalization of production and hyper-segmentation of markets, the rise of Asia (notably China and India), as well as the threat of global warming and other environmental concerns have profoundly modified the conditions (innovation and trade) in all sectors. These transformations have radically changed the capacity to innovate in natural resource-based activities and driven them towards 'decommoditization'. In contrast, matured manufactures, which depend on highly codified technologies and low-cost labour, are suffering from a process of 'commoditization' and have been shown to be as vulnerable to downturns as the lower echelons of primary producers, and as being just as likely to suffer decreasing margins (Kaplinsky 1993).

¹ There are various arguments supporting this view. Among others, these include: low world income elasticity of primary products and declining terms of trade; lower skill and technological content of primary commodity production and as a result lower growth spillover; Dutch disease, limiting the effectiveness of government capacity building efforts; and rent-seeking.

Another pessimistic view of the smokestack industries is that they generally have banks of chimney stacks emitting smoke into the atmosphere, which has a negative impact on natural and environmental resources, as well as on the local people. Decades of manufacturing-oriented industrial growth in the West and Eastern side of the globe have had an adverse impact on the environment. Hence, sustainable development has been the overarching goal of the international community since the United Nations Conference on Environment and Development in 1992.

Our intention here is not to give a gloomy picture of the potential of the manufacturing sector in Africa, but provide a rationale to look beyond conventional smokestack manufacturing as a means to achieve industrial transformation. If managed properly, industries without smokestacks can provide new opportunities for export development in Africa and help to build new areas of comparative advantage, including the manufacturing sector. It is in this context that some scholars (for example, Pack and Saggi 2006; Rodrik 2007) have provided a broader definition of industrial policy as government selective intervention or policies that stimulate specific economic activities and promote structural change. This thus includes not only industry per se, but also non-traditional agriculture or services.

3. Overview of Ethiopia's Export Promotion Policies

In the mid-1990s, the Ethiopian government formulated its development vision, known as the Agricultural Development Led Industrialization (ADLI). Agricultural development was envisaged as playing a leading role in the industrialization process by preparing various conditions for full-fledged industrialization through supplying inputs to the industrial sector, generating foreign exchange for importing industrial inputs, and creating markets for industrial output. ADLI also embraced an export-led development strategy as an engine of growth.

Despite the revival of private sector participation, the 1990s did not see a significant increase in the volume or diversification of exports. In 1998, the government adopted the Export Promotion Strategy (EPS) to alleviate the problems of trade balance. The EPS was based on resource endowment and comparative advantage, with a focus on the following four major elements (International Trade Centre (ITC) 2001):

1. The gain from surplus venting through productivity improvements and cultivation of unused land would be maximized
2. The advantage of natural resources for exports of high-value agricultural products would be utilized

3. A new basis for exports of manufactured goods, grounded on the country's comparative advantage of labour
4. The discovery and exploitation of exportable minerals.

Accordingly, coffee, oilseed, horticulture, meat, cotton, clothing, leather, and minerals were chosen as primary products for export promotion and associated incentives. Incentives include: a duty drawback scheme on items imported to produce exports; a voucher scheme or bonded manufacturing warehouse; pre- and post-shipment credit guarantee schemes; and permission for retention of a certain percentage of foreign exchange. Different types of export trade support services were also created.

A comprehensive IDS was formulated in 2002–3 under which export orientation was made one of the key principles (FDRE 2002). Accordingly, export-oriented sectors were designated to lead industrial development and be given preferential treatment. The strategy declares certain industries mostly export-oriented ones, such as textiles and garments, leather and leather products, meat, sugar, and other food products as priority. The selection of these industries is also justified on the ground that they are labour intensive and provide strong linkages with the agricultural sector in addition to their comparative advantage in competing in export markets. The government provided extensive support programmes that include economic incentives, capacity building, cluster development, and direct public investment in order to meet these targets. The specific policies and instruments with regard to manufacturing exports can be found in Gebreeyesus (2013).

In terms of sectors, the focus of the IDS strategy has obviously been on manufacturing, thus, non-manufacturing exports are not covered under this strategy. Although not with equal emphasis, the government has also tried to promote the tourism industry (see Section 5.2) and high-value agricultural exports, particularly horticulture (see Section 6.2).

4. Ethiopia's Recent Economic Performance in the Context of Structural Transformation

Ethiopia has achieved a remarkable and sustained economic growth over the past decade. Figure 9.1 shows the pattern of gross domestic product (GDP) growth and the contribution of the major sectors towards this growth. Between 2005–6 and 2014–15, Ethiopian GDP grew by an annual average of 10.5 per cent. The major sectors, including agriculture, industry, and services have also shown unprecedented growth over the same period. The main drivers of this impressive economic growth have been the service sector and agriculture, in that order. The annual average of

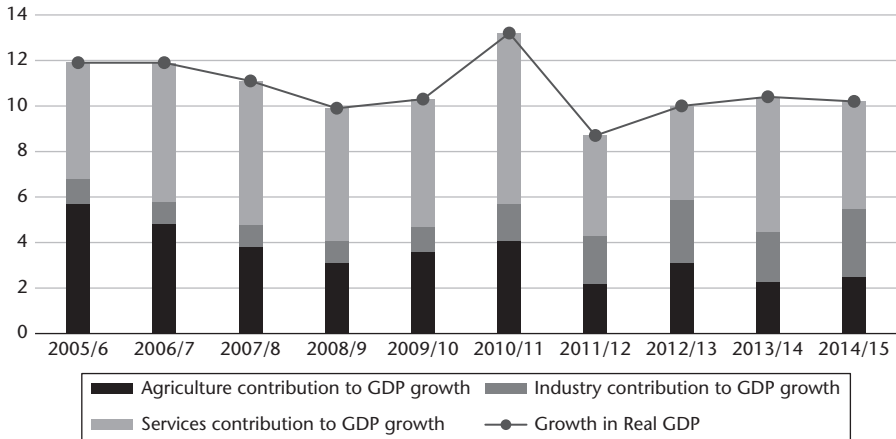


Figure 9.1. Contribution of the different sectors to Ethiopia's real GDP growth

Source: Author's illustration based on NBE annual reports.

the service and agriculture sectors' contribution to GDP growth over the period 2005–6 to 2014–15 was respectively about 51.5 and 32.5 per cent. In contrast, the industrial sector contribution to GDP growth remained small at only 16.3 per cent.

Despite such rapid economic growth, the pace of structural transformation has been slow. Ethiopia's structure of output has shown a shift from agriculture to services. As per the National Bank of Ethiopia (NBE) 2015 annual report, the respective shares of the services and agriculture sectors to GDP in 2014–15 was 46.6 per cent and 38.8 per cent. However, Ethiopia's industrial sector—which includes construction, manufacturing, mining, and utilities subsectors—remained underdeveloped and contributed only about 15 per cent of GDP. The contribution of the manufacturing subsector to GDP was only 5 per cent, which is very low even in comparison to the sub-Saharan Africa average.

Table 9.1 shows the pattern of Ethiopia's export of goods and services over the period 2005–13. Ethiopia's exports grew threefold, from about US\$2 billion to nearly US\$6 billion. However, the recent growth pattern is not encouraging and started to flatten in 2011. Table 9.1 also classifies exports into major subsectors. The broad classification between the merchandise and service exports shows that, despite some fluctuations, each accounts for about half of the goods and services exports. With over 37 per cent of total goods and services exports, agricultural products continue to dominate Ethiopia's exports. This amounts to 80 per cent of merchandise exports. Transport services is the second important sector, accounting for about one-third of total goods and services exports. Again, this amounts to two-third of services

Industries without Smokestacks

Table 9.1. Ethiopia's merchandise and service exports, 2005–13

Year	Total exports of goods and services (US\$ million)	Merchandise export share, %				Service export share, %			
		Agriculture	Fishing and mining	Manu- facturing	Total merchandise	Transport	Travel	Other services	Total services
2005	1,931.0	36.9	2.7	8.0	47.6	24.2	8.7	19.5	52.4
2006	2,200.0	37.4	2.7	7.9	48.0	26.6	7.4	18.0	52.0
2007	2,649.9	40.1	2.5	8.4	51.0	27.7	6.7	14.7	49.0
2008	3,500.0	40.0	2.7	6.5	49.2	30.0	10.8	10.0	50.8
2009	3,429.8	41.6	3.3	4.5	49.4	28.9	9.6	12.1	50.6
2010	4,640.0	43.6	4.9	4.9	53.3	25.4	11.3	10.0	46.7
2011	5,809.7	42.3	3.2	6.6	52.1	27.2	13.0	7.7	47.9
2012	5,990.0	44.9	3.9	5.5	54.3	28.9	10.1	6.7	45.7
2013	5,900.0	37.6	3.0	6.2	46.9	35.2	10.6	7.4	53.1

Source: Author's calculations based on data from the ERCA (2016) for merchandise exports and World Development Indicators (WDIs) for service exports.

export earnings, which are mainly generated by the national carrier, Ethiopian Airlines. In contrast, the mining and manufacturing sector share of total exports is among the lowest, below 5 per cent and 9 per cent of total export earnings respectively.

5. The Travel and Tourism Industry

The World Tourism Organization (UNWTO) defines tourism as the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes. The travel and tourism sector includes subsectors such as tour operators, accommodation, travel agents, attractions, transport, and ancillary services. Recent UNWTO (2016a, 2016b) reports show that, especially after entering the new millennium, tourism has become prominent, with a significant rise in the number of international arrivals and receipts. For example, in 2015 international tourist arrivals reached about 1.2 billion, generating receipts of about US\$1.232 trillion.

Europe has been the leading continent for international tourist arrivals, while Asia and the Pacific showed the most rapid growth in international arrivals as well as receipts. Despite great potential for tourism, with its diverse cultural and natural resources, Africa's share of worldwide tourism remains below 5 per cent in arrivals and 3 per cent in worldwide tourism receipts. Kenya, Tanzania, and Ethiopia are the preferred destinations of international tourism in East Africa (WTTC 2015).

5.1. The Contribution of the Travel and Tourism Industry in Ethiopia

This subsection presents the state and contribution of Ethiopia's tourism industry and compares it with neighbouring Kenya, a country known to be the most important destination for tourists in East Africa. Table 9.2 compares Kenya and Ethiopia in terms of tourist arrivals and the contribution of tourism and travel to export receipts for employment and GDP. Ethiopia's number of international tourist arrivals has been growing rapidly. For example, between 2005 and 2013, the number of tourist arrivals tripled, increasing from 227,000 to 681,000. International tourist and travel receipts have similarly tripled in the same period.

In contrast, Kenya's number of arrivals and receipts have not shown any progress in this period. And yet Ethiopia's tourist arrivals are only about half of Kenya's. Surprisingly, despite the difference in arrivals, the two countries are almost equal in terms of revenue generated from tourist arrivals (i.e. receipts). If these figures are correct, the receipts generated per traveller in Ethiopia are much higher than those in Kenya. This might be caused by the large share of Ethiopian Airlines in the tourist and travel receipts of Ethiopia. In this regard, more information is needed to account for the size of its contribution.

In 2005, the contribution of the travel and tourism sector to GDP and employment in Ethiopia was almost half that of Kenya. But Ethiopia has reduced this gap following the expansion of this sector in the last decade. For example, in 2015 the travel and tourism sector contributed about 11.3 per cent and 12 per cent of GDP, respectively, in Ethiopia and Kenya. For employment, these figures were 9.8 per cent and 10.4 per cent, respectively.

Air travel is the major means of transportation for international tourists to Ethiopia. According to the MOCT (2016), out of the 770,428 tourists who

Table 9.2. Contribution of tourism and travel to exports, GDP, and employment: Ethiopia vs Kenya

Year	Arrivals ('000)		Receipts (US\$ billion)		Contribution of travel and tourism to GDP, %		Contribution of travel and tourism to employment, %	
	Ethiopia	Kenya	Ethiopia	Kenya	Ethiopia	Kenya	Ethiopia	Kenya
2005	227	1,399	0.53	0.97	8.1	14.7	7	12.7
2008	383	1,141	1.12	1.39	10.3	12.8	9	11.1
2009	427	1,392	1.12	1.12	9.2	11.5	7.9	10
2010	468	1,470	1.4	1.6	11.1	12.7	9.6	11.1
2011	523	1,750	1.99	1.8	12.5	13.2	10.8	11.5
2012	597	1,619	1.98	2	12.2	12.5	10.6	10.8
2013	681	1,434	N/A	1.83	N/A	N/A	N/A	N/A
2015					11.3	12	9.8	10.4

Source: Author's calculations based on WDI data.

visited Ethiopia in 2014, about 97 per cent arrived by air. This suggests that Ethiopian Airlines is playing a critical role in stimulating the Ethiopian tourism industry. With regard to the purpose of their visit, recreation and holidays, and business and professional visits are the two main reasons for the tourist flow to Ethiopia (see Figure 9.2).

5.2. Tourism Industry Policies and Implementation

In Ethiopia, modern tourism promotion started in 1961 following the establishment of the Ethiopian Tourism Organization. In the beginning, the income generated from tourist flows was not as great as anticipated, but later it started to increase steadily. However, the drought in 1974 and restrictions on entry and free movement instituted by the military junta negatively affected the sector. After the fall of the military government in 1991, a conducive environment for infrastructure development coupled with the removal of travel restrictions led to a substantial revival of the tourism sector. The inflow of tourists has since been on the rise, except in 1998 and 1999, which was the period of war between Ethiopia and Eritrea (Walle 2010).

In 2005, the Ministry of Culture and Tourism (MOCT), as per proclamation No. 471/98, was re-established with the aim of making Ethiopia one of the top tourist destinations in Africa. The sector is perceived to increase the foreign exchange capacity, create employment opportunities, and play a role in sustainable development. However, at that time there was no clear policy to guide the sector.

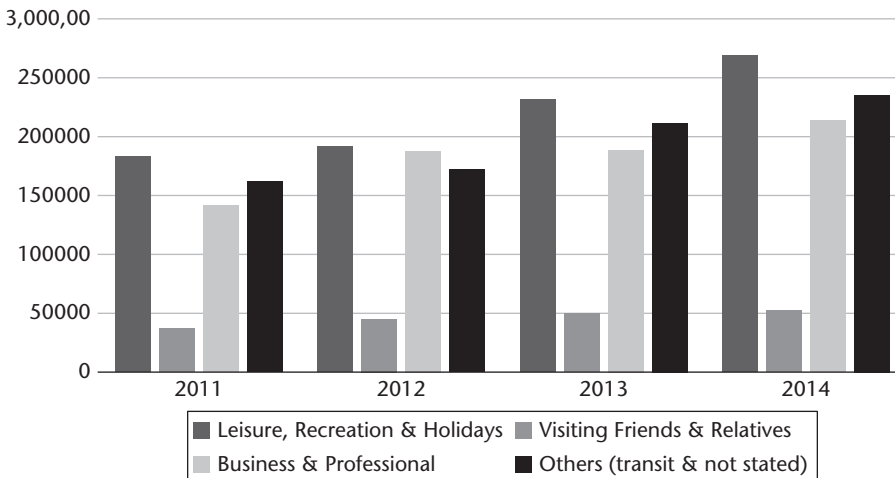


Figure 9.2. The purpose of tourists’ travel to Ethiopia, 2011–14

Source: Author’s illustration based on MOCT (2016).

In 2009, the government of Ethiopia launched a tourism development policy to increase tourist arrivals and optimize returns from the sector (MOCT 2009). The tourism sector was given better attention in the second phase of the Growth and Transformation Plan (2015–20). The number of arrivals by 2020 is expected to be above 2.5 million. A sustainable master plan with the help of the United Nations Economic Commission for Africa (UNECA) is also in the process of formulation.

One of the most crucial issues underlined in the policy document is building a positive image with a brand that will represent the country and maximize the benefits gained. With the aim of leading the tourism sector in a new direction, in March 2016 the MOCT launched a new brand name, 'Ethiopia, Land of Origins', with its own logo, slogan, and icon. In addition to the new brand name, the Ministry has in parallel been trying to develop different websites, build a new communication campaign, and develop new mobile apps to promote the country as a popular tourist destination.

To strengthen the collaborative relations among actors participating in the tourism sector, in August 2013, the government established the Ethiopian Tourism Transformation and the Ethiopian Tourism Organization Council. This council is chaired by the prime minister and is composed of council members including all the ministers, regional leaders, and tourism bureaux of each region state, Ethiopian Airlines, the Ethiopian Chamber of Commerce and Sectoral Associations, hotels and restaurants, and other sector representatives. The Tourism Council is expected to enhance benefits from tourism based on the potential of the country and to provide leadership to tourism sector actors and stakeholders (MoFA n.d.).

The country's image has continued to improve over time. A vivid example of this is that recently a representative of the twenty-eight countries on the General Assembly of the European Council on Tourism and Trade named Ethiopia as the 'Best Tourism Destination' of 2015.

To summarize, most of the issues that were listed under the policy can be said to be mostly in the first phase and still require full commitment from the government and other stakeholders.

5.3. Opportunities and Challenges: The Tourism Industry in Ethiopia

OPPORTUNITIES

Ethiopia is endowed with rich cultural and abundant natural resources. It is a land of remarkable features, such as the Ras Dashen and Danakil Depression, two of the highest and lowest places on earth, respectively (MOCT 2016). In terms of history, Ethiopia is a very old country, with over 3,000 years of history. The Axumite Kingdom was a powerful realm during the early Christian era, and a great civilization. Great religious civilizations in Lalibela

that possessed great faith and architectural skills also flourished during the ancient period. Moreover, the Walled city of Harar made the country one of the four ancient Islamic cities in the world. Ethiopia is home of nine United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites and twelve world literary and manuscript heritages (MOCT 2016). Moreover, Ethiopia has numerous national parks with a range of wildlife and biodiversity preserved in their natural habitats. It is also a country of different ethnic groups with their own unique languages, cultures, and traditions (MOCT 2016).

For tourism to be successful, some crucial enablers like political stability, air transport facilities for easy access, and high-standard accommodation are needed. Ethiopian Airlines, a Star Alliance member, can be seen as one opportunity to advertise Ethiopian culture and to attract tourism. The airline's new strategy to build the major new airport hub for African transport in Addis Ababa is expected to enhance the development of the tourism sector. Moreover, the country is improving existing and establishing new accommodation for tourism.

The other valuable resource of the country is its people. The country has a large pool of labour that can be trained and employed in the sector. The country also has the potential for conference tourism. The presence of UNECA, the African Union, and other regional and international organizations has made Addis Ababa a diplomatic hub (Azage 2013), and could create a strong market for conference and domestic tourism. Thus tourism could offer a substantial contribution to the overall economy by creating opportunities for local communities to sell goods and services directly or indirectly. Moreover, Ethiopia's tourism sector benefits immensely from the expansion of infrastructure being undertaken in the country, including the construction of roads, airports, hotels, and communication networks. The tourism sector is not the only beneficiary, but is also driving allied activities. Consequently, tourism-related subsectors have started to expand. Incentives in the sector have also been introduced by the government, such as tax holidays and 100 per cent duty exemptions, which are available for all investment capital goods imports (Assefa et al. 2013).

MAJOR CHALLENGES AND SUGGESTED SOLUTIONS

As shown above, tourism has a considerable and unexploited potential in the development of the Ethiopian economy. But the sector has major bottlenecks that prevent it from growing as expected; some of these are listed below:

- *Weak coordination among tourism stakeholders.* One cause for the poor implementation of the policy is lack of coordination and attention among the various stakeholders in playing their roles (Kasahun 2010).

Strong coordination and commitment from the government, public, and private sectors, as well as the local community, is thus necessary for full implementation of the strategy

- *Weak attention to domestic tourism.* Efforts made to promote domestic tourism by the government and private sector are quite insignificant. There is no clear strategy promoting domestic tourism. The weak tourist-travel culture of the society and the low income of the majority of the population are hindering factors. Too little promotion and unaffordable prices for domestic travellers are an obstacle to the growth of domestic tourism. As domestic tourism is less sensitive to crises, a clear strategy to promote it should be created (World Bank 2015)
- *Lack of awareness and incentives among the local people.* The lack of awareness among the local people about preserving the potential for tourism development has made it difficult to generate good incomes (Asmelash 2015). Most of the local community consider tourism as a luxurious industry and believe that tourism wrongly leads to inappropriate service delivery, like overcharging. Moreover, since the community has little or no awareness of tourism's contribution, they are not committed to protecting the tourism resources or making businesses out of them. The solution to this is, thus, not only to improve awareness but also to support the local community's ability to benefit from tourist activities—for example, creating enterprises producing goods and services for tourists
- *Shortage of trained labour.* There is a critical shortage of skilled labour in hospitality and logistics in Ethiopia. Hence, the government need to promote tourism-related education and expertise
- *Lack of infrastructure.* Though the country is making significant progress, there is still poor road infrastructure, banking services, water, power supply, and communications, especially in rural areas (Shitemaw 2015). Improving ICT and banking services is particularly crucial in attracting more tourists and benefiting from their stay
- *Lack of quality service provision.* In Ethiopia there is a limited supply of multiple-star and tourist-quality hotel rooms, especially outside Addis Ababa. In addition, many of the existing hotels in the tourist sites lack some basic services like sanitation and clean, good-quality water, and lack variety in food (Gebru 2011)
- *Inadequate promotion work.* Different promotion strategies play a critical role in the expansion of the tourism sector. Unlike many other tourist destination countries, Ethiopia does not advertise its tourist potential using international media with a global reach. Thus, most of the country's tourism resources are almost unknown internationally (Gebru 2011). Using

the new brand name, and as outlined in the Growth and Transformation Plan (GTP), the MOCT should actively promote the country using different media and other outlets. More resources are, of course, needed to implement this.

6. Ethiopian Horticulture Sector

6.1. *The Features of the Horticulture Sector*

Endowed with a wide range of agroclimatic conditions, adequate water, and soil types, Ethiopia is suitable for producing diverse varieties of horticulture products, including temperate, tropical, and subtropical crops. In terms of exports, the country is also geographically well positioned for major international horticulture markets in the Middle East and Europe. The fruit and vegetable subsector has significant importance for improving food security (and nutrition) as well as the development of agro-processing industries.

However, the production of fruits and vegetables in Ethiopia is not developed to its full potential, nor is production of other grain crops. As per the CSA (2015) survey report, the total area under fruit and vegetable cultivation (by both smallholders and commercial farms) in 2014–15 was respectively 146,776 and 98,275 hectares.² The respective yield for these crops during this year's *Meher* season³ was estimated at about 6.84 million quintals and 8.10 million quintals. The fruit and vegetables account for only 1.87 per cent of the total land area under cultivation and 3.4 per cent of the total grain crops production in the same year. The production distribution of fruits and vegetables is highly skewed towards a few crops such as red peppers, cabbage, and banana. Smallholder farmers account above 90 per cent of total cultivated land and 87 per cent of the production of fruit and vegetables. See the working paper version for more on this discussion.

6.2. *Horticulture export promotion and performance*

In recognition of Ethiopia's significant comparative advantage in horticultural production and marketing the government in 1998 identified the sector as an option for export diversification through high-value crops. Investors in horticulture exports have been granted various incentives, including exemption from customs duties and import tariffs on all capital equipment and up to

² Table 4 in the working paper version (Gebreeyesus 2017) provides a summary of cultivated land and production of major crops.

³ *Meher* season is the main Ethiopian crop season (June–August), accounting for about 95 per cent of total annual crop production in Ethiopia.

15 per cent on spare parts, and an income tax holiday of 1–5 years. Furthermore, investments in exports are exempt from income taxes if at least 50 per cent of the output is directly exported or if at least 75 per cent of the output is indirectly exported for a period of no less than five years (Ethiopian Investment Agency 2012).

Commercialization of the agriculture sector both through private sector large-scale farms and smallholder out-grower schemes were anticipated to accelerate production of exportable vegetables, fruits, flowers, spices, and herbs. The objective of the government to promote horticulture exports was carried forward through the subsequent five-year development plans. For example, targets were set to generate US\$356 million from exports of flowers and US\$371.6 million from exports of fruit and vegetables by the end of the Growth and Transformation Plan (GTP) I (2014–15) (FDRE NPC 2016).

To provide institutional support for the development of the horticulture sector, in 2008 the government established a separate agency, the Ethiopian Horticulture Development Agency (EHDA), which is responsible for promoting, facilitating, coordinating, and supporting investment in flowers and fruits and vegetables. The EHDA has separate technical support case teams for flowers and fruit and vegetables. Investment promotion and marketing departments also have teams that work for both sectors.

Table 9.3 gives the value of Ethiopia’s horticulture exports from 2007–8 to 2015–16. Ethiopia exports fruit and vegetables mainly to Europe, the Middle East, and East Africa. Exports of fruits and vegetables have shown some increases over the last decade—for example, from US\$13.4 million in 2007–8 to US\$43.5 million by 2014–15. But this is still small in contrast not only to the country’s potential, but also to neighbouring Kenya’s exports. For example, in 2014 Kenya earned about US\$266 million from exports of

Table 9.3. Pattern of Ethiopia’s exports of flowers, fruits, and vegetables (in US\$ million)

Year	Flowers	Fruits and vegetables		
		Fruits	Vegetables	Total fruits and vegetables
2007–08	111.26	3.26	10.39	13.66
2008–09	130.64	3.01	16.84	19.85
2009–10	158.15	4.23	27.63	31.86
2010–11	175.28	4.02	29.04	33.06
2011–12	196.97	4.40	40.54	44.94
2012–13	188.00	4.09	61.89	65.98
2013–14	195.03	5.72	41.24	46.96
2014–15	201.24	5.41	38.14	43.55
2015–16	225.32	5.79	43.50	49.30

Source: Author’s calculations based on EHDA data.

fruit and vegetables, which is about six-fold the amount of Ethiopia's foreign exchange earnings from fruit and vegetables for the same year. Ethiopia's actual fruit and vegetables exports are also much lower in comparison to the targets set under the five-year development plans. For example, only US\$43.55 million was collected by the end of the GTP I plan period, which is only 11.7 per cent of the target set.

The picture is very different when it comes to flower exports. Unlike with fruit and vegetables, Ethiopia has achieved extraordinary success in flower exports, making the country a global player in the sector. The flower sector has started to show a significant contribution to the Ethiopian export sector, beginning in the mid-2000s. Between 2002 and 2008, the number of flower farms grew about sixteen-fold and reached eighty-one, covering about 1,200 hectares. The value of flower exports has also soared in this period, growing about twenty-fold. Ethiopia's current (2015–16) exports have reached about US\$225 million, making the country the second largest cut-flower exporter in Africa.

To give more context to the different performance between the flower subsector and the fruits and vegetables subsector, we can compare the export earnings per hectare cultivated. The flower sector generates about US\$225 million foreign exchange from a cultivated land area of no more than 1,200 hectares, whereas the fruits and vegetables subsector generates no more than US\$50 million from cultivation of as much as 250,000 hectares. The flower industry has attracted a large amount of foreign investment; about two-thirds of the existing eighty-plus flower farms are foreign-owned. In contrast, the fruit and vegetables subsector is not only dominated by smallholder farmers, but also most investors (85 per cent) in the large commercial farms are domestic ones, mainly targeting domestic markets instead of exporting. Foreign investors are not very interested in the fruit and vegetable industries yet. For example, in 2012 there were about twenty-three commercial vegetable farms (among which thirteen received foreign direct investment) and six fruit companies (among which two received foreign direct investment).

6.3. Understanding the Factors behind the Differential Success between the Flower and the Fruit and Vegetables Subsectors

WHY HAS THE SUCCESS OF THE FLOWER INDUSTRY NOT BEEN REPLICATED IN THE FRUIT AND VEGETABLE SECTOR YET?

Before directly answering this question, we would like to start by highlighting how the flower industry came to emerge with a focus on public–private interaction. Flowers are a new export venture for Ethiopia. An export-oriented and private sector-based floriculture industry began to appear in the mid-1990s after two domestic private entrepreneurs experimented in the

aftermath of the extensive reform programmes intended to transform the command economy to a market oriented one.⁴ These early entrants faced a number of difficulties, particularly related to logistics, land, and finance. In 2002, they formed an association and started to seek government support.

The government was made aware of the export potential of this sector through the experiments of the private entrepreneurs and their efforts to acquire government support. The government responded quickly and positively following lobbying from the private sector through their association. In 2002, the government worked out a five-year plan of action for the sector, outlining the sector's constraints and possible solutions. With the government decision to engage, several domestic and foreign investors have been attracted and, as shown above, with about US\$225 million, the sector has become one of the major foreign exchange generating export products for the country.

Gebreeyesus (2014) contrasted the performance of the flower industry and the basic metal and engineering industry (BMEI) sector in Ethiopia in an effort to understand the factors behind the success of the former and failure (less success) of the latter, despite similar policy environments. He argues that the first reason for the differential success between the two sectors is related to the presence or absence of comparative advantage respectively the flower sector and BMEI. The second reason is that floriculture is a specific activity, while the BMEI consists of highly diversified industries, making it difficult to come up with an effective industry action plan. The third explanation is related to the choice of policy instruments and specifically the presence or lack of distinct instruments addressing sector-specific binding constraints.

The present case, i.e. why the flower but not the fruit and vegetable sectors succeeded, is even more paradoxical given the close similarities between the two sectors. The country is believed to have a comparative advantage in both subsectors, at least in terms of agro-climatic endowments. The government has promoted the two subsectors equally and provided the same package of investment incentives related to land acquisition, duty-free import of machinery, tax exemption, credit, etc. Lastly, the industry association that was formed in 2002 represents not only the flower sector but also the fruit and vegetables producers and exporters.

So the question is why has the success in the flower subsector thus far not been replicated in the fruit and vegetables subsector despite such similarities? To provide plausible explanations for this we look further into the analysis of comparative advantage among the two sectors. Below are some of the issues that came to our consideration through discussion with the relevant actors in the sector, such as the EHDA.

⁴ See Gebreeyesus and Iizuka (2012) for extensive discussion of this.

- *Agronomic differences and required size of land.* The two sectors have some differences in agronomic and required land size. Flower production requires shorter time periods compared to most types of fruit. Hence, investment in the flower subsector has a shorter payback period (cost recovery) than most fruits with long gestation periods, although the former require higher initial investment. Moreover, the production of fruit and vegetables requires a relatively larger land area. Land rotation is required after some years of fruit and vegetable production, but flowers can be produced in smaller land areas and for a longer period of time without undertaking land rotation
- *Market conditions.* The flower industry has secured an international market. Investors can enter international *auction markets* for flowers if they satisfy the minimum requirements (which are relatively easy) and sell their products. However, the story is different for fruit and vegetables. The market for fruit and vegetables requires direct sales (no auction market), which in turn requires searching for and dealing with buyers
- *International stringent standards requirement for food items.* The standards to enter developed country markets is more stringent in the food (fruit and vegetables) than in the flower sector. Unlike flowers, which are required for aesthetic purposes, fruits and vegetables are food items. Hence, any export of fruits and vegetables has to fulfil international standards, which are mandatory as compared to the voluntary standards for the non-food items, including flowers. Fulfilling these standards requires establishing 'closed systems' for the production of fruits and vegetables, which in turn requires costly technology and know-how. But most production in Ethiopia uses open field systems, which makes quality control difficult
- *Cost of transportation.* Flower exports are not heavy (small volume) and hence using air transportation is viable. But in the case of fruit and vegetables, the fresh weight is high because water is the major component of the products. It makes them bulky and they have a low value per unit despite being expensive to transport in their fresh form. Therefore, using air transportation is costly (not feasible economically). Moreover, as Ethiopia is landlocked, the cost of using marine transportation to export fruit and vegetables is high (given the perishability and the long time required to transport the exports via Djibouti ports).

The above suggests that Ethiopia has a greater comparative advantage in flowers than fruit and vegetables exports. This is due to the long gestation period for most fruits, more stringent standards for food in the destination markets, and, more importantly, the high logistics cost because of the bulky nature of fruits and vegetables. Ethiopian Airlines was instrumental in

reducing the transport-related uncertainties in the flower industry. Unfortunately, this is not the case for fruit and vegetables exports due to the bulkiness of the product. The ideal transport means for Ethiopia to export fruits and vegetables is a combination of road and sea transport. As a landlocked country, Ethiopia has a comparative disadvantage in this regard. As a result, foreign investors are not very interested in the fruit and vegetable industries. The majority of investors (more than 85 per cent) are domestic, and they mainly target domestic markets instead of exporting their products.

This should not, however, be taken to imply that Ethiopia should abandon promotion of fruit and vegetable exports. Rather, it suggests the design of appropriate policy instruments and support programmes that are different from those applied in the flower sector and specifically address the major bottlenecks in fruit and vegetables, particularly related to market access, improving logistics, and farm productivity. Another implication is that the promotion should identify champion products within fruit and vegetables instead of using a sector-wide approach.

7. Concluding Remarks

Ethiopia has long recognized the role of exports in economic development. In the 1990s the country adopted an EPS that was in 2002 transformed into a comprehensive IDS. These visions have been put into action through consecutive development plans over the last decade and a half, which always include export targets and associated support programmes.

The Ethiopian economy has registered impressive growth over this period. However, the exports are not able to catch-up with surging import demand, which in turn is fuelled by unprecedented economic growth. As a result, the economy is facing a critical foreign exchange shortage, which it is feared will slow momentum.

The focus on export promotion has largely been on the light manufacturing sector. As shown above, manufacturing exports and the sector at large have not taken-off yet and it may require more effort and time. The current driving forces behind the growth of Ethiopian exports and the economy at large are the agriculture and service sectors. These sectors are not only major sources of exports, but also the growth drivers of the economy generally. The implication is that the government needs to give more attention to these sectors as part of not only export promotion but also industrialization. They can ease the foreign exchange strains that manufacturing firms face when importing machinery and industrial inputs. Advancement of the service sector can also improve the efficiency of manufacturing activities. Moreover, promotion of

the horticulture sector can also directly enhance the manufacturing sector by improving the supply of industrial inputs.

Within the span of less than a decade, Ethiopia has emerged as a global player in the cut-flowers business. It has become the second largest flower exporter in Africa, after Kenya. However, the success of flower exports has not thus far been replicated in the fruit and vegetables sector, despite huge potential. This study identified some critical bottlenecks—among others market access, logistics problems, and low farm-level productivity—that inhibit the expansion of fruits and vegetables exports as well as policy suggestions to address these bottlenecks.

This chapter has also specifically examined the opportunities and challenges of the Ethiopian travel and tourism sector. Ethiopia has vast natural and man-made tourist attractions but these are largely unexploited, although a tourism development policy was launched in 2009 and the Tourism Transformation Council chaired by the prime minister was established in 2013. However, implementation of the policies and strategies remained poor and coordination among the different relevant institutions is weak. Lack of trained labour in the sector and poor infrastructure facilities are also among the major bottlenecks for the growth of the sector. Equipped with the existing policies, policy makers need to redirect their efforts into practical implementation and institution building that will facilitate the growth of the travel and tourism sector.

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The Agro-Processing Industry and its Potential for Structural Transformation of the Ghanaian Economy

Nkechi S. Owoo and Monica P. Lambon-Quayefio

1. Introduction

The agricultural sector plays a critical role in the overall economic growth of the Ghanaian economy. Indeed, agriculture is expected to lead to a significant transformation of the economy through improvements in the sector's productivity. The sector is divided into a number of subsectors: crops, cocoa, livestock, forestry, and fisheries. The crop subsector contributes about 66.2 per cent to the sector, with a large percentage of its products undergoing some form of processing (MoFA 2010). The major products include cocoa, cashew, sunflower, oil palm, groundnut, fruits, and vegetables, among others. The most common item that is processed is maize, followed by other commodities such as nuts and oils, fish, and grains such as millet, sorghum, and guinea corn.

Food processing is an important activity related to the agricultural sector and is dominated by predominantly small- and medium-scale firms which operate in the informal sector of Ghana. Indeed, the agro-processing sector may be classified into two groups: domestic processing and factory processing (Quartey and Darkwah 2015). Domestic processing activities are dominated by female workers who are predominantly illiterate and have no formal training. Skills in food processing are acquired mostly through apprenticeship and a large amount of family labour is employed. This domestic processing often leads to processed outputs of variable quality. Nonetheless, these small-scale units are able to create employment opportunities and make use of local resources. Factory processing activities, on the other hand, are mostly foreign-owned

(e.g. Nestle and Cadbury) or state-owned (e.g. Fan Milk). These factories can process large quantities of raw materials and can contribute significantly to the economy through export activities.

Agro-processing is important for a number of reasons, chief of which is a reduction in post-harvest losses. Post-harvest losses in maize, cassava, rice, and yam amounted to about 35 per cent, 34.06 per cent, 6.9 per cent and 24.4 per cent per cent in 2007 (MoFA, 2007) as a result of, among others, ineffective food-processing technologies. According to the Ministry of Food and Agriculture (2012), only 5 per cent of food products harvested in Ghana are processed. Therefore, from a health and nutrition perspective, agro-processing has the potential to increase nutritional value and also increase food security, through a reduction in food spoilage and wastage. Processed foods also enjoy greater price stability on the world market and may therefore increase market opportunities for exports, contributing to income securities particularly in rural communities, which are mostly engaged in farming. The development of the agro-processing industry may also promote employment generation, contribute to enterprise development, diversification of rural economies, import substitution, among others. According to Quartey and Darkwah (2015), agro-processing is the most important sub-sector of the manufacturing sector, with food and beverages representing the largest component of processed commodities.

There are a lot of opportunities to add value to agricultural commodities—export of processed horticultural products (i.e. fruit and beverages), for instance, has become increasingly significant in the Ghanaian economy, particularly given the presence of a knowledgeable private sector. Indeed, export of produce from the agro-processing sector in Ghana is dominated by horticultural products (fruit and beverages), in addition to vegetables, roots and tubers, and palm oil. Pineapples, bananas, mangoes, and flowers were among the top non-traditional export commodities in Ghana in 2012. Notable horticultural processing firms include Blue Skies (processes pineapples and other fruits into juice for local and international markets); Pinora (processes pineapples and oranges into frozen concentrates for export); see, among others Owoo and Lambon-Quayefio (2017: Figure 1).

Presently, the agro-processing industry in Ghana is not well-advanced and there is a relatively low degree of value-addition to agricultural commodities, and few linkages with marketing and financial services, partly due to the small firm sizes and under-developed processes which lead to many of these firms operating below-capacity using inefficient technologies. According to Afful-Koomson et al. (2014), 85 per cent of all agro-processing firms in Ghana are micro-enterprises, 7 per cent are very small firms, 5 per cent are small firms and only 3 per cent are medium agro-processing firms. An implication of the limited scale of production of agro-processing firms in the country is that

they are faced with greater bureaucratic, legal, and administrative challenges, compared to larger firms. Typically, policy directives and initiatives are less tailored to the needs of SMEs within the country and therefore these firms are more often faced with overbearing regulations, delays, etc.

2. Agriculture's Role in the Ghanaian Economy

2.1. Sectoral Performances

The agricultural sector has traditionally been the largest contributor to Ghana's GDP and has been the cornerstone of the economy since the country's independence in 1957. Between 2000–8 for example, the average sectoral share in GDP for this sector was 38.7 per cent, compared to 26.1 per cent and 31.3 per cent for the Industry and Services sectors, respectively (GSS 2008). Additionally, the sector employed about 55 per cent of Ghana's population between 2000–7 (ISSER, SGER 2008).

By 2010 however, there had been a change in the landscape with regards to the economic contributions of the various sectors—the services sector became the largest contributor to the country's GDP and growth in the agricultural sector began to stagnate. The services sector continued to drive the economy and accounted for approximately 50 per cent of total production during 2012–14, while the agricultural and industry sectors contributed about 23 per cent and 27 per cent, respectively (Ghana Budget Statement 2015); see Owoo and Lambon-Quayefio (2017: Figure 2).

There are a number of factors that may explain the deteriorating performance of the agricultural sector over time. First, the economic reforms of 1983, which led to the removal of agricultural subsidies, led to a slow-down in the performance of the food crop, fishing, and livestock sub-sectors. Additionally, inadequate access to markets and storage facilities and the resultant post-harvest losses may also explain the reduced performance of the agricultural sector. Other factors include the rapid loss of forest cover as a result of bush-fires and logging activities, in addition to inadequate irrigation facilities and poor extension services. More recently, the discovery of oil deposits in the country has also been attributed to the declined performance of the agricultural sector, through the Dutch Disease phenomenon. This phenomenon refers to the adverse effects of a significant increase in a country's wealth. Here, a boom in a natural resource sector of an economy, such as the oil sector in Ghana, leads to the shrinkage of other non-resource sectors. This may lead to the country specializing in the resource sectors, which makes the economy more vulnerable to resource-specific shocks.

Despite the increased significance of the services sector to the country's total production, this sector may not easily be properly positioned to bring

about the necessary structural transformation of the Ghanaian economy. This is because, in the strictest sense, transformation involves not only the reallocation of economic activity across the three sectors (i.e. agriculture, manufacturing, and services), but the increase of new and more productive activities and a shift away from older, less productive, traditional activities. This increase of new and productive activities is what is expected to drive the economy forward while the shift from older, less productive activities is what is expected to diffuse the gains of productivity throughout the economy (McMillan and Rodrik 2011). In Ghana, however, the dominance of the informal activities in the services sector and the prevalence of low-productivity activities, in addition to the reduced significance and performance of the manufacturing sector make recent changes in sectoral contributions more indicative of a structural *shift*, as opposed to a structural *transformation*.

Interestingly, although the services sector records the largest contribution to GDP, the agricultural sector is the only sector that maintained its rising growth trend over 2013–14. While the industry and services sectors recorded declines in growth during 2012–14, the agricultural sector has been able to maintain its contribution to the economy, with the food and crops sub-sector accounting for about 75 per cent per cent of the total agricultural production within the period; see Owoo and Lambon-Quayefio (2017: Figure 3).

Generally, Ghana may have a very strong competitive advantage within its agricultural sector for a number of reasons. First, over two-thirds of the total land is fertile and requires little fertilizer to produce farm commodities. Second, the government has demonstrated significant interest in agribusiness and a commitment to support increased investment in this area. Third, there is a large unemployed youth population that may provide the much-needed labour supply for the agricultural sector.

2.2. *Agricultural Policies and the Agro-Processing Industry*

Generally, the role of government in the formulation and enactment of economy-wide policies that provide an enabling environment for the growth of economic activities is expected to be crucial. These policies are meant to engender conducive environments for private sector development through the provision of stable macroeconomic conditions such as low inflation, stable exchange rates and limited budget deficits. The economic reform of the 1980s, which mandated the promotion of free markets and trade liberalization have played an important role in encouraging exports of goods, in addition to the growth of the agro-processing industry. Efficient financial systems, good legal and regulatory environments, a reliable judicial system

are other factors that contribute to a favourable general economic climate to foster the activities of the agricultural sector. A fuller discussion of agricultural policies can be found in Owoo and Lambon-Quayefio (2017).

Historically, agricultural policies in Ghana have generally favoured the production of raw materials and primary products. After independence, continued emphasis was placed on primary agricultural production in an attempt to provide the requisite raw materials for the manufacturing sector, under the dominant import-substitution strategy. It is important to note that this period marks one of the earliest known attempts to promote agro-processing within the country. The main difference between the colonial and post-colonial era was the focus on the modernization of agriculture in the latter era, through emphasis on large-scale state-led production.

Between 1966 and the early 1980s, there were changes in government, which led to alternating socialist and capitalist policies on agricultural promotion and by the early 1980s, the agricultural sector began to decline. Between 1991 and 2000, the Medium-Term Agricultural Development Programme (MTADP) was the main policy that aimed to provide a comprehensive framework for the recovery and accelerated growth of the agricultural sector. The Food and Agriculture Sector Development Policy (FASDEP I) of 2002 was relevant chiefly because it adopted a sector-wide approach to guide agricultural development and interventions. The World Bank-IMF sponsored Interim PRSP (2000–2) and the Growth and Poverty Reduction Strategies, GPRS I (2003–5) and GPRS II (2006–9) were also significant to agricultural production in the country. The first Ghana Poverty Reduction Strategy (GPRS I), 2003–5 focused on agricultural development to drive rural development, while the second Growth and Poverty Reduction Strategy (GPRS II), 2006–9, and its follow-up, the Ghana Shared Growth and Development Agenda I (GSGDA), 2010–13, proposed that agriculture would lead the growth and structural transformation of the economy (METASIP 2010).

The second phase of the Food and Agriculture Sector Development Policy (FASDEP II) aimed, among many other things, to promote agro-based industrial development in the country. The main difference between FASDEP I and FASDEP II is that the latter adopted a value-chain approach to agricultural development.

Although various agricultural policies over time have included sections that focus on the development of the agro-processing industry in Ghana, Ghana may still from an integrated and strategic national plan that takes into account specific characteristics and challenges faced by small- and medium-scale firms in the informal sector of the country, who are largely engaged in agro-processing activities. Such a national policy plan may also facilitate important linkages between the agro-processing industry and other relevant sectors.

3. The Development of Agro-Processing and its Significance to the Economy

3.1. *Definition of Agro-Processing and Linkages within the Economy*

The FAO (1997) describes agro-processing as the transformation of products originating from agriculture, forestry, and fisheries. While agro-processing may involve global-to-local patterns (processing of imported agricultural commodities to be sold on the local market) and local-to-global patterns (processing of locally-produced commodities for export), the industry in Ghana appears to be mostly concentrated on local-to-local patterns (production of locally-produced commodities for domestic consumption), and dominated by informal sector activities.

Agro-processing may vary from simple preservation operations such as drying products in the sun to more complex, capital-intensive processes. Agro-processing industries are typically comprised of upstream and downstream industries. Upstream industries refer to the initial processing of agricultural commodities such as rice and flour milling, leather tanning, cotton ginning, fish canning, among others. Downstream industries are involved in more complex processing of intermediate products made from agricultural materials and include the making of bread, biscuits, textiles, paper, clothing, footwear, etc. (FAO 1997). Agro-processing firms are characterized by crucial backward and forward linkages.

Backward linkages arise when local producers are able to satisfy their demand for raw materials and services from local suppliers. This may refer to the supply of credit, inputs, and other production-generating services. Backward linkages may be established by the procurement of capital goods and equipment from other industries; or the purchase of agricultural inputs from farmers. Forward linkages on the other hand refer to the creation of additional opportunities in other parts of the economy, from the activity of agro-processors, through the sale of processed products. This refers to the marketing of these products and the generation of employment opportunities through the value-addition processes. Forward linkages have positive implications for increased export earnings, employment generation, and greater food security (Babu 2000) and may be established through sale of processed goods to final consumers; and sale of processed goods as inputs to other firms who use these as inputs to their own production processes.

The role of agro-processing in Ghana's development could be vital, given its ability to generate increased demand for the products of other industries through backward or forward linkages. Despite the promising state of Ghana's agricultural sector, the linkage between agriculture and industry appears weak, and value additions by the manufacturing sector remain low. Agro-processing, an integrated form of agricultural development may be expected to have the

strongest effect on agricultural production, given the increased demand for primary products from this sector. Additionally, the infrastructure (e.g. roads and transport facilities, power, etc.), which is essential for promoting the growth in agro-processing, could also be vital to increased growth in the agriculture sector.

3.2. Evolution and Structure of Agro-Processing Firms

According to Okorley and Kwaten (2000), agro-processing in Ghana can be traced back to the colonial period, where these activities were performed on a small scale and consumed locally. After independence in 1957, the industrialization drive embarked on by the new government resulted in a number of state-owned processing factories which were directly linked to the country's agricultural products. These agro-processing factories were strategically located to use the primary agricultural products produced by the various regions. For example, the sugar factories located in Komenda and Asutuare in the Western and Eastern regions, respectively, were meant to use the raw sugar canes produced in these regions as raw materials. Also, the Pwalugu tomato factory was located in the region to make use of the abundant supply of good quality tomatoes in Pwalugu and its surrounding areas. Others included the Bolgatanga meat processing factory and the Nsawam Fruit Cannery. About two decades after their establishment, after the overthrow of Kwame Nkrumah, most of these state-owned processing plants experienced declines in their production performance due to administrative and managerial challenges. As a result, some of these processing plants were either sold/privatized or left to run down.

In recent times, apart from cocoa which is processed on a large scale, the agro-processing industry in Ghana has been described as in its nascent stages according to Sutton and Kpentey (2012). The industry in Ghana is characterized by a large number of micro, small-, and medium-scale processing enterprises that are involved in activities such as gari processing, fish smoking, flour making, nut and palm oil processing, as well as fruit and juice processing. These artisanal processing activities have relied mainly on very simple and locally-manufactured technology in their processing activities. Over the years, processing of these products has moved from completely traditional methods of processing to semi-mechanized and then to fully mechanized methods.

3.3. Performance of Agro-Processing Firms and Contribution to the Economy

Although the agro-processing industry in Ghana is dominated by small- and medium-scale players, it continues to play a significant role in the Ghanaian

economy. According to the Ghana Export Promotion Authority, the industry grew at an average rate of 14.93 per cent in 2008–13 (GEPA 2014). A report from the United Nations Industrial Development Organization (UNIDO 2011) shows that within the manufacturing sector in Ghana, the agro-industry represents more than half (54.6 per cent) of total manufacturing value added. Specifically, the food and beverages subsector of the agro-processing industry accounted for about 32.5 per cent of total manufacturing value added in 2003 (World Bank 2009).

Da Silva et al. (2009) argue that the agro-processing industry is an important source of employment and income generation globally. In addition, FAO (1997) reports that the highest shares of employment in the agro-processing industries are found in Africa. In spite of the lack of national level data on employment in the industry, Amapadu-Ameyaw and Omari (2015) demonstrate that in Ghana the agro-processing industry is an important source of employment for the rural people, and especially for women given that the sector is dominated by women. In a survey of 272 small- and medium-scale agro-processing enterprises in Ghana, Afful-Koomson et al. (2014) found that Brong Ahafo, Western, and Northern regions employ the majority of the labour force in the industry. By firm size, the study also showed that micro agro-processing firms employ about 48 per cent of the total agro-processing labour force. This is therefore reflective of the importance of the industry for employment, income, and inclusive growth for the country.

The contribution of the agro-processing industry to total export earnings in Ghana cannot be overestimated. Export earnings from the agro-processing industry have increased from US\$181.1 million in 2004 to about US\$902.5 million in 2011, representing a growth of 398 per cent for that period (Oduro and Offei 2014). In 2004, the industry accounted for about 7.4 per cent of total export earnings even though this dropped significantly to about 4.9 per cent in 2011. In addition, processed and semi-processed agricultural products accounted for about 86.31 per cent of the country's non-traditional exports, contributing US\$2.16 billion in export earnings in 2014 compared to the US\$2.11 billion in 2013 (GEPA 2014); see Owoo and Lambon-Quayefio (2017: Table 1) showing the trend in Ghana's agro-processed exports between 2004–11.

With respect to sector productivity, findings from Amapadu-Ameyaw and Omari (2015) and Afful-Koomson et al. (2014) have found that the indigenous technology adopted among the firms in the industry has resulted in reduced efficiency and productivity, compared to the multinational agro-processing firms who are able to rely on modern and more efficient technology in their operations. The labour intensive and time-consuming features of the indigenous technology often hinder the opportunity to scale up operations, creating a scope for policy in this area.

3.4. General Constraints on the Growth and Development of the Agro-Processing Industry

Despite general and specific policies put in place by the Government of Ghana and aimed at promoting the agro-processing industry in the country, Ghana produces a little over 30 per cent of the raw materials needed by agro-based industries (RoG 2007). Almost all the food products sold to local markets have very limited value addition. Cereals and grain legumes are often just threshed, while roots and tubers and plantains are sold predominantly in their raw form. Recent attempts to produce cassava, plantain, and yam flour are yielding results but, at present, markets for these are not yet fully established. Low income levels are also a source of restrained demand for well-packaged cassava, plantain, and yam flour. It is important to note that there are hardly any statistics on the output of the agro-processing industry in the country. A critical element of the modernization of the agriculture sector is value addition to primary produce. However, the lack of reliable statistics on the supply of and demand for processed agricultural products, constrains the effectiveness of this sector (MoFA 2010).

A number of reasons may be proposed to explain the low uptake in agro-processing in the country. These include the lack of agro-processing facilities and modern equipment, which often results in significant agricultural yields going to waste; the high cost of equipment is another factor. Agro-processors also often receive limited information from extension officers, in addition to low access to adequate packaging materials. There is also a lack of marketing skills on the part of agro-processors.

Attention to hygiene and basic food safety procedures is found, at times, to be limited among informal enterprises, including agro-processors (FAO 2014). Knowledge of specific regulations and legislation governing food safety and hygiene issues is only evident among those processors who market their product through formal outlets. Other reasons are the irregular supply of energy, low youth interest in farming, agro-processing, and agribusiness, in general, due to low profitability. Additionally, the greater perceived gains in the mining sector also attracts youth away from the agricultural sector.

3.5. Policy Environment of Agro-Processing Firms

As outlined in Section 2, Ghana's agricultural policies have aimed at the promotion of the agro-processing industry, through the creation of strong linkages between the agricultural and industrial sectors. Indeed, one of the key goals of the Ghana Shared Growth and Development Agenda (GSGDA) is the strengthening of the agro-processing sector. The focus on agro processing is important, given the rapidly expanding urban sector, and also due

to the sector's potential to bring about a critical structural transformation of the economy.

Although Ghana's agricultural sector continues to contribute positively to the country's GDP, there remains a weak linkage between agriculture and industry. According to Nti (2015), the manufacturing sector grew by only about 2 per cent annually between 2006–13, with the share of manufacturing declining over the same period from about 10 per cent of GDP to 5.8 per cent. Although agro-processing of food and beverages represents about 30 per cent of manufacturing, poor linkages to agricultural raw materials results in little value addition, a situation which limits growth and transformation of the economy.

There have been policies formulated and implemented by Ghana's government (through the Ministry of Food and Agriculture and the Ministry of Trade and Industry) that have had positive impacts on the agro-processing sector. The fruit and juice processing subsector, for instance, has benefitted from a number of incentives, including zero input duties on inputs, zero value-added tax (VAT) and national health insurance levy (NHIL) on inputs, low level corporate income tax, zero VAT and NHIL on imported packaging material, zero import duties on farm machinery, among others. The creation of the Export Development Agriculture and Investment Fund (EDAIF) in 2000 to promote non-traditional exports also plays a positive role in the agro-processing industry, through the provision of financial resources for export activities. The fertilizer subsidy program, initiated in 2008, involves the absorption of approximately a third of the cost of certain categories of fertilizers. This policy leads to a reduction in the costs of production of raw materials for agro-processing firms.

Despite the fact that agro-processing has been encouraged since the time of independence, with a policy of industrialization through import substitution, Ghana's current agro-processing industry may be described as having low-value addition, with low technology at the cottage industry level, and few large-scale industries (Aryeetey and Mensah 2008; Quartey and Darkwah 2015). There has not been an entire absence of technological innovations. For example, development projects such as the Village Infrastructure Project support the introduction of technologies such as shea processing equipment in the northern region of Ghana. Development projects have also supported capacity-building through knowledge transfer and training of small and medium firms (Owusu-Kwarteng 2014). Nonetheless, it is doubtful that these technologies can support large-scale production, particularly by medium-scale firms. In Ghana, over 70 per cent of agro-processing occurs informally, posing challenges for technical innovations and knowledge transfer, in addition to quality control.

With respect to local technology development and adaptation, there appears to be an apparent disconnect between local product development and uptake by local agro-processing firms, which further reduces technology adoptions in the agro-processing sector. Agricultural research could play a critical role in enhancing agro-industry competitiveness. However, policy makers may need to focus on better ways of facilitating the flow of agricultural technology from public discovery to private use, taking into account key barriers (cost- and non-cost-related) to technology transfer between public research institutions and private seed companies, and the role of the policy in impeding or accelerating technology development and transfer.

It is argued that the growth and development of small-scale food processing industries in West African countries has been limited as a result of inefficient and inappropriate technologies, poor management, inadequate working capital, limited access to financial institutions, high interest rates, and low profit margins (Aworh 2008). Indeed, in Ghana, the presence of recent utility tariff increases and a high interest rate pose a major challenge to the survival and growth of small agro-processing firms in the country. Additionally, the recent income tax regime appears to be unfavourable. In past periods, agro-processing firms enjoyed a five-year tax holidays; under the new regime, businesses will be charged a 1 per cent rate during the five-year period, and subsequently, the standard corporate tax of 25 per cent.

4. Key Agro-Processing Subsectors

Four major subsectors of the agro-processing industry are discussed in this section. These include nuts and oils, grains, roots and tubers, and fruits and fruit juices. Owoo and Lambon-Quayefio (2017: Figure 4) models the value chain process of these products from the farm through to handling, processing, and distribution to the final consumer.

As mentioned above, a large amount of the agricultural products harvested at farms do not undergo any processing, but are distributed and consumed directly, either locally or internationally. Some of the agricultural output however does go through some degree of processing before final sale and consumption. A number of factors, however, play an important role in the agricultural production stage, and also during the agro-processing stage. As discussed above, the microeconomic climate is an important determinant within the value chain, and this can be influenced by public policies, as discussed above, aimed at improving the competitiveness of agro-processing industries. Additionally, the presence of institutions, such as adequate access to credit, food safety, and standards boards, access to technical knowledge, etc., are also important. In

Ghana, agro-processing firms face constraints with respect to the availability of these enabling institutions. Facilitating services such as good transportation systems, adequate storage facilities, efficient packaging systems, among others, also contribute to the production of agricultural commodities and agro-processing activities; see Owoo and Lambon-Quayefio (2017: Figure 4). It is important to note however that value chains vary for different products.

4.1. *Nuts and Oils*

The major nuts produced and processed in Ghana include palm nut, shea nut, ground nut, cashew and coconut. Palm oil and shea butter/oil are the predominantly processed nuts; these activities are typically carried out on small- and medium-scales in the country. Addaquaye (2004) classifies the processing technologies into three namely: the traditional manual method; semi-mechanized; and fully-mechanized methods.

Palm oil and shea oil/butter processing, which is predominantly undertaken by women, involves very laborious tasks, such as pounding/milling, kneading, washing, and cream boiling, all carried out with very simple household equipment such as the pestle and mortar. This process, according to Addaquaye (2004), is the main method of processing oils in most West African countries, including Ghana. Hall et.al (1996) claim that this process takes about 20–30 hours in order to produce substantial amounts of oil. Mensah (2001) also documents that about 80 per cent of Ghana's shea butter is produced through the traditional processing techniques.

There have been attempts to reduce the long processing times and the excessive use of water and firewood in the processing of these oils. Additionally, women engaged in the process are exposed to long hours of heat and smoke. Collaborative work with the United Nations Fund for Women's Development, non-governmental organizations such as Technoserve, and development partners such as the Netherlands Development Organisation (SNV) has led to the emergence of improvements in the form of semi-mechanized technologies which are locally designed and manufactured. Examples of such equipment include the hydraulic and mechanical presses which are meant to make oil processing more efficient. These have reduced processing times and facilitated more moderate use of inputs such as water.

Nonetheless, household units that produce oil at the micro- and small-scale levels continue to rely on traditional manual methods of extracting oil due to financial constraints in purchasing the locally-manufactured equipment. As a solution to the problem of financial constraint, in some instances, these rural women who are engaged in oil processing have organized themselves into groups in order to access the semi- mechanized processing technologies which allow them to increase their production.

Over the years, these semi-mechanized technologies have developed further from equipment designed to perform particular operations such as oil digestion and oil pressing to machines that combine several operations in the process (FAO 2002). Apart from gaining access to the improved technologies, these women's groups have also been able to undertake effective marketing of their products (Mensah, 2001). Some of the finished products include oils for household cooking, oil for the cosmetic industry as well as oil for the soap-making industry. In some cases, the palm nut is also processed into palm nut paste (used in preparing soups) and packaged for export.

Shea nuts are picked and processed into kernel by young women and girls. The pulp of the shea nut may be sold to domestic consumers. Men are typically responsible for bagging large amounts of shea kernels and transporting these to processing centres. These kernels may also be transported to exporters. At the processing sites, the kernels are crushed, roasted, milled into paste and boiled to an emulsion. The oil is then collected and cooled in order to obtain the butter. This processing of kernels into butter is typically handled by women. The butter is transported to the shea butter traders, who go on to export it for sales, or sell it in the domestic market. The value-addition process in the shea butter subsector is summarized in Owoo and Lambon-Quayefio (2017: Figure 4a).

4.2. Grains

The main grains cultivated in Ghana are maize, millet, sorghum and rice. Maize is the most important cereal crop produced in Ghana and it is also the most widely consumed staple food in Ghana (FAO 2008; Morris et al. 1999). In Ghana, processing of these grains is primarily undertaken by women using simple household equipment. Processing usually involves de-husking, roasting and milling into flour. The flour is further processed into different kinds of porridges, beverages, and other foods. Milling of the grains is usually done with mechanized locally fabricated grinders, which is an improvement from the use of stone grinders and pestle and mortar that were employed in the past.

In fairly recent times, grains have been processed on a medium to large scale using relatively more sophisticated technology. At the medium-scale level, grains are roasted and milled into flour and mixed with other legumes such as soya beans and groundnut and packaged for both domestic consumption and for export. On a large scale, grains are processed into grits and serve as raw materials for poultry farms and for giant brewery companies such as Guinness Ghana Brewery Limited and Accra Brewery Limited in the production of new beer varieties and other beverages. Also, grains in Ghana are processed into

high-end infant cereals such as Cerelac, using state of the art food processing technology by renowned food processing companies such as Nestle.

Smallholder farmers produce substantial amounts of maize in Ghana. These are sold in sacks to aggregators, who repackage these into 50 and 100 kilogram bags for sale to local consumers, and also to maize processors. This weighing function may serve as a form of value addition as the standard weight conforms to the sale requirements set out by the Ghana Standards Authority (GSA). In some circumstances, these market aggregators pre-finance the activities of smallholder farmers, who pay back at the time of harvest, with maize yields. Smallholder farmers may also sell to market 'queens' (women who often act as aggregators and contribute significantly to the quantity of specific crops and the prices that they are sold for on the market) for sale in local markets, or to processors such as beverage breweries. Maize processing typically involves the shelling and grading/sorting of maize products. The value chain for the production of maize is described by Owoo and Lambon-Quayefio (2017: Figure 4b).

4.3. *Roots and Tubers*

According to MoFA (2010), roots and tubers, which include cassava, yam, cocoyam, and sweet potato, contributes about 50 per cent of Ghana's agricultural GDP. Of these four, cassava is the most often processed due to the fact that it is the most perishable of the roots and tubers, deteriorating within a period of two to three days after harvest (FAO 1998). The processing of cassava in the past has predominantly been carried out by individual micro and small processors. These processors have relied on very rudimentary technology made from local materials. Some of the finished products include gari, *kokonte* (sun-dried cassava chips/flour), cassava dough (agbelima), tapioca, and starch, usually for local and domestic consumption.

The introduction of starchy high-quality cassava flour (HQCF), glucose syrups, and industrial alcohol (which served as potential cassava-based industrial raw material for the bakery, plywood, paperboard, pharmaceutical, confectionery and beverages industry in the mid-1990s) has seen the emergence of several medium and large-scale processing enterprises in the country (Dziedzoave 2008). The technology used in the processing of cassava has also evolved from the traditional manual technique which involves the use of heavy knives for peeling and heavy reliance on the sun for drying the cassava chips. The traditional processing method also includes sifting, fermentation, and roasting.

Medium- and large-scale processing of cassava benefitted from the introduction of motorized cassava graters in the late 1960s. Since this period, stakeholders in the industry, such as research institutes, university

departments, small-scale artisanal shops, and blacksmiths, have designed and developed different kinds of cassava processing equipment, with the support of various non- governmental organizations. Some of the locally manufactured equipment used in processing cassava in recent times has included graters, cassava chippers, screw presses, hydraulic presses, cassava dough disintegrators, sieving machines, grading machines, plate mills, hammer mills, and mechanical dryers. In recent times, these new technologies have been adopted, especially at the micro and small-scale levels by groups of women who have formed cooperatives in order to be able to purchase the equipment. Currently, the export of cassava chips for industrial use has been made possible through the efforts of private initiatives, supported by the government. The renewed demand for wet cassava chips especially in the brewery industry, which makes use of more sophisticated technology, has made cassava processing an even more profitable venture in Ghana.

Production of cassava is carried out predominantly by small-scale farmers. There are also a few medium and large-scale producers of cassava in the country. After harvest, small-scale farmers typically sell their fresh cassava root produce to assembly traders and other middlemen for sale in local markets. In some instances, assembly traders supply fresh cassava roots as raw material to some processing plants. Medium- and large-scale producers of cassava however sell their produce predominantly to processors, who make cassava products such as *gari*, *agbelima*, and *kokonte*, which is sold in local markets or exported. Processors also make starch which may be exported or consumed in the local market. The value chain for the production of cassava in Ghana is described in Owoo and Lambon-Quayefio (2017 Figure 4b).

4.4. *Fruits and Fruit Juice Processing*

Between the mid-1990s and 2002, Ghana depended on about four large fruit-processing companies that employed very expensive, capital-intensive and imported technology for fruit-juice processing in the country.¹ The huge capital outlay required for fruit-juice processing therefore served as an entry barrier. During the same period, there was a proliferation of flavoured drinks through the use of syrups and these types of drinks required substantially less start-up capital. Due to the large number of producers of flavoured drinks, the Soft Drinks Manufacturers Association of Ghana was formed. The viability and the perceived shortage of players in the fruit juice industry propelled the leadership of this association to engage local engineers in the manufacture

¹ Information from this session was obtained from a one-on-one interview with the President of the Fruit Processing and Marketing Association of Ghana (FPMAG).

of simple machines and equipment to overcome the huge capital outlay of fruit processing. This initiative was largely successful and the subsequent locally manufactured technology adequately handled processing steps that ranged from extraction of juices to bottling on a small scale. Washing and cutting up of fruits however remained a manual process. A main factor that increased the adoption of these technologies was its affordability. Also, the local equipment facilitates the production of juice on a relatively small scale. Over time, these local technologies have been further advanced with the introduction of hydraulic presses for juice extraction, a semi-automated process that further increases efficiency.

A major challenge in the juice-processing industry in Ghana is the issue of a limited supply of fruit, which serves as the main raw material for the industry. Farmers are often unable to provide a constant supply of fruits to the processors' factories due to relatively high input prices and unexpected weather conditions. Also, fruit farmers in the peri-urban areas are gradually losing their farmlands to very large estate developers. With regards to packaging, the industry is challenged by a lack of access to clean and sanitary bottles. The heavy reliance on recycled bottles for its packaging is unsustainable as processors are not guaranteed continuous supply of these bottles. To get around this challenge, the association has begun to explore the option of using plastic bottles. These however entail additional costs.

Although not currently widespread, some players in the fruit-processing industry have begun to export cut fruits for export to European markets. Fruit export to European markets was precipitated by the high demand for the Ghana's sweet pineapple variety, accompanied by the proximity of the country to its target market, which ensures constant supply to Europe via cargo planes. This mode of transportation is however costly, and therefore an association formed by pineapple exporters has explored cheaper options to transport fresh produce to Europe. Sea freight appears to be a cheaper option, and combined with the availability of cold storage facilities at the ports, has facilitated more efficient transportation of processed goods to European markets.

The process of learning in the fruit-juice processing subsector of the industry can be described as a top-to-bottom transfer of knowledge. Leadership of the association is periodically engaged in different capacity building and training activities at the national or international level. Knowledge and skills gained about new technologies as well as best practices in the industry, which are likely to improve the production process, are then cascaded down to members through locally organized training workshops for its members. Additionally, the availability of juice processing manuals, through funding from the agriculture ministry and development partners like GTZ, opens up the industry to more entrepreneurs.

The supply of pineapples is dominated by small-scale farmers who operate on approximately 1–5 acres of land. Market women often play the role of middlemen, who take on the risks of storage, transport, and associated finance between farm and final consumer. Middlemen may supply harvested pineapples to small grocery stores or large-scale MNC shops. Alternatively, they may also supply pineapples to various processing plants. Once processed into juice or pulp, products may be sold in the local markets through retailers, or in the international market through the services of exporters, which may include large commercial farms. It is important to note that in addition to processed pineapples, large international supermarkets also buy the whole pineapple as well. The value chain for the production of pineapples is described in Owoo and Lambon-Quayefio (2017: Figure 4d).

5. Case Studies

This section provides case studies of two major firms involved in agro-processing in the country. This includes Sekaf Ghana Ltd, which processes shea butter for local and international markets (see Box 1) and Blue Skies Ghana Ltd, which produces and processes pineapples and other fruits for domestic and foreign consumption (see Box 2).

Blue Skies Ghana Ltd is a foreign-owned company that has been in operation since 1998; while Sekaf Ghana Ltd is a locally-owned company established in 2003.

6. Conclusion

Although agricultural production in the country is generally rainfall-dependent, there are a number of factors that make this sector a viable area to focus more attention and investment. These factors include the presence of a well-endowed drainage basin with networks of water bodies that can be tapped for irrigation; a well-established agricultural research system which has been successful in the improvement of crop production such as cassava, maize and cowpea; a large youth population which can provide a ready supply of labour for increased crop production; relative proximity to the European market for exports facilitation, compared to other countries in southern Africa, (GIPC 2013). A major strength of the agricultural sector is the diversity of commodities being produced in each of the three major agriculture zones within the country. The northern savannah zone, the largest agricultural zone, is well-known for its production of rice, millet, sorghum, yam, tomatoes,

Box 1 SEKAF GHANA LIMITED- SHEA BUTTER

Sekaf Ghana Ltd is a Ghanaian-registered company that is based in the town of Tamale, in the middle of the savannah zone, in northern Ghana. The company was founded in 2003 and was engaged in the distribution of a varied array of nut products. In 2004, it began to specialize in shea, given the opportunities for growth and expansion in this area. The company relies primarily on groups of women for the production and processing of raw shea butter.

An important activity of the company was the establishment of the SeKaf Shea Butter Village in 2008, which serves as a convergence point for the processing of shea butter by women from neighbouring villages. Here, shea fields are developed and managed in collaboration with the women cooperatives. Approximately 2,500 women are currently employed as shea nut pickers and processors for SeKaf Ghana limited.

In addition to the purchase of raw/unrefined shea butter, the company also purchases shea nuts from local village women. It ensures the high quality of these products and provides storage/warehousing facilities as well. The unrefined shea butter is used to produce high quality cosmetic products for sale in local and international markets, and the company assumes responsibility for the labelling and packaging of final products. These products are then distributed to buyers in both local and international markets. Products from Sekaf Ghana Ltd include shea nuts, shea oil, shea stearin, cold press shea butter, traditionally hand-crafted shea butter, and cashew nuts.

Noted challenges with the production and processing of shea butter include poor and inconsistent shea butter quality leading to low market competitiveness, low bargaining power and absence of guaranteed buyers. SeKaf Ghana Ltd addressed these in a number of ways. First, the quality of shea butter was upgraded through the establishment of the SeKaf Shea Butter Village, where shea butter could be processed in a controlled environment and under better supervision, as opposed to the former method of home-based processing. Second, to deal with the problem of low bargaining power, the company encouraged the formation of cooperatives and also provided training in simple cost calculations in order to ensure that women did not trade at a loss. Third, to overcome the problem of steady demand, SeKaf pledges to be a guaranteed buyer for women, with a guaranteed price that is 15% higher than the calculated market price. While this ensures a steady supply for SeKaf's processing plants, it also guarantees income for women engaged in the shea butter processing and trade. SeKaf Ghana Ltd. Also provides interest-free loans to women and receives shea nuts in exchange for these loans, in some instances, indicating the presence of some pre-financing schemes.

cattle, sheep, goat, and cotton. More recently, mango plantations and ostrich farms are also gaining agricultural prominence in the zone. The coastal savannah zone is another important agricultural zone in the country. The lower portion of this zone drains into the Volta River and therefore provides a conducive environment for fish farming and aquaculture. Other commodities produced in this zone include sweet potato and soybean crops under irrigation, in addition to rice, maize, cassava, vegetables, sugar cane, mangoes, coconut and various livestock. The forest zone, with its more abundant supply of rainfall, is more noted for the production of cocoa.

Box 2 BLUE SKIES GHANA LTD, PINEAPPLES

Blue Skies Limited is one of the largest agro-processors in Ghana, and employs over 1,500 workers. The company was founded by a UK-based entrepreneur and has its head office in the UK. Blue Skies Ghana Ltd began producing fresh cut fruit in 1998 and in 2004, expanded its operations to include fresh fruit juice for both local and international markets. In addition to various pineapple varieties such as the Smooth Cayenne, MD2 and Organic Sugarloaf, Blue Skies also processes other fruits such as mangoes, papaya, coconut, passion fruit, and banana. The company sources pineapples, mangoes, passion fruit, papaya and coconuts from eastern and central regions in Ghana; melons and pomegranates from Egypt; melons from South Africa; and mangoes from Brazil. Although initially established in Ghana, the company has since expanded to include branches in Egypt, South Africa, Brazil, and the UK.

Fresh-cut fruit were the first product of Blue Skies Ltd, Ghana and initial quantities were prepared for supermarkets in Europe. Smallholder farms provided the majority of the supply of pineapples, although some pineapples are also sourced from a few commercial farms in Ghana. The company deals with individual farmers and not with co-operatives, and purchases over 1,750 tonnes of raw fruit products from these fruit growers on a monthly basis. This linkage between the small fruit cultivators and the processing company is beneficial as the farmers benefit from greater local and international market access to their products. Additionally, the company is known to pay farmers promptly and at a higher rate per kilo of produce, compared to other competing buyers in the area, which ensures a continued supply of raw materials to its factories. Blue Skies Ltd also provides technical advice and regular training on agricultural methods to its currently over 150 small-scale fruit growers and has been known to pre-finance the production activities of these farmers. The company also provides inputs and equipment to pineapple growers for purchase, and takes on the technical and financial responsibility for certifying its suppliers. This, however, further obliges suppliers to remain loyal in their supply of produce to the company. The close proximity of the Blue Skies factory to these farmers allows it to obtain a regular supply of raw materials for its processing plant, which facilitates delivery of freshly-harvested fruit to local consumers within 24 hours, and to UK consumers within 48 hours.

The products of Blue Skies Ltd Ghana undergo a significant amount of value addition at its local processing plants. The fresh fruit are bought and transported from local farmers to factories, cleaned, cut, and packaged for sale. Fresh-cut fruit and juices are produced under strict local and international food safety and quality management systems. Additionally, the products are labelled and branded by the company, an important step in the value chain process. They are then transported by air-freight using commercial airlines, to international market locations. The company's access to primarily UK-based supermarkets is often attributed to the founder's origin and networks within the EU supermarket industry (Webber and Labaste 2009).

From a policy perspective, the continued expansion of Ghana's pineapple industry may be attributed to regulatory reform, tax incentives, market linkages, investments into new pineapple varieties, and public-private partnerships.

Other crops cultivated in this area include coffee, oil palm, cashew, rubber, plantain, banana, and citrus crops.

Although the services sector currently contributes the majority share to total GDP within the Ghanaian economy, it is unlikely to sustain growth

and long-term development due to a recognized lack of competitiveness in this sector. First, although education levels within Ghana are relatively high, the quality of education that is needed to foster innovation and increased productivity is lacking. Rather, these average levels of education may be sufficient to spur production in light manufacturing sectors such as agro-processing, which typically relies on relatively lower skilled labour. Additionally, while service sectors thrive on well-developed infrastructure and technology such as good transportation systems, storage facilities, financial systems, among others, the current access to only basic infrastructure (e.g. electricity, road networks from farming communities to urban and peri-urban markets, irrigation facilities) in Ghana may be more conducive to activities of the agricultural and agro-processing sector. The experience gathered by the labour force in these blue-collar jobs in the agro-processing industries may also likely propel the establishment and growth of heavy manufacturing industries which will ultimately spur overall economic growth and development.

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Prospects for Information and Communications Technology-Enabled Services in Kenya

The Case of the Mobile Money Transfer Industry

Dianah Ngui and Peter Kimuyu

1. Background

Kenya is the largest economy in East Africa, with a gross domestic product (GDP) of US\$55 billion and gross national income (GNI) per capita of US\$1,190 (World Bank 2014). It is also the most diversified when we compare the ratio of agriculture to other sectors. Services form a small but fast-growing sector of the economy. For instance, financial services account for 4.8 per cent, education 3.5 per cent, and health 1.9 per cent. However, national income and export revenue are dominated by agriculture. Agriculture accounts for roughly 25 per cent of GDP, and over 51.4 per cent of export revenues (ROK 2014a). Over the last decade, Kenya has experienced tremendous growth in information and communication technologies (ICT), which have become a major driver of economic growth (ROK 2015). Since 2011, Kenya's economy has grown at an annual average of 5.46 per cent, with the ICT sector contributing approximately 11.8 per cent of GDP growth (ROK 2016). The value of ICT output has increased over the years, amounting to KSh280 million in 2015 (ROK 2016). This growth can be ascribed to the embrace of technology by sectors such as finance, health, education, agriculture, and government, which use ICT for the distribution of information and the improvement of service delivery (Ogutu 2015).

Kenya has shown that it has the potential to become a global leader in ICT services. While Africa's internet contribution to GDP is low at 1.1 per cent, Kenya leads the continent at 2.9 per cent—ahead of South Africa, Tanzania, Nigeria, and Ethiopia, and just behind Senegal at 3.3 per cent (McKinsey Global Institute 2013). In addition to contributing to GDP, ICT enables innovation, production, and efficiency gains across several sectors that are core to Kenya's economic growth. For instance, ICT services-led innovations such as M-PESA, the pioneering mobile money platform, have led to financial inclusion (Akamanzi et al. 2016).

Kenya's overall ranking within the African region as measured by the International Telecommunications Union ICT Development Index is higher than Uganda, Tanzania, Rwanda, and Ethiopia (see Muchai and Kimuyu 2017: Table 1). Globally, it was ranked 129th in 2016—down slightly from 126th in 2010—and ninth in sub-Saharan Africa. In sub-Saharan Africa, Kenya has the highest competence in using ICT efficiently, a result of appropriate skills, the highest accessibility of ICT infrastructure, and the highest level of IT use (ITU 2015b, 2016). The average growth of ICT use in Kenya was 3.4 points between 2010 and 2016. The change in ICT use is more dynamic due to the rapid growth in fixed and mobile broadband connectivity (see Muchai and Kimuyu 2017: Table 1).

The government of Kenya has emphasized universal access to ICT as a main objective of Vision 2030 (ROK 2014b). Developments in ICT and their business applications, together with the globalization of the world economy, have led to a rapid internationalization of ICT-enabled services (ITES) and business process outsourcing (BPO) (ROK 2014b). ITES is a form of subcontracted service that arose due to the involvement of ICT in numerous fields, including, among others, banking and finance, telecommunications, and insurance (Vaidyanathan 2008). BPO is the subletting of a particular business undertaking to a third-party service provider (Vaidyanathan 2008). The terms BPO and ITES will be used interchangeably in this chapter.

The ICT sector is largely made up of the postal and telecommunications sector, which mainly comprises mobile, fixed-line, and Internet/data services (ROK 2015). The BPO/ITES sector in Kenya is under the jurisdiction of the ICT Board and the Ministry of Information and Communications. Consequently, BPO/ITES is classified under the ICT sector. The government singled out BPO as part of Vision 2030, signifying the potential of the BPO/ITES sector in the country. In addition, the government has put strategies in place to enhance the BPO/ITES sector, including a favourable legal framework and funding efforts, a sign of their confidence in increased growth.

The purpose of this chapter therefore is to provide an analysis of the ITES industry, specifically the mobile money transfer (MMT) industry's potential in terms of market opportunities and its development impact in terms of

jobs, income generation, and productivity growth. The study is organized as follows. Section 1 provides background information. Section 2 analyses the development of the ITES industry in Kenya, discussing policies and their outcomes. The status of the BPO/ITES industry is also discussed. Section 3 presents the MMT industry and discusses its operations and policy perspectives. Section 4 discusses the potential and development impact of MMT, including a synopsis of the literature on the industry's country-level development impact. Section 5 presents the obstacles and opportunities for MMT arising from changes in technology. Section 6 presents the conclusion of the study.

2. Development of the Industry: Policies and Outcomes in the ICT-Enabled Services Industry

The first national ICT policy, published in 2006, visualized Kenya as a successful ICT-driven society, with a mission to improve Kenyans' livelihoods by guaranteeing that ICT services would be accessible, efficient, trustworthy, and affordable (Waema and Ndung'u 2012). The government embarked on the reinforcement of ICT as a driver for important sectors and a way of growing technology entrepreneurs and businesses as strategic pillars (Wausi et al. 2013). However, the enlargement of subsectors such as BPO/ITES was challenged by unbalanced ICT access among remote and underserved communities in Kenya (Wausi et al. 2013).

The ITES/BPO sector was identified as one of the six key economic sectors in Vision 2030 (ROK 2007). This aimed to diversify, and to move away from a dependence on tourism and tea and coffee production. Vision 2030 outlined strategies to penetrate the global outsourcing market in order to position the country as the top African BPO destination. The strategic pursuits included an international information technology supplier base, multinational corporations and foreign BPO, local champions, and integrated value propositions (Thugge et al. 2009). As a result, the BPO and Contact Centre Society was formed in March 2007. This was the BPO cluster's first 'institution for collaboration'. The Kenya ICT Board (KICTB), formed by presidential directive in 2007, was the second such institution for collaboration. According to Waema and Ndung'u (2012), its aim was to encourage the growth of ICT in the country, specifically BPO and ITES, guiding the government on ICT concerns alongside the Directorate of e-Government in regard to the enactment of e-governance systems. In 2008 the Kenyan BPO Value Proposition was established and marketed at BPO conferences and trade shows all over the world (Mann and Graham 2016). Following this, the government introduced programmes to mainstream ICT in government operations (see Ochieng' et al.

2011; ROK 2004). For instance, the government launched local-government service delivery centres known as Huduma Centres to broaden internet access (ROK 2014b). The government also proposed to adopt ICT-enabled services to improve effective delivery from a customer support perspective. To this end the government adopted the use of customer relationship management technology under a public-private partnership, and sought to transform 10,000 public servants into customer contact agents (ROK 2014b).

During 2007–10, the government offered subsidies to firms in the BPO sector in an attempt to encourage the development of the sector. The government was also in the process of establishing Konza Technology Centre, a BPO park at a location in Athi River, which was projected to generate 20,000 direct jobs and contribute KSh10 billion to GDP (Mann and Graham 2016). According to Graham and Waema (2014), the concentration on international BPO work was not as effective as initially intended. The few ITES exporters were predominantly small local firms with negligible exports.

To enable the advancement of an ICT-enabled economy, a strong ICT infrastructure is necessary (ROK 2014b). Kenya has successfully provided a competent and well-regulated ICT infrastructure, and constantly updates knowledge that will also improve the penetration of ICT in Kenya (ROK 2014b). The lowering of interconnection and communication costs has been one of the important enablers of the ICT-enabled sector (KICTB 2013). UNESCO (2015: 5) notes that ‘affordable and reliable power, easy and affordable access to requisite technology and capital goods, a supportive regulatory environment, programmes for skills development, and an ability to make trusted and verifiable payments’ are important enablers for a thriving ITES industry.

2.1. *The State of the BPO/ITES Industry*

The BPO industry has been growing steadily since the first international call centre opened in 2005. A growing number of firms offer high-end services such as software development, programming, research and development, and finance and accounting services. The domestic call centre space has been expanding, with large telecoms and banks setting up captive call centres to handle customer service enquiries. Kenya lies in 39th position, being a new entrant and the only East African country in the 2016 Global Services Location Index (see Muchai and Kimuyu 2017: Table 2). It has the same financial attractiveness (availability of infrastructure) as Senegal, which is not far behind the industry leaders India and the Philippines, and well ahead of China and Malaysia (see Muchai and Kimuyu 2017: Table 2).

Kenya’s ranking is higher than that of Senegal in relation to telecommunications infrastructure and human resources as measured by the 2016

International Telecommunications Union ICT Development Index. Kenya was ranked 129th in 2016, higher than Senegal (141st) but lower than Ghana (112th), China (81st), the Philippines (107th), and Malaysia (61st) (ITU 2016). With regard to business environment, Kenya is behind the African countries with the exception of Ghana. Research by McKinsey and Company (2009) found that Kenya has lost out to its competitors in the outsourcing industry since it has not identified a market niche, created investment opportunities, or addressed associated risks. Many local firms have grown by serving customers in Kenya and the neighbouring countries of Uganda and Tanzania (A.T. Kearney 2016).

Many companies have left the industry, despite persistent expectations around BPO (see e.g. The Economist 2010; Fildes 2010; Wambugu 2010). The companies that have remained operational engage in less attractive contracts, and have altered their work from that which was initially intended (Free 2015). For example, KenCall, Horizon, Techno Brain, Direct Channel, Spanco Raps, and Gorilla BPO now carry out work acquired from the local and East African regional market, rather than the international clients that were their original focus (Free 2015). Nonetheless, to varying degrees, BPO and call centres remain promising sources of future entry-level youth employment in Kenya, South Africa, and Ghana (IYF 2013). In Nairobi, BPO is largely regarded as low-skilled work that can fundamentally be done by anybody (Free 2015). Unlike many BPO operations, which are presumed to employ many people at one time, Nairobi's BPO call centres have been entirely small-scale, with the number of agents working during any given period ranging from 10 to a few hundred (Free 2015).

The overall goal for the BPO sector up to 2012 was the generation of 7,500 direct jobs and a GDP contribution of KSh10 billion (ROK 2007). The growth experienced in Kenya's BPO industry included contributions to total GDP, up from less than 0.01 per cent in 2008 to 6 per cent in 2012 (Wausi et al. 2013). In total, 7,000 jobs were generated by mid-2012 (ROK 2012). The government attributed this to 'increased marketing of the country, reduction in telecommunication costs, and subsidised broadband for local BPO operators' (Waema and Ndung'u 2012: 12).

The government envisions call centres as a major source of employment in data-oriented BPO for jobless graduates and school leavers (Free 2015). Waema (2009) notes that in the BPO industry, the lowest employment age is 18, with a minimum qualification of a certificate, subject to the agent's operations. Free (2015) observes that those with lower levels of education—predominantly those with a secondary-school education—are more dedicated, and are not disposed to leave for better jobs. With regard to skills analysis, the Ministry of Information and Communications (MOIC 2010) notes the skills required for BPO-ITES employment as computer skills, knowledge of specializations in

particular industries such as medicine and law, communication skills, cultural sensitivity, customer interaction, data skills, and business ethics and organizational culture. An assessment of IT skills by Wausi et al. (2013) revealed that there was a gap in software development and project management skills.

Basic monthly salaries as of November 2011 were US\$300–500 including incentives for voice profile agents, and US\$500–1,000 including performance-related pay for group leaders (Wausi et al. 2013). Free (2015) found that in Kenya, an agent's starting salary ranged between KSh15,000 and KSh25,000 per month (US\$150 and US\$250). The bonuses earned by agents from sales transactions are the primary attraction of BPO work. Nevertheless, the meagre earnings have led to graduates leaving their companies in pursuit of better opportunities and pay in rival companies. This has made companies within the BPO sector struggle to maintain their staff (Free 2015).

The entry of optic fibre cables has made international and in-country connections cheaper and more common (Mann and Graham 2016). This in turn enlarged the demand for ICT access and services, and encouraged the creation of additional products and services (KICTB 2013). One such product was mobile phone-facilitated services. The Communications Authority of Kenya indicated a growth of 26.4 million mobile phone subscribers, crossing the 30 million mark of active mobile phone numbers by December 2012 (CAK 2012-Q1). The McKinsey Global Institute (2013) indicated that 95 per cent of Kenyans had internet-enabled phones, with 31 per cent owning smartphones. The government reoriented its funding and policy making attention to software development and other high-value products, due to the incredible infiltration of mobile connectivity (Mann and Graham 2016). Most notable were Safaricom's mobile money platform M-PESA, and the disaster response crowdsourcing tool Ushahidi (Mann and Graham 2016). From an operational point of view, the government started to understand the potential of ICT automation for the centralization of control over government budgets and reducing corruption and waste. For example, the Kenya Revenue Authority declared that all medium- and large-scale taxpayers would file and pay their taxes electronically in 2013 (Mann and Graham 2016). In July 2011, the Kenyan government launched the Open Data Initiative to offer transparency and open a development dialogue between citizens and the public sector (KICTB 2013). Similarly, tax evaders in the informal economy were to be identified through the digital tracking of M-PESA and bank transfers (Omondi and Juma 2013).

The most successful ITES/BPO service in Kenya is MMT, the flagship product being the M-PESA service from Safaricom Kenya Ltd. As will be observed in this chapter, MMT services have contributed both directly and indirectly to boosting economic growth, specifically by facilitating payments and trade, and by creating significant incomes for service providers.

3. The Development of the MMT Industry

Mobile phones are the most widespread technology, with half of the world's population having at least one mobile subscription in 2014 (GSMA 2015), and total mobile subscriptions reaching more than seven billion by the end of 2015 (ITU 2015a). In Kenya, mobile phone subscriptions were 33.6 million with a capacity of 65 million in 2014 (ROK 2015). However, mobile phone capacity declined by 3.5 per cent to 62.8 million in 2015, due to the exit of Essar (YU) Ltd (ROK 2016). Mobile phone subscriptions currently stand at 37.7 million with a penetration rate of 87.7 per cent, proving that the mobile phone is becoming a significant tool in changing lives (CAK 2016-Q2; ROK 2016). The growth in subscribers led to an expansion in used mobile capacity from 51.7 per cent in 2014 to 60.1 per cent in 2015 (ROK 2016).

Kenya has the highest number of mobile phone subscriptions per 100 inhabitants (see Muchai and Kimuyu 2017: Table 3). This can be attributed to the country having the most affordable mobile phone price and the cheapest mobile broadband services, which have increased the uptake of ICT services, particularly mobile money services. This is in spite of Kenya having a low GNI per capita (less than US\$7,000) compared with South Africa, which has a GNI per capita of above US\$7,000. This indicates that the affordability of mobile phone services does not depend exclusively on a country's economic development, but also on competition, efficient regulation, policy making, and private initiatives (ITU 2015a). The favourable regulatory regime has been of benefit to the ICT sector in general and mobile money in particular (Peake 2013). The Ministry of Information and Communications has taken the view that regulation should be introduced after the markets have been allowed to grow and novelty has been encouraged (Peake 2013). A good example was the introduction of a comprehensive reform of communications legislation in 2008, by which time the mobile sector had already grown rapidly (Peake 2013).

The availability of mobile devices offers a distribution technology for mobile financial services for the unbanked (Macmillan 2016). The initial impetus for mobile money services was to enable unbanked persons to transfer funds electronically that they had previously been transferring physically, bringing people from the cash-based 'unbanked economy' into modern systems (Macmillan 2016). The convergence of telecommunications and banking services generated opportunities for the development of mobile commerce, specifically mobile banking and MMT, which have made vast contributions to economic development (Vaughan 2007). According to the Central Bank of Kenya (2009), most large banks have made considerable investments in mobile phone banking. Among the numerous non-banks competing for positions in this fast-growing space were mobile network carriers,

credit card processors, and online personal finance services that allowed customers to have their accounts on a single website (Deloitte 2010).

The development of MMT is generating more incentives for banks to serve customers in an improved, well-organized way, thus altering the economics of banking (Deloitte 2010). MMT is an innovation to transmit money using the ICT infrastructure of mobile network operators (Mbiti and Weil 2011). MMT service subscribers reached 26.8 million in 2015, representing a penetration rate of 60.6 per cent of the total population (ROK 2016). MMT is appropriate for the rural poor, who are frequently unreached by the banking system. It has also obviated most rural-urban movement, especially during month ends, thereby reducing remittance-related costs. It facilitates trade, making it simpler for people to purchase goods and services, and at the same time reducing transaction costs and the risks of loss inherent in handling cash. Kenya has been able to keep up with the fast-growing technology and is in the lead with regard to MMT (ROK 2015).

MMT is offered by several service providers. The main mobile network operators offering these services, namely M-PESA, Airtel Money, and Orange Money, are Safaricom, Airtel, and Telkom Kenya (operating under the Orange brand) respectively. Finserve (Equitel Money), Mobile Pay (which launched a service under the name Tangaza), and Zioncell/Mobile Decisioning (MoDe) were also granted mobile virtual network operator licences in May 2014 (Muthiora 2015). By December 2015 the mobile money market had roughly 37.7 million users; Safaricom's M-PESA was ranked the biggest, with 24.4 million registered customers (CAK 2016-Q2). Safaricom Ltd, Airtel, Orange Kenya, and Finserve Africa Ltd recorded market shares of 64.7 per cent, 19.2 per cent, 12.4 per cent, and 3.7 per cent respectively in December 2015 (CAK 2016-Q2).

3.1. *The Structure of MMT*

Mobile money providers can be regarded as payment service suppliers or e-money issuers, according to the National Payment Systems (NPS) Act. Customer resources are separated from the service provider's resources, are not allowed to be advanced as a loan or invested, and must be held in confidence with a 'highly' ranked controlled bank (Muthiora 2015). Agents, directly supervised by service providers, are appointed to registered customers, and offer cash-in and cash-out services (Muthiora 2015). These agents not only maintain e-float balances on their mobile phones and cash on their premises, but also accept deposits/withdrawals of cash from customers who have registered as facility users. To enable agents to prefund their 'float' accounts, mobile money is changed into electronic values, with a corresponding currency amount kept in a trust account (Muthiora 2015). For bulk customers

(e.g., public agencies making social transfers), the trust account is prefunded to cover the transfers. The mobile money system and trust account balances are reconciled every day (Muthiora 2015).

3.2. *Policy Perspectives on MMT Services*

The NPS Act was operationalized to enable secure online disbursements by assisting multiple financial institutions to transmit electronically and simplify the handling of payments. The NPS regulations were published in August 2014 (Muthiora 2015). This provided a strong foundation for new innovations in mobile phone financial services and the extension of national and regional payment structures. Mobile money services can be offered by banks, non-banks, and mobile operators. While the NPS guidelines do not require mobile money businesses to operate under a distinct authorized body, mobile operators should work under different business entities. With the guidelines not being very rigid, and with investment incentives being offered to service providers by the Central Bank, originality and development have been encouraged in the sector, while the solidity and reliability of the financial sector has been maintained (Muthiora 2015).

To ensure the reliability of mobile money services, service providers must establish acceptable operative and transparent governance measures (Muthiora 2015). Furthermore, it is mandatory for providers to reveal to clients and the Central Bank any alterations in rates, terms, conditions, or charges for the service no less than seven days before they come into operation (Muthiora 2015).

4. The Prospects and Development Impact of MMT

MMT in Kenya has grown remarkably, becoming a major spur for economic growth and social development (Financial Sector Regulators Forum 2015). Although some of MMT's initial achievements could be credited to an exceptionally favourable environment for mobile payments—including resilient customer need, a friendly regulatory environment, backing from banks, and strong brand awareness for Safaricom—the structure of the distribution network has also played a significant role in the remarkable growth of MMT, notably M-PESA, and the safety of the scheme (Muthiora 2015). In East Africa, Kenya has the highest share of adults with a mobile money account at 58 per cent, followed by Somalia, Tanzania, and Uganda with roughly 35 per cent (Demirguc-Kunt et al. 2015). Table 11.1 shows how mobile phone financial services have grown since 2010.

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Table 11.1. Mobile phone financial services growth

	2010	2011	2012	2013	2014	2015
Total number of agents	39,449	50,471	76,912	113,130	123,703	143,946
Mobile money transfer accounts ('000)	10,615	17,396	19,319	26,016	26,023	26,753
Total number of transactions (millions)	311.0	433.0	575.0	733.0	911.0	1,223.4
Total value transacted (KSh billion)	732.2	1,169	1,544	1,902	2,372	2,816
Average value per transaction (KSh)	2,354.0	2,700.0	2,672.0	2,594.0	2,604.0	2,301.8
Total deposits through agents (KSh billion)	391	566	811	1,033	1,269	1,347

Sources: Authors' compilation based on data from ROK (2015, 2016) and CAK (2016-Q2).

The use of MMT has been increasing since 2010. Cash deposits made through mobile money agents increased to KSh1,347 billion in 2015, up from KSh1,269 billion in 2014 (ROK 2015). The volume and value transacted increased from 911 million transactions valued at KSh2,371.8 billion in 2014 to 1,223.4 million transactions worth KSh2,816 billion in 2015, representing a 24.3 per cent and 34.3 per cent increase in volume and value respectively (ROK 2015). Overall, in 2015 the value transacted increased by 18.7 per cent, representing 45.2 per cent of Kenya's GDP. The growth can be attributed to the introduction of cashless payments on public transport, aggressive marketing by service providers, and increased acceptance of the service by customers owing to its accessibility, cost-effectiveness, and safety. The number of MMT accounts increased by 0.03 per cent and 2.8 per cent in 2014 and 2015 respectively, and the number of agents increased by 16.4 per cent in 2015 compared to 9.4 per cent in 2014. The total number of active MMT agents stood at 143,946 in December 2015, up from 129,357 in June 2015 (CAK 2015-Q1; ROK 2016).

The percentage change in employment from 2014 to 2015 was high in MMT at 16.4 per cent; agriculture, forestry and fishing, manufacturing, and the wholesale and retail trade and repair of motor vehicles respectively showed -1.2 per cent, 2.9 per cent, and 5.4 per cent (see Muchai and Kimuyu 2017: Table 5). This demonstrates the potential of the MMT sector as far as boosting employment is concerned. Nevertheless, McCaffrey et al. (2014) show that Kenyan mobile cash agents earn the lowest commission at roughly KSh11,700 (US\$117) per month, followed by Tanzania at KSh12,600 (US\$126), with the best-paid agents being in Uganda (KSh13,600/US\$136). It should be noted, however, that the agents are not wholly employed by mobile providers, but also engage in other activities such as retail trade, and perform their function as agents part-time. In addition, outlets serve as double service points for other mobile network operators within the country, which increases agents' average monthly income.

MMT serves as a partial substitute for the formal banking system. Before the introduction of mobile money, many Kenyans were excluded from modern financial services. According to the Central Bank of Kenya et al. (2016), 71.4 per cent of Kenyans use mobile money; only 17.4 per cent of the population is now financially excluded, and financial exclusion has more than halved since 2006. The introduction of agent banking, and the increased association between mobile network operators and banks, has considerably expanded the banking business since 2010 (Muthiora 2015). One of the factors that keep the poor stuck in poverty is insufficient and inaccessible financial services, which leave people unable to finance their education or health, start a business, or acquire tools to increase their productivity (Digital Undivide 2012). A study by Burgess and Pande (2005) found that rural poverty rates in India declined considerably due to rural banking expansion, which according to Pickens et al. (2009) was largely determined by increased access to credit.

Researchers have also noted the potential of mobile money to affect savings. National savings are expected to increase from 14 per cent of GDP in 2007 to over 25 per cent in 2030 (ROK 2007). Mbiti and Weil (2011) observe that mobile money affects the economy directly through intensifying access to funds, and indirectly through increasing savings and banking charges. Although the mobile money system does not offer interest, customers use their mobile money accounts as simple bank accounts to save money (Morawczynski and Pickens 2009). This could be attributed to some individuals' desire for safety, particularly when travelling or sending money upcountry (Vaughan 2007).

Apart from making money transactions flexible, fast, and cost-effective, mobile money has empowered the creation of businesses. For instance, Safaricom established a customer contact centre with 1,200 seats, integrating a do-it-yourself (DIY) platform (Wausi et al. 2013). These technologically supported services lead to customer call centres that function like BPO call centres, at the same time concentrating on local business from the technology side (Wausi et al. 2013).

Since the introduction of mobile money in 2007, Kenya has become a leading entrepreneurial power in Africa (USAID 2015). Kenya scored high in high-tech transfer and networking in the 2016 Entrepreneurship Index, ahead of any other East African country (Acs et al. 2016). Companies are generally quite willing to adopt new technologies into their practices, and 'opportunity-driven entrepreneurship' has gained traction 'as more people embrace it for self-development' (Oigara 2015). A good example is Jana, a mobile microbusiness, where mobile devices are used to assign tasks to workers, and payment is made through airtime or mobile money (ITU 2013). There has also been a proliferation of mobile start-ups, and even mobile incubators such as mLab and iHub that use the services of mobile network operators, including

mobile money. Entrepreneurship has been encouraged by strong and visible government support for infrastructure, incubators, and policy reform (Akamanzi et al. 2016). The strong government backing has established the internationally recognized term ‘Silicon Savannah’ (Bloomberg 2012).

Through mobile money, integration with existing products and innovations of new products have been developed. Kenya scored high in the 2016 Global Innovation Index, ahead of any other East African country (Dutta et al. 2016). Kenyan customers have rapidly adopted new internet-based services specifically tailored to address some of the local competitive deficiencies and problems. For example, M-PESA’s success was due to its ability to provide fast and secure cash transfers even to remote villages (Runde 2015). Building on that success, more start-ups have been spawned to address payment-related issues, such as school fees transactions or public transport payments (The Economist 2012). The World Bank (2012) observed that insurance, credit, and savings services were developing within established mobile money systems. For example, in 2009 Syngenta Foundation and UAP Insurance, in partnership with Safaricom, started Kilimo Salama, an insurance product that uses M-PESA to make payments to smallholder farmers whose crops fail due to excess rain or drought. Mobile money providers have collaborated with commercial banks such as Equity Bank, Commercial Bank of Africa, I&M Bank, Kenya Commercial Bank, Barclays, and Co-operative Bank to offer mobile-based products. For instance, in 2012 Safaricom teamed up with the Commercial Bank of Africa to launch M-Shwari, a mobile service that offers micro savings accounts and credit. The total value of deposits organized through M-Shwari as of February 2014 was more than KSh24 billion (US\$26 million) (Muthiora 2015), with more than 890,000 loans being given (Ngigi 2014). These are examples of how ICT services are seizing opportunities and customer readiness to make a real economic impact, accelerating the growth of Kenya’s service sector through the adoption of ICT services (Akamanzi et al. 2016).

Many small companies depend on mobile money for almost all their transactions, or provide a service that is derived from the platform itself. Many have adopted M-PESA to streamline transactions with suppliers and customers. Digital transfers in the sale of agricultural produce have particularly gained ground in Kenya, Tanzania, and Uganda. For instance, in Kenya, 37 per cent of recipients receive payments into a mobile money account, compared with 24 per cent and 15 per cent in Tanzania and Uganda respectively (Demirguc-Kunt et al. 2015). Market traders can now transfer their money to the supplier, who can then deliver the goods to their premises (Ng’weno and Bill and Melinda Gates Foundation 2010).

Mobile money eases trade by empowering users to purchase goods and services directly from businesses and service providers (Runde 2015). This in

turn has reduced corruption by decreasing the necessity of operating a cash-only economy (Runde 2015). The influence of mobile money is expected to spread to the public sector through improved efficiency and reach. The adoption of mobile money by the government—for instance, in salary payments—would not only demonstrate its importance as a driver of the service all over the economy, but would also ‘improve the government’s ability to monitor financial flows, collect tax revenues, and reduce illicit activity’ (World Bank 2012: 65).

5. Obstacles and Opportunities for MMT

Despite an increasing number of achievements, the mobile money industry faces numerous obstacles. The mobile money industry spans two distinct industries, finance and telecommunications, which have distinct business models. This implies that it faces by-laws emanating from two distinct sectors. Developing the required cross-sectoral partnerships in addition to connecting cultures and regulations may be challenging (World Bank 2012). By-laws are required not only to be exhaustive, but also to increase proportionately as mobile money grows.

Mobile money can enhance the national payments system by making available innovative ways to meet customers’ transaction requirements (Ndiwalana et al. 2010). While there seems to be an opportunity for market players to invest, they must fully comprehend not only the needs, behaviour, and skills of the users, but also their level of adoption and their motivations and opinions regarding the use of money (see Donner and Tellez 2008). This would go far in contributing to the success of mobile money.

Many service providers have been or are being hindered by legacy systems that destabilize the efficient growth of services. For instance, there may be substantial suspicion of formal financial services, which have tended to make people uncomfortable about parting with their money (see World Bank 2012). In such cases, a flawless and dependable value proposition that fits within societal and traditional practices should be created by the mobile money operators (World Bank 2012). This would help people to embrace the service being offered to them.

There are numerous opportunities for the MMT services industry to connect with health, agricultural, and financial inclusion goals. Kenya’s challenges in areas such as security and property rights provide room for more business opportunities. However, this has been slowed by the lack of internet access in the country, specifically in remote areas. Given similar challenges in surrounding countries, increasing internet access in the region is likely to increase demand for such services.

MMT requires a certain standard of literacy, which could lead to the exclusion of the small but important segment of Kenyan society that is illiterate. For technology-oriented Kenyan firms, accessing highly skilled talent is a major cause for concern: the skills gap encompasses both the supply of adequately trained personnel for ICT firms and the demand for ICT services from a citizenry with a basic education (ROK 2013). As a result of the discrepancy between the capabilities of the jobless and the skills requirements of prospective employers, a large percentage of qualified young people are likely to remain jobless for a long time (Wausi et al. 2013). To bridge the gap, there is a need for collaboration between mobile network operators and educational institutions to make sure that graduates' skills match the skills required to operate MMT services. Training should be provided in customer services such as how to win and retain the trust of customers, and how to manage liquidity with money and e-cash.

MMT could lead to a significant increase in the money supply, undermining monetary policy. Adam and Walker (2015) note that while the mobile money sector is enormously positive from the perspective of financial development, the same process risks undermining the efficacy of conventional systems of monetary control. Mobile money has the potential to impact negatively on demand for money and the money multiplier. The impact on the multiplier is unpredictable, because as people and banks switch away from cash they can move to things that affect either the top or the bottom of this ratio. If the money multiplier fluctuates unpredictably due to innovations—of which mobile money is just one—the strategy of setting reserve money to control inflation becomes difficult (Adam and Walker 2015). However, Adam and Walker (2015) argue that the influence of mobile money is highly likely to be positive and to improve rather than destabilize the effective application of monetary policy if countries adopt modern monetary frameworks.

6. Conclusion

As this chapter has established, and as other researchers (such as Wausi et al. 2013) have noted, a precondition for online and digital work in Kenya is the improvement of ICT services in rural and remote areas. The government has made this possible through the improvement of ICT infrastructure connectivity across the country. Nevertheless, market-based strategies—for instance, the development of skill sets that meet the requirements of the market—that would stimulate investment in the sector, in addition to increased government access to ICT revenues from MMT, are essential to enhance growth.

The Kenyan MMT industry has recorded exponential growth relative to its neighbours, regardless of the obstacles faced. This could be attributed to

Kenya's having the highest capability to use ICT effectively thanks to relevant skills, the highest availability of ICT infrastructure and access, and the highest level of IT use compared with Uganda, Tanzania, Rwanda, and Ethiopia. Kenya also has the most affordable mobile phone prices and most affordable mobile broadband services within the East Africa region, and this has also increased the uptake of ICT services, particularly mobile money services. This is in addition to Kenya's distribution network structure, friendly regulatory environment, and the brand awareness of Safaricom, which have also played a significant part in MMT's extraordinary growth.

Given Kenya's status as a leading commercial and logistics hub in East Africa, coupled with the competitive strengths of smaller regional peers such as Rwanda (i.e. regulatory environment and research facilities), there is a unique opportunity for Kenya to lead the creation of a regional ICT cluster boasting a domestic market of 160 million consumers that can compete with not only other regional clusters on the continent such as South Africa, but also other emerging global ICT service clusters such as the Philippines (Akamanzi et al. 2016). Kenya could expand its services in the region and maximize the economies of scale required for not just the industry's success, but also its expansion. This can be achieved if Kenya identifies its market niche, generates investment prospects, and addresses the accompanying risks.

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Industries without Smokestacks

Mozambique Country Case Study

António S. Cruz and Fausto J. Mafambissa

1. Introduction

Considering the strong competition from Asian countries and other emergent economies in the export of manufacturing goods, Mozambique could attempt to break into the international market through exports from industries without smokestacks (IWSS).^{1,2} These exports could be complemented by natural resources extraction and processing, as well as by investments in smokestack industries whenever possible.

Mozambique is a low-income sub-Saharan African country that has been growing rapidly since 1993, at an annual average rate of 7.8 per cent, as a result of a series of transformations following its independence from Portugal in 1975, notably from a centrally planned economy to a market economy in the mid-1980s, from civil war to peace in 1992, and from a one-party system to a multi-party democracy in 1994. However, since 2012, there have been signs that the last two transformations have been overturned: Mozambique is back to armed conflict³ between the state security and defence forces and Renamo

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² Industries without smokestacks are activities producing horticultural products, fruits, and agro-industry goods, and providing tourism services, information-based services, and other tradable services (including transportation and communications).

³ An International Peace Institute project on 'Understanding Compliance with Security Council Resolutions in Civil Wars' defined civil war as a conflict in which at least 500 battle deaths are reported during a given year, besides being a dispute concerning government and/or territory in a state, and involving two or more armed parties, one being the government of the state and the other a non-state opposition (Cockayne et al. 2010: 43).

armed forces, and democracy seems to be more fragile in the 2010s than in previous years (DW 2013; AIM 2016a, 2016b; Kaiser and Rantala 2016).

The economy's rapid growth in the past two decades has been influenced by substantial inflows of foreign aid and foreign direct investment, a high rate of population growth and a young population, generally good weather conditions, significant investment in education, health, and basic public infrastructures, and legislative and institutional reform.

Nevertheless, Mozambique has not undergone a structural transformation like the industrialized countries and the emergent Asian and Latin-American economies. Around 80 per cent of Mozambique's labour force is still in agriculture, livestock, forestry, and fisheries, applying traditional manual and low-productivity technology (Tarp et al. 2002: 6–7; Chilonda et al. 2011: xv; Jones and Tarp 2012). It has a small and fragmented manufacturing sector producing for the internal market, and a large non-competitive and non-tradable services sector. The aluminium smelter is integrated into the international market but has a minor multiplier impact in the national economy, as it operates like an enclave. Extractive industries have been expanding, gradually from 2004 and more rapidly since 2011—an expansion driven mainly by mineral coal exports and investments for an expansion in natural gas extraction.

With this type of structure, the economy is not improving its competitiveness in the international market; nor is it allowing small family producers in agriculture and fisheries and lower income producers in urban areas to increase their income significantly and sustainably. The poverty headcount ratio of the total population reduced slowly from 54.1 per cent in 2002–3 to 49.2 per cent in 2014–15, according to the official household budget survey analysis (MPD 2010; MEF 2016).

From 2010, economic policies increasingly targeted investment in natural resources exploitation, mainly mineral coal and natural gas. This policy choice resulted in a surge in foreign investment in both products. However, the decline in international oil prices and the reduction in external demand for coal and natural gas in 2015, accompanied by a slowing of foreign investment, weak export performance, and a cut in foreign aid, led to a 135 per cent depreciation of the metical (MZN) against the US dollar between January 2015 and October 2016 and a rise in inflation from 1.9 per cent in December 2014 to 10.5 per cent in December 2015 and 25.5 per cent in October 2016 (INE 2015b, 2016a, 2016b; OANDA 2016). This unstable macroeconomic trend is likely to continue in the near future.

Also from 2010 onwards, the government tended to increase public investment by obtaining non-concessional credit in the international market and consequently increasing external debt ratios (IMF 2010: 18, 2014a: 15; GdM 2016: 28). In the period 2012–14, the Mozambican government allowed

newly created companies led by high-ranking officials to obtain secret and non-secret loans with public guarantees from international banks amounting to US\$2.3 billion, most of them without parliamentary approval (Hanlon 2016; IMF 2016a; WSJ 2016). The resulting increase in external debt has aggravated the already unbalanced macroeconomic situation. Consequently, economic growth is slowing down and general living conditions are deteriorating, particularly for poor families.

This debt crisis may be partly due to the frailness of a strategy based on the extraction of natural resources mainly for export, and it prompts a search for alternative strategies that would enable the Mozambican economy to compete in the international market. The country will have to manage its limited resources much more carefully, and should look for other export opportunities based on the production of manufactured goods and services.

This chapter uses hard data from statistics and other complementary sources to analyse the structural transformation of the economy as well as the size and the role of industries without smokestacks in the domestic economy (Section 2). It then presents the main public policies on macroeconomy, trade, labour, agriculture, and industry, and their impact on IWSS (Section 3) and outlines policy issues and challenges for the development of tourism as an IWSS case (Section 4). Section 5 presents conclusions.

2. Development of Industries without Smokestacks, 1993–2015

2.1. *Wide Spectrum Economy Evolution vs. Lack of Structural Transformation*

The transition to a market economy in the 1980s, the peace agreement with Renamo in 1992, the multi-party elections in 1994, and the transition from an apartheid regime to a multi-racial and multi-party system in South Africa in 1990–4 formed the basic conditions for the recovery and growth of the Mozambican economy at an unprecedented pace and with a noticeable level of diversification (Table 12.1).

In the 1980s and 1990s, macroeconomic stabilization and structural adjustment policies, including the World Bank's 'Heavily Indebted Poor Countries' initiative, created an enabling environment for price stability and economic equilibrium that was to a significant extent stimulated by external aid inflows (Tarp et al. 2002; IMF 2004: 4–5; USAID 2004: 1.1, 1.5). 'End of period' annual inflation reduced from 54.1 per cent in 1995 to 16.6 per cent in 1996, reaching an average of 2.9 per cent in 2011–14 (IMF 2001: 4, 2014a: 18, 2015: 19). The difference between the official exchange rate of 2,742 MT/USD and the rate in the free market of 2,951 MT/USD in 1992 declined to 10,776 MT/USD and 10,890 MT/USD, respectively, in 1995 (IMF 2001: 100).

Industries without Smokestacks: Mozambique

Table 12.1. Industries without smokestacks contributed with 1.9% to annual average GDP growth in 1993–2015

Sector of activity ¹	1993–4	1995–2004	2005–10	2011–15	1993–2015
Agriculture and fisheries	3.59	2.36	2.00	0.76	2.02
Mining	0.05	0.12	0.14	0.66	0.24
Manufacturing	−0.49	1.75	0.19	0.32	0.83
Electricity, gas, water	0.00	0.32	0.36	0.15	0.27
Construction	0.14	0.15	0.22	0.16	0.17
Commerce and auto repair	0.30	0.52	0.99	1.03	0.74
Transportation and storage	0.61	0.72	0.77	0.50	0.68
Hotels and restaurants	0.47	0.18	0.24	0.16	0.22
Information and communications	0.19	0.29	0.35	0.34	0.31
Financial activities	0.09	0.15	0.51	0.79	0.38
Real state and services to enterprises	0.58	0.40	0.33	0.48	0.42
Public administration and defence	2.42	−0.39	0.42	0.61	0.28
Education	0.15	0.54	0.58	0.58	0.52
Health	0.04	0.13	0.14	0.07	0.11
Other services	0.07	0.10	0.04	0.04	0.07
Taxes on products and FISIM	0.04	1.09	0.07	0.43	0.59
Gross domestic product growth rate	8.26	8.43	7.36	7.10	7.83

Note: ¹Percentage contribution to the annual average GDP growth in 1993–2015, by sector of activity.

Source: Authors' calculations based on data from INE (2016c).

Although this rapid economic growth pattern between 1993 and 2014 was diversified to some extent, it proved not to be sustainable, according to evidence in 2015–16. The ratio of the current account deficit to GDP in nominal prices averaged 26.9 per cent in the period 1993–2015, but it showed an aggravation to 41.8 per cent in 2011–15 (INE 2016d). Net international reserves declined from US\$2,995 billion at the end of 2013 to US\$2,889 billion at the end of 2015, representing a decline from 3.3 months of imports of goods and non-factor services to 2.7 months (IMF 2016b). Around 80 per cent of the labour force is in the agriculture, livestock, forestry, and fisheries sectors (Jones and Tarp 2012). These primary sectors produced 34.1 per cent of the aggregated valued added in 1993–5, but only 25.0 per cent in 2013–15 (INE 2016c). The decline in the share of primary sectors in GDP was due mainly to an increase in the relative share of mining and services. Production in mining and services increased from 0.2 per cent and 51.2 per cent, respectively, to 4.6 per cent and 55.2 per cent in the same periods. Meanwhile, manufacturing, electricity, water, and construction experienced a slight change, from 14.5 per cent to 15.3 per cent. Mining occupies only 0.2 per cent of the labour force, and services are mainly non-competitive in the international market or non-tradable. The share of services in total exports declined from an annual average of 35.5 per cent in 2000–2 to 17.2 per cent in 2012–14 (INE 1996–2015).

Evidently, the growth in the economy has been mainly directed at the internal market, but a large share of its labour force uses almost exclusively manual technology with low productivity rates (Tarp et al. 2002; Cruz et al. 2014). There is no evidence of a labour force transition from primary sectors to secondary and tertiary, accompanied by an increase in agricultural productivity, and no statistical evidence of a significant change in the economic structure in rural areas. The share of the urban population in the total population has been kept constant at around 30 per cent between the two most recent censuses of 1997 and 2007 (INE 1999b, 2010b).

The annual average share of manufacturing in GDP increased from 13 per cent in 1993–9 to 16 per cent in 2000–7 (INE 2016c). The country's aluminium smelter started producing ingots in 2000, and contributed to an increase in the weight of manufacturing in GDP (Andersson 2002: 531, 540). But this share declined to 11 per cent in 2008–15, as aluminium production stabilized while GDP continued to rise. Besides aluminium ingots, Mozambique exports manufactured goods. Annual average manufactured⁴ exports as a percentage of total exports of goods and services increased from 10.9 per cent in 2000–7 to 20.6 per cent in 2008–14 (INE 1996–2015; BM 2016). Including aluminium ingots, this share increased to 52 per cent in the whole period 2000–14.

Although the share of manufacturing in total GDP is relatively small, its annual average value added per worker, at constant prices, of MZN151,000, places it fourth (below 'other services', including financial, information and communications, and real estate activities at MZN214,000, mining at MZN235,000, and transportation and storage at MZN317,000) in the period 1993–2015 (Jones and Tarp 2012; INE 2016c). The 7.7 per cent annual average real growth rate of value added per worker in the manufacturing sector is the third highest in 1993–2015 after construction (10.3 per cent) and mining (21.4 per cent). Although this indicator dropped from an annual average of 13.9 per cent in 1993–2004 to 1.3 per cent in 2005–15, the productivity per worker in manufacturing evidences the potential for value added creation and economic growth stimulation.

The role of services in the structural transformation of Mozambique has been mixed in 1993–2015. It is heavily weighted in the economy, with a 53 per cent annual average share of GDP, but it has a weak role in international transactions. While there is an increasing number of people in small commerce and other services at a subsistence level, there is also an increasing number

⁴ Manufactured exports include: food, beverages and tobacco; chemicals; plastics and rubber; leather; paper and cardboard; textiles; shoes; common metals; machinery and electrical equipment; transportation equipment; optical equipment, photographic equipment, and watches; medical equipment; and toys. Aluminium ingots are excluded from manufactured exports in this ratio.

of skilful young people working in transportation, information and communications, financial activities, and real estate. These skills require some degree of investment in education and the ability to operate with modern technology.

In terms of growth, the annual average contribution of services, excluding government, education, and health, increased from 2.4 per cent in 1993–2004 to 3.3 per cent in 2005–15, whereas GDP growth was 8.4 per cent and 7.2 per cent, respectively. Services had an annual average of MZN114,000 of value added per worker, at constant prices. This places it in sixth position, below public administration and defence, with a value added per worker of MZN140,000. It is worth noting that the contribution of commerce activities is driving down the value added per worker in the overall services sector due to the large number of people dedicated to sales and to other services of subsistence remuneration. Even so, the annual average real growth rate of value added per worker in the services increased from 3.3 per cent in 1993–2004 to 6.4 per cent in 2005–15, where the aggregated annual average real growth rate of value added per worker in 2005–15 was 4.8 per cent.

When it comes to the international market, the annual average share of services in the total value of exports of goods and services was 21.5 per cent in 2000–14. This share was just 18.5 per cent in 2008–14. The large share of services in GDP does not match the much smaller share of services exports in total exports, or even the weak performance over time of services exports as a share of total exports.

Although the economy has grown at a fast pace since 1993, with a certain degree of diversification, 80 per cent of its labour force live on income from agriculture and related activities using traditional manual and low-productivity technology. The low share of manufacturing in total GDP, the structure and dynamics of exports based on primary commodities or selected commodities/services from large projects with weak linkages to the internal economy, and the large services sector as a proportion of GDP with little competitiveness in the international market are signs of a lack of structural transformation.

2.2. *Industries without Smokestacks*

This section accounts for the performance of IWSS—with a caveat on the level of precision, as the data available vary in terms of disaggregation⁵ degree. Besides IWSS, other Mozambican non-traditional products with potential

⁵ It should be noted that ‘industries without smokestacks’ does not have a specific classification in national accounts; nor it is treated as a specific GDP component in the official statistics of Mozambique. Therefore, any attempt to aggregate IWSS activities runs the risk of either over-estimation or under-estimation of this set of goods and services in total GDP.

for export growth are maize, sesame, and soybeans, but these will not be dealt with in detail in this chapter. Based on INE's data, Industries without Smokestacks⁶ contributed with 1.9 per cent to the GDP annual average growth rate in 1993–2015 (INE 2016c). The rest of the economy contributed with 5.9 per cent.

In the agriculture sector, production of citrus fruits increased at an annual average of 6.7 per cent in 1993–2014, and the volume of tomatoes and horticultural products increased at an annual average of 8.0 per cent and 12.6 per cent, respectively, in 1993–2002. No production statistics for tomatoes and horticultural products are available from 2003 onwards in the official Statistical Yearbook series. Nevertheless, the annual average exports of horticultural products increased from US\$282,000 in 1996–8 to US\$15.4 million in 2006–9 (MPF-DNE 1994–5; INE 1996–2015). This indicator also increased slightly for fruit exports, from US\$34.4 million in 1995–8 to US\$36.3 million in 2006–9. In particular, banana exports increased significantly in 2011 due to a foreign direct investment project in Nampula Province.⁷

Manufacturing output increased its share of GDP to 18 per cent in 2001, but this subsequently declined to an annual average of 10 per cent in 2012–15. Gross value added (GVA), in current prices, of food processing, textiles and garments, and wood processing represented 32 per cent, 5 per cent, and 9 per cent, respectively, of aggregate GVA in manufacturing in 2010–15 (INE 2016e). The GVA of these three manufacturing sub-sectors represented 4.5 per cent of aggregated GVA in the economy. The annual average GVA variation in current prices of food processing, textiles and garments, and wood processing was 9.9 per cent, 6.2 per cent, and 7.7 per cent, respectively, in 2010–15. The variation in the same indicator for the manufacturing sector was 8.5 per cent, and for the entire economy 11.2 per cent.

Agro-processing—of sugar, cashew nuts, and cotton fibre—for export has been a traditional activity in Mozambique since before independence, and continues today (Dias 2012; Sutton 2014). Maize flour, refined edible oil, and processed tea are also exported at a more modest revenue. Processed wood is also currently exported. Processed rice is traditionally consumed in the domestic market, and soybean production is expanding for poultry feed (Calima et al. 2014). There are plans to attract foreign direct investment on two paper pulp projects, in Zambézia and Nampula provinces, amounting to US\$4.5 billion (MPD and MF 2012: 12).

⁶ The composition of IWSS in the GDP comprises the following sectors: 16.98% of the total agricultural and fisheries, 45% of the total manufacturing, transportation and storage, hotels and restaurants, and information and communications.

⁷ Banana exports reached an annual average of US\$70.9 million in 2011–14 (BM 2016).

Transportation and storage accounted for 10.1 per cent of GVA in the aggregated economy in 1993–2015, and has been growing at an annual average of 7.8 per cent, which is the same rate as GDP. With an annual average of 47 billion passenger-kilometres, road transportation accounted for 98 per cent of the total passenger traffic transported by rail, sea, air, and road in 2009–15 (MTC 2016). Railway (40 per cent) and road (51.5 per cent) transportation account for an annual average of 2.8 and 3.6 billion ton-kilometres transported in 2009–15, respectively. Railway transportation grew by 387 per cent between 2009 and 2015 due to the extraction of mineral coal, mainly after 2011. Total cargo handling in the country's main ports increased from 12.7 million tonnes in 2009 to 32.1 million tonnes in 2015 (MTC 2016).

GVA in tourism (hotels and restaurants) accounted for 2.2 per cent of aggregated value added in 1993–2015. This sector has been growing at an annual average rate of 9.1 per cent, which is higher than GDP growth. This is a sector with potential for growth, for clients from both the domestic and the international market. One factor that could increase the flow of tourists from abroad is a more cost-efficient air transportation service. International demand and safety inside Mozambique are other relevant factors influencing tourism (Batey 2014).

Regarding the GDP production approach, national accounts statistics do not provide disaggregated data on 'information-based services', but on the aggregated information and communications sector. The share of these services in total GDP was 3.3 per cent in 1993–2015. This sector contributes with 0.31 per cent to GDP growth, well above the sectors' hotels and restaurants (0.22 per cent), electricity, gas, and water (0.27 per cent), and public administration and defence (0.28 per cent) (Table 12.1). The share of gross value added for consultancy, scientific, and technical services in total GVA is 2.1 per cent, based on nominal values for 2010–2015 (INE 2016e). The total number of mobile phone subscriptions increased from 5.9 million in 2009 to 20.1 million in 2015 (MTC 2016). In terms of exports as a share of total exports of services, technical assistance and services related to commerce (14 per cent) and telecommunications, computers, and information services (5 per cent) were ranked third and fourth, respectively, after transportation (43 per cent) and travel (31 per cent) in 2006–15 (BM 2016). The low share of information and communication technology in total exports allows us to hypothesize that Mozambique is mainly importing information-based technology in order to increase productivity across sectors producing for the domestic market.

From the limited information available, there is evidence that IWSS have been contributing to economic growth in Mozambique since 1993, but there is no evidence of a significant contribution to the expansion of its goods and services in the international market.

3. Selected Public Policies

This section reviews macroeconomic, trade, labour, agricultural, and industrial policies that have influenced economic performance since 1993, in particular in relation to IWSS. A recent and detailed policy review is presented in UNU-WIDER Working Paper 2014/059 (Cruz et al. 2014).

3.1. *Macroeconomic Policies*

The Mozambican government implemented the Economic Rehabilitation Program (PRE) from 1987 onwards, although initial price reforms started earlier in the same decade (USAID 2004). This macroeconomic stabilization and structural adjustment programme represented a transition from a centrally planned economy to a market economy system, and it was designed to reverse the declining trend of the economy in a civil war context.

In the period from 1980 to 1984, the economy declined by 26 per cent (Sulemane 2002). Exports and imports fell, while the trade deficit worsened, from US\$320 million in 1979 to US\$444 million in 1984, reaching US\$607 million in 1982. Foreign debt-servicing obligations amounted to more than twice the value of exports of goods and services in 1985 (IMF 2004: 5). Thus, foreign currency was in short supply, which drove the parallel (black) market exchange rate downwards and increased the gap with the official exchange rate (Hanlon 1991; Tarp et al. 2002: 25–6). The government was able to cover its deficit by printing money, adding pressure for an increase in prices in the parallel market, i.e. driving up inflation (Tarp 1990).

In order to reverse this trend, the government progressively devalued the official exchange rate and gradually liberalized prices, interest rates, and trade (IMF 1996, 2004). It also restricted public expenditure and the money supply, and reformed the system of revenue collection. Although basic policies were implemented in the first years of the PRE, it was only after the peace agreement in 1992 that economic growth accelerated from an annual average of –6.6 per cent in 1990–2 to 6.9 per cent in 1993–5, and end-of-the-period inflation declined from 54.1 per cent in 1995 to 16.6 per cent in 1996 and 5.8 per cent in 1997 (IMF 2001; Sulemane 2002).

Fiscal reforms, privatization programmes, and financial sector reforms continued after 1992, with the aim of reducing macroeconomic imbalances and improving efficiency and competition in the economy. As a result of successful policies and reforms, Mozambique benefited from debt relief from donors under the Highly Indebted Poor Countries initiative from 1998 to 2002 amounting to US\$2.7 billion in 1999 values (IMF 1998: 3, 1999).

The country continued to implement market-oriented macroeconomic policies and structural reforms until 2015 (IMF 2014b: 1, 2016b). Taxation

reforms—in particular, institutional reforms such as the creation of the Tax Authority—led to an increase in the state revenues to GDP ratio from 12.4 per cent in 2004 to 25.5 per cent in 2015 (Barnes et al. 2016; IMF 2016b). This improved macroeconomic performance allowed economic agents to take resource allocation decisions partly on the basis of price signals.

However, many distortions and weaknesses remain, such that the Mozambican economy has not yet reached the point of Pareto efficiency. To a large extent, the public deficit has been financed by external aid and public borrowing, with transparency and accountability shortfalls, in particular between 2012 and 2015 (GdM 2016; IMF 2016a; WSJ 2016). Furthermore, the exchange rate dynamic has not always been favourable to the tradable sectors, in particular agriculture.

3.2. Trade Policies

The exchange rate was devalued in 1987 and in the following years of the PRE. Subsequently, the exchange rate tended to be determined by the market. The tariff book was simplified in 1996 (USAID 2004). In 2004, the Most Favoured Nation duty structure included *ad valorem* percentage rates of 0, 2.5, 5, 7.5, and 25 (Alfieri et al. 2006: 6–7). In 2006, the highest rate dropped to 20 per cent. Following the SADC Trade Protocol, Mozambique had gradually liberalized trade with most member countries by the end of 2012, and with South Africa by the end of 2015 (PdM 2009). Mozambique is a member of the World Trade Organization and has preferential market access with the European Union under the Everything but Arms and the Economic Partnership Agreements, and with the United States under the African Growth and Opportunity Act (USAID 2004: 5–1, 5–2).

In the 1990s, an interbank foreign exchange market was developed and customs exemptions were reduced (IMF 2004: 6, 7). Customs procedures were reformed (IMF 2004: 12). In 2006 the creation of the Tax Authority was an institutional reform milestone. These reforms were aimed at reducing the costs of international trade and increasing control over tax revenues. Complementary reforms were introduced to promote an enabling business environment and trade, such as the creation of the one-stop shop and the abolition of visas for many SADC countries (Imani Development International 2007: 3). Mozambique has also developed legislation and started implementing Export Promotion Zones at a moderate pace, mainly in Beluluane and Nacala.

As a result of trade liberalization and reforms, as well as foreign direct investment in mineral resources such as heavy sands, natural gas, and coal, and other investments (in the hydroelectric power system, sugar, and tobacco), exports grew at an annual average rate of 14.9 per cent between 1993 and 2015 (INE 2016d). Imports grew at 11.5 per cent in the same period.

The current account deficit as a percentage of nominal GDP reduced from –43.7 per cent in 1995 to –9.1 per cent in 2007, reflecting an upward trend in exports. This ratio worsened to –53.6 per cent in 2013, however, due to large foreign direct investment in the exploitation of coal in Tete province and natural gas in the Rovuma basin. The current account deficit declined in the period up to 2015 as imports reduced at a faster rate than exports due to the reduction in international prices of coal and natural gas, and the postponing of investment in the latter commodity.

Some analysts have been arguing in favour of Mozambique advancing further with trade liberalization, by continuing to reduce tariffs, applying a flat rate, complying with WTO rules, facilitating visas and international work permits, and reducing transportation and port costs (Flatters 2002; USAID 2004; Menon 2014). Such measures would reduce transaction costs and increase the competitiveness of Mozambican exports. Other analysts consider that trade liberalization has limitations as a promoter of exports insofar as (i) such a policy fails to protect producers for the external market from a deterioration in international terms of trade, (ii) the market power of private companies prevents local producers from competing on the international market, and (iii) foreign aid contributes to an overvalued local currency, reducing competitiveness in the external market (Castel-Branco 1997; Mosca et al. 2014).

3.3. *Labour Policies*

Labour policies in Mozambique are managed by the Ministry of Labour, Employment, and Social Security (MITESS). This institution is responsible for devising and monitoring government policies, for coordinating the National Social Security System, and for participating in national minimum-wage negotiations. Two major trade union confederations, the Mozambique Workers' Organization (OTM) and the Mozambique Independent and Free Union Confederation (CONSILMO), participate in the annual minimum-wage definition together with the Confederation of Business Associations of Mozambique (CTA) and the Mozambican government. MITESS is also responsible for the management of the foreign-worker quota system and oversees vocational education and training through the National Institute of Employment and Vocational Training (INEFP).

Over time, several instruments have been used in order to implement labour policies. As part of public sector reform, a significant improvement in the business environment was achieved through the simplification of administrative procedures, and the last revision of the labour law came into force in 2007, when Law 23/2007 replaced Law 8/1998 (PdM 2007).

Law 23/2007 included new provisions for the promotion of entrepreneurship and the protection of workers, most notably strengthening job security, preventing unfair dismissal, protecting the dignity of workers, and extending their rights to trade union activity, to strike, to social security, to fair remuneration, to resting periods, to holidays, to maternity and paternity leave, to retirement schemes, and to pre-professional training. The new labour law also created an extra-judicial system for the resolution of labour disputes. The recently approved Employment Policy aims at harmonizing and aligning various strategic actions to induce improvements to the business environment and to the labour market (MITESS 2016).

The latest report on the manufacturing enterprises survey in Mozambique in 2012 shows that there is a slight improvement in labour legislation, which is thus becoming less of a constraint in the labour regulations environment than it appeared in the 2006 survey (Rand and Tarp 2013).

3.4. *Agricultural and Industrial Policies*

Agricultural policies in Mozambique have elicited a positive response from smallholder agricultural producers to price incentives, improvements to road and ports infrastructure, and improvements in basic trading services. The same incentives have elicited a positive response from commodity producers for the external market (e.g. sugar and tobacco). According to official agricultural production figures, aggregate agricultural production increased by an annual average rate of 6.7 per cent between 1993 and 2015 (INE 2016c), although these figures are considered to be overestimated (Pauw et al. 2012: 2). Nevertheless, agricultural production is still based on a large number of family smallholder units using traditional and manual technology, and low levels of technical input. Hence, agricultural productivity remains low (Cunguara et al. 2012: 121; Pauw et al. 2012: 8–9; Benfica et al. 2014: 17).

Industrial policies from 1992 onwards were ‘hands-off’, with the government undertaking limited initiatives. Markets were meant to determine where investors should allocate their resources. A broad privatization programme was implemented that eliminated bankrupt companies, reduced public expenditure on inefficient companies, and permitted private reinvestment in a small proportion of running enterprises. The impact of the privatization programme on industrialization in Mozambique is considered to be far from successful in terms of manufacturing diversification and expansion, or in terms of employment generation (Castel-Branco et al. 2001: 11–12; Dibben and Wood 2016). Privatization also requires careful preparation and analysis in order to address the country-specific conditions (Torp and Rekve 1998). Such a privatization process would permit supportive measures like

access to credit and encourage national entrepreneurs, which has not always happened in Mozambique.

On the other hand, the Export Promotion Zones policy led to one major capital-intensive foreign direct investment project, the aluminium smelter. However, this mega-project is considered an enclave, with weak connections to the rest of the domestic economy. Other, smaller-scale, successful industries produce a variety of goods, though mostly food and beverages, for the domestic market, and tobacco and sugar, mainly for the international market. In general, though, industrial policies have failed to promote manufacturing diversification and expansion of output as a proportion of GDP, in particular since 2004 (Cruz et al. 2014). The state imposes conditions on the creation and development of enterprises through the licensing process, labour inspections, and tax inspections.

The Industrial Policy and Strategy approved by the government in 2016 defined its main objective as transforming manufacturing into the main vehicle for the country to achieve prosperity and improve living conditions, through generating employment, increasing production, and processing natural resources. A local content law is currently being drafted in order to address the need to develop further connections between local companies and extractive industries.

Given the young population structure of the country and the high unemployment rate, especially in urban areas, labour-intensive manufacturing production could play a role in the growth of jobs, income expansion, and industrial intensification. Yet this kind of production, in particular for exports, has not been developed in Mozambique due to poorly designed, coordinated, and implemented industrial and competitiveness policies (Krause and Kaufmann 2011: 54; Rand et al. 2014: 15). The newly approved Industrial Policy and Strategy could change this pattern if the government avoids falling into the high-value natural resources sector trap and being driven by foreign investment decisions.

3.5. *IWSS Policies*

Production of horticultural products and fruits for export has benefitted from the general investment promotion legislation. This was the case with citrus production in Boane; baby corn, fresh chilies, green beans, mange tout peas, sugar snap peas, and okra production in Vanduzi; and banana production in Nampula. However, there has not been a significant increase in horticultural and fruit production for export. Encouraging large foreign investment projects has not been and will not be the only way of increasing exports of these commodities. Due to the very large number of smallholder agricultural producers (4.2 million), it will be necessary to encourage them to

participate in export projects as producer units and not only as a source of cheap labour (MASA n.d.).

Regarding agro-processing for export, previous and current industrial policies have been and still are ineffective. It requires political will and stronger local business interests to remove the business barriers that are well known and highlighted in the World Bank's 'Doing Business' annual reports. It would also require a persistent and continuous effort in terms of public policies directed at promoting agro-processing projects to allow the expansion of this sub-sector (MPD 2014). Poverty reduction strategy papers since 2001 have weakened the industrial policy component in the set of public policies. At least 70 per cent of the state budget has been allocated to 'social sectors and other priority sectors related to poverty alleviation', at the expense of the industrial sector (GdM 2001). At the same time, natural resources extraction for export has gradually become the economic policy focus due to the perception that it could provide the required revenue to finance the expanding state budget and the opportunity for national interest groups to profit from allowing international extraction of mineral coal, natural gas, and other minerals (e.g. heavy sands and precious stones).

Transportation, communications, and information policies have promoted the rehabilitation and construction of roads and railways connecting landlocked countries/regions with the Indian Ocean and opened the market for passenger and cargo road transportation companies and for mobile telephone and internet provider services. Nevertheless, further competition in these areas could contribute to an improvement in the quality of services and a reduction in costs for the consumer. Since the late 2000s, Mozambique has been open to various international air transport companies. Currently, seven international airlines fly to Maputo or other cities in the country. The challenges for the Mozambican government are the increase in competition in the domestic flight market, and the reduction in the fares charged by the Mozambican national airline, LAM, which needs to improve the quality and reliability of its services in order to achieve international standards. Tourism policy issues are discussed in the next section.

4. Tourism: An IWSS Case

While economic growth is being fuelled by investment in the exploitation of mineral resources (coal and hydrocarbons) and related infrastructure in the 2010s, the tourism sector is seen as an opportunity to diversify the economy through its potential for export expansion, job creation, skills learning, and income generation. Tourism development requires investment in basic infrastructure (road networks, water and sanitation, energy, and health centres), as

well as in the provision of excellent services in terms of technology and transportation, which are sought by increasingly demanding customers (Jones 2007; Jones et al. 2007; Portuguez et al. 2012).

Mozambique can be considered an attractive destination for tourism because of its natural conditions, biodiversity, and cultural diversity. Its coastline of over 2,700 km offers excellent beaches, bays, and lagoons. About 15 per cent of the country is classified as a protected area (IFC 2012). The Ministry of Tourism has produced a brief profile of each of the country's three regions: North, Centre and South (MITUR 2004: 62). In order to take advantage of the country's tourism potential, the government has also approved a tourism law (PdM 2004).

4.1. *Opportunities and Challenges*

Tourism services are growing faster than the rest of the economy. However, these services are still far from achieving their potential, and the sector has opportunities that could be further explored, such as combining sun and beach resorts with eco-tourism, cruises, events, business, or gambling.

According to the Second Strategic Plan for the Development of Tourism 2015–24 (PEDT II), tourism development is facing four main category barriers, which need to be addressed: (i) high cost of air and road transportation, (ii) corruption, road control by police officers, and an unstable military and political situation, (iii) high competition with other Southern African countries, and (iv) need to have higher trained professionals working in the tourism industry (Fernando 2013; MITUR 2015a).

Recently, however, the Government of Mozambique has adopted a new approach to the development of tourism, which focuses on an integrated plan identifying Touristic Interest Areas and Investment Priority Areas in the provinces of Inhambane, Zambézia, Nampula, Cabo Delgado, and Niassa (MITUR 2013, 2015b).

5. Conclusion

Under the current international economic conditions, where Asian countries are strong competitors over manufacturing commodities, low-income countries like Mozambique could attempt to compete in industries without smokestacks. Examples of commodities and activities in which Mozambique could compete on the international market are baby corn, green beans, citrus fruits, bananas, mangos, cut flowers, maize and related products, sesame, tourism, electricity from hydropower plants and natural gas plants, and transportation services.

An analysis of the last two decades, during which Mozambique has followed an upward path of economic growth, reveal that the country has not undergone a structural transformation like those of the industrialized countries and the emergent Asian and Latin-American economies—i.e. an expansion of the manufacturing sector, as a share of GDP and a share of the total labour force, and an increase in agricultural productivity accompanied by a reduction in its share of the labour force due to a migration to other more productive sectors in the economy. In Mozambique, about 80 per cent of the labour force is in agriculture and other rural activities, producing about 25 per cent of GDP. Manufacturing output as a share of GDP has been declining since 2001, to 10 per cent in 2015. The economy is mainly growing inwards with a limited expansion of exports, in particular of labour-intensive goods and services.

The government's growth strategy since 2010 has been focused on international investment in mineral coal and natural gas, as well as on an expansion in public infrastructure investment, with a growing share of external commercial lending. The country's economic performance in 2015 and 2016 reveals that this strategy is risky and unsustainable. Lower international demand for commodities in general, and coal and natural gas in particular, a sharp rise in external public debt, a decline in foreign aid, and public policy mismanagement are causing a serious economic crisis.

Mozambique is in dire need of reversing its macroeconomic and other policies in order to stabilize the economy. Meanwhile, a diversified and balanced growth strategy could promote synergies to expand output from agriculture and related activities, and other industries without smokestacks, so that these sectors can compete on the international market. An open and transparent public policy on the exploitation of coal, natural gas, and other high-value natural resources could integrate these products into a processing value chain, such that the country's economy could gradually industrialize. A complementary role for investments in smokestacks industries should also be considered, whenever possible. For any economic policy to obtain meaningful results, the restoration of peace in the country is a pre-condition.

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13

Senegal

A Service Economy in Need of an Export Boost

E. Philip English

1. Overview

Senegal is one of the most stable and democratic countries in Africa. It is the only country in continental West Africa that has never experienced a *coup d'état*.¹ It has enjoyed multi-party democracy since 1976 and has twice seen the defeat of the incumbent president at the ballot box, in 2000 and 2012. There is substantial freedom of the press, and the capital, Dakar, is one of the safest large cities in Africa. The country is proud of its reputation for tolerance and the good relations between its Muslim majority and Christians. It is an open society with strong ties to the West.

The economy has done less well. Senegal is a border-line low-income country, with GDP per capita estimated at US\$950 in 2016.² The oil shock of 1975 and the subsequent debt crisis led to a slow but steady decline. With a fixed exchange rate tied to the French franc, the country was obliged to attempt an internal adjustment, which proved impossible, and finally the currency was devalued—for the first and only time—by 50 per cent in 1994.

The economy grew strongly for the next ten years, with an average GDP growth of 4.5 per cent per annum. However, there was little structural change, and the rural economy remained dependent on rain-fed crops, which were vulnerable to the unreliable rainfall typical of a Sahelian country. While many African countries experienced a commodity-driven boom after 2005, the

¹ The island country of Cabo Verde also enjoys this record.

² Senegal was classified as a lower-middle-income country in 2014 until the appreciation of the US\$ caused a decline in its GDP per capita in US\$.

Senegalese economy slowed down. It suffered from spikes in food and oil prices, the global financial crisis, climatic shocks, a slackening in the reform effort, and worsening governance.

The new government of Macky Sall inherited a sluggish economy in 2012, with a debt-to-GDP ratio of 45 per cent and a fiscal deficit of 6.7 per cent of GDP. It immediately committed to the restoration of sound macroeconomic management with an IMF Policy Support Instrument. The fiscal deficit was reduced to 4.2 per cent in 2016. The CFA franc is managed by a relatively independent, regional central bank, which has maintained low inflation and generally avoided an overvalued exchange rate.³ The advantages of a sound monetary policy, ease of transactions between member states, and the absence of exchange rate risks, are generally considered to outweigh the constraints of a fixed exchange rate regime.

When the Doing Business ranking for Senegal fell to 176, the government committed to an ambitious three-year programme of reforms. Its ranking in 2016 improved to 147, albeit still very low. Senegal's ranking in the corruption perception index has improved from 112 to 64. GDP growth gradually strengthened to 6.6 per cent in 2016, thanks in part to good weather conditions, making it the fourth fastest growing economy in sub-Saharan Africa (SSA) in 2016, with continued growth at 6.6 per cent.⁴ By early 2016, Senegal was one of only two sub-Saharan African countries to enjoy a positive outlook from the rating agencies.⁵

Today, Senegal has a diversified economy driven by services. The tertiary sector has accounted for 60 per cent of GDP and 65 per cent of GDP growth since 2005, led by telecommunications and finance. In the secondary sector, construction has been the most dynamic, but the mining sector has gradually expanded with new mines in gold and mineral sands. Manufacturing represents 12 per cent of GDP. The primary sector is small by African standards, at 15 per cent of GDP, but it is diversified between crops (8 per cent), livestock (4 per cent), and fishing (3 per cent).

2. Trade Performance

Senegal's exports of goods and services as a share of GDP fell to 25 per cent by 2014, below the average of 30 per cent for SSA. Exports of goods have typically covered only half of merchandise imports. Services trade also records a small

³ This is the general conclusion of the IMF, though it might change if the US\$ weakens.

⁴ This seems a little optimistic since it is unlikely that agriculture will grow much and may even fall somewhat.

⁵ The other one was Côte d'Ivoire.

Table 13.1. Principal exports of goods and services: share of total, 2014–15 (%)*

Other manufactures/equipment	11.6
Tourism	10.9
Fish products	9.3
Petroleum products	9.2
Gold	8.0
Cement	5.0
Other business services	4.9
Phosphoric acid and fertilizer	4.2
Transport services	3.8
Groundnut products	2.6
Horticultural products	2.4
Other goods	13.7
Other services**	13.4

Note: *Average of 2014 and 2015 for goods; 2014 for services. **Over half consists of telecommunications services which are essentially taxes on incoming long-distance calls.

Source: BCEAO (2014); République du Sénégal (2015).

deficit. However, the diversity of the economy is reflected in its exports. No single good accounts for more than 10 per cent of total exports of goods and services; see Table 13.1. The largest commodity export is a wide variety of fish products, both industrial and artisanal. Manufactured goods, including petroleum products, cement, phosphoric acid, and fertilizer amount to almost half of all goods exported. Tourism appears to be the largest single foreign exchange earner, though the data is not reliable. Other business services, which include business process outsourcing, are the next largest service export and the sixth largest export overall.

The four traditional exports have been fish products, groundnut oil, tourism, and phosphoric acid and fertilizer. Fish products suffer from serious over-fishing and are unlikely to sustain significant growth until stocks are replenished. Groundnut oil has been hampered by fluctuating supplies of raw material due to irregular rainfall, declining soil fertility, mismanagement throughout the value chain, and declining world demand for groundnut oil.⁶ Tourism did well until 2000, after which it has suffered from neglect. Phosphoric acid and fertilizer have enjoyed some growth, and may be able to support further expansion under new ownership of the existing mine and the opening of one new mine.

New exports have emerged, notably petroleum products, gold, and cement. Petroleum products involve little value-added, however, as they depend on imported crude oil, which is processed at a small and inefficient refinery. There is no potential for growth here, at least until newly discovered offshore oil and gas reserves are developed. The recent slump in prices suggests

⁶ However, exports of raw groundnuts have recently expanded significantly, notably to China.

that this may not happen soon. Gold production began in 2006, and a new boost in output in 2016 made it one of the two largest exports, along with phosphates. Cement has registered rapid growth, drawing on local limestone deposits. In general, however, Senegal is not considered to have major mining potential. The last notable merchandise export is fresh fruits and vegetables. These remain modest in size, but enjoyed the fastest growth from 2005 to 2015.

Exports of business services have grown steadily over the last ten years, and do not face any fundamental supply or demand-side constraints. Transport services have also grown, albeit more slowly. The port has been relatively well-managed and transit trade to Mali benefited from the crisis in Côte d'Ivoire, the major competing transit country. On the other hand, the national airline has suffered from continued mismanagement and was effectively bankrupt by late 2015. The rail link to Mali has steadily deteriorated, to the point where the operating concession was rescinded in 2015. With the stabilization of Côte d'Ivoire and the location of Senegal on the extreme western end of West Africa, the prospects for expanding transit trade appear limited.

The government has high hopes for a special economic zone that it is developing near the new airport just outside of Dakar. The Chinese have begun to build one industrial zone nearby and are committed to experimenting with some labour-intensive manufactured exports. Senegal would seem well-suited given its proximity to Europe and America and its good port facilities. However, it remains a high-cost business environment, with burdensome labour regulations. One hopes that this will materialize and expand in scope, but many observers are sceptical.

Clearly there are more than two or three export sectors that have the potential to drive this economy. Senegal is fortunate to have a variety of assets on which to draw. But three sectors that have a proven track record and plenty of up-side potential are tourism, information and communication technology (ICT), and horticulture. All three are highlighted in the government's new development strategy, the Plan for an Emerging Senegal (PES). These sectors are the focus of this chapter.

3. Tourism

In the 1980s, Senegal was second only to Kenya in SSA in terms of tourist arrivals. This was based on its beautiful weather during the European winter, extensive beaches, proximity to Europe, peaceful environment, cultural attractions, and reputation for hospitality. Club Med was operating two resorts and a new tourism station had been developed at Saly-Portudal, attracting investors who steadily expanded the hotel capacity. However, by 2010,

Senegal was no longer in the top ten destinations in SSA. While tourism has boomed in many countries, it has faded in Senegal. This is due primarily to neglect rather than to any fundamental problems and the future should be bright.

The analysis of the tourism sector is hampered by a lack of data. This is rather surprising given its role as one of the top sources of foreign exchange, but symptomatic of the degree of interest shown by the authorities. Official statistics on tourism arrivals, drawn from the main hotels, end in 2010. They indicate that non-resident arrivals gradually increased to a peak at 492,000 in that year. However, non-resident nights peaked in 2002 at 1,569,000 and declined thereafter to only 1,234,000. The only data available after 2010 is for visitors arriving by plane, and this indicates no improvement up to 2013 and a dramatic fall in 2014 to 374,000, reflecting the Ebola scare. 2015 was not any better since the threat of Ebola affected the 2014–15 tourism season, but the sector started to recover in 2016.

The only detailed study of the economic impact of tourism in Senegal dates from 2003, with technical support from the World Tourism Organization.⁷ It estimated the direct contribution of tourism at 4.6 per cent of GDP, or 6.8 per cent once indirect benefits are included. However, this includes domestic tourism, transport, and public spending related to the tourism industry. The overall contribution of foreign tourists' spending in Senegal would be closer to 4.3 per cent of GDP. The number of tourist nights was adjusted in the study to include small hotels and *campements* not covered by the survey of main hotels, along with stays with friends and relatives, and long-term visitors who typically come for several months during the European winter. The latter has become an important, and somewhat overlooked, phenomenon in Senegal, and may now account for tourist nights equivalent to 20 per cent of those in hotels.⁸ However, the clients of small hotels are more likely to be nationals or other African visitors on business. The study also highlights the likelihood of under-reporting by hotels, but the correction made seems excessive.⁹ The impact of international tourism was probably no greater than 4 per cent of GDP in 2000 and has probably declined closer to 3 per cent in 2015.

That said, it is worth underlining that tourism brings significant benefits to the local economy, to respond to a debate that unfortunately continues to linger in some circles, including with the previous president of Senegal. The 2003 study estimated the import content of tourism spending at 30 per cent. This is roughly consistent with a more detailed study conducted for the year 1979, which estimated this figure at 36 per cent, when the economy

⁷ République du Sénégal (2003).

⁸ There are 33 'residences' in Saly-Portudal alone, each with roughly 40 villas.

⁹ The total number of hotel nights is estimated at 2.6 million.

was somewhat less developed.¹⁰ The impact on employment is also significant, though again data is lacking. Global evidence suggests that on average in developing countries, each hotel room creates one hotel job, one more job in the rest of the tourist industry, and one job through indirect linkages.¹¹ With 10,000 hotel rooms, this implies roughly 30,000 jobs, of which 90 per cent can probably be attributed to foreign visitors.¹² This contribution is noteworthy given that much of this employment is located outside of Dakar, where alternatives are limited.

The fall in the total number of nights spent in hotels reflects a decline in the average length of stay to only 3.2 nights. Given the increase in arrivals, this suggests that business tourism has been expanding while longer-stay holiday tourism has declined. Unfortunately, this level of detail is not available in the statistics but it is confirmed by actors in the industry. New hotels have opened in Dakar and the top ones have recently expanded their capacity. In addition to normal business tourism, Dakar is a popular site for conferences. The last available survey conducted in 2000 indicated that 39 per cent of tourist nights took place in Dakar, where it was assumed that the purpose was essentially business and conferences. This share has undoubtedly increased since then. Since business tourism is doing well and is more a by-product of other activities in the economy, our focus is on leisure tourism. However, the potential to expand conference tourism must not be overlooked.

Saly-Portudal is clearly suffering, as is the other main beach destination, Cap Skirring, in the Casamance. Several hotels have recently closed, and others have deteriorated in quality, as low profitability has impeded their capacity to conduct regular maintenance, let alone upgrade their products. Hotel operators have relied increasingly on seminar business, since Saly-Portudal is only 1.5 hours from Dakar, along with small but growing local tourism during the school holidays in the off-season. In the more distant Casamance, unofficial estimates point to a decrease in arrivals from 60,000 in 2000 to only 20,000 today.

The reasons for this are many. The 2008–9 global financial crisis hurt demand in Europe, and the insecurity in Casamance affected its attractiveness. Yet, the crisis in North Africa and the Middle East should have worked to Senegal's advantage; the only security incident in the Cap Skirring region occurred in the early 2000s. Something more fundamental is clearly at work. In essence, the product has become tired and the government has done little or nothing to support it—on the contrary, it has taken some measures that have hurt the industry.

¹⁰ English (1983). ¹¹ English (1986: 38).

¹² The 2003 study by the Government estimates total employment at 100,000 but this seems too high. République du Sénégal (2003).

Senegal offers a variety of attractions, from sport fishing and bird watching to village stays and art festivals. However, most of the holiday business is anchored on fairly low-cost beach tourism, in the context of an exotic but low-risk African setting. This worked well for a while. But global demand has gradually evolved to higher quality products, along with more emphasis on adventure, culture and other forms of tourism. And though the demand for low-cost beach tourism remains important, notably post-2008, Senegal has had trouble competing with other destinations on the basis of price. Its strong currency, tied to the Euro, has put it at a disadvantage relative to neighbouring Gambia. Cabo Verde, which also has a strong currency, has relied on all-inclusive packages in large-scale hotels owned by tour operators who ensure competitive air transport costs. Senegal has relied more on scheduled flights and, with limited airline competition, notably in its main French market, costs have been high. This problem has been aggravated by surcharges intended to finance a new airport that has taken eight years to build and was still not complete in 2016. The extra cost of reaching the Casamance by air is also cited as a major factor in the decline of this segment of the industry.

Pre-2000, Senegal drew from a wide variety of markets, but with a lack of destination promotion or investment in hotel assets, the non-French markets started to decline. Increasing competition in the French market led to price competition, reduced margins, and a further contraction of investment. Senegal lost its image as an 'exotic' destination and became a mass-market product.¹³ Meanwhile, the Saly-Portudal product suffered from beach erosion and a general lack of planning or regulation. The resort became crowded and poorly maintained, and tourists regularly complained of harassment by itinerant hawkers. Prime beach locations were sold for private residences, hotels were allowed to build infrastructures that aggravated the erosion, and nothing was done to protect the beach.

The previous President, Abdoulaye Wade, who held power 2000–12, made it clear that he did not believe that tourism benefited the country and therefore had no intention of providing significant support. This attitude prevailed in spite of the fact that the 2006 Accelerated Growth Strategy identified tourism as a priority sector. Senegal has paid a heavy price for this neglect.

The new government of Macky Sall has reversed this position. However, its actions have sent a mixed message. The ineffective tourism promotion agency was closed, but responsibility was transferred to the private sector, which was too weak to provide effective leadership. A complicated online biometric visa system was introduced for all visitors, and this had to be completed in advance of departure. Funding for control of beach erosion disappeared, and

¹³ World Bank (2015a).

a new strategy was developed with little input from private sector leaders. These problems were then compounded by the Ebola scare, which discouraged many tourists from going to any West African destination for the 2014–15 season.

Nonetheless, the Sall government appears to be slowly improving its approach. The tourism industry in the Casamance was given a ten-year exemption from all taxes. The reduced VAT rate of 10 per cent applying to hotels in the rest of the country was extended to tour operators. Minor reductions in some airport taxes have been made. Small sums have been allocated to begin the rehabilitation of Saly and a project has been launched to counteract beach erosion, with World Bank funding. New airlines have been encouraged to provide services to Senegal, notably in the key French market. Government resources are also being devoted to the infrastructure needs of a new beach resort. Most significantly, the President admitted that the new visa system was a mistake and it was rescinded.

In early 2016, there were several promising signs of recovery in the tourism industry. The Ebola scare had ended and bookings were increasing for the upcoming season. The few higher-end hotels were doing well, demonstrating that Senegal remained attractive if the product was well-managed. This was further confirmed by the decision of Club Med to buy and upgrade a beach hotel that had been closed for many years. The new airport was nearing completion, as was a new highway to link it to Saly.¹⁴ Together, this infrastructure should make the arrival and departure experience much easier when completed. Unfortunately, a new external shock appeared. Terrorist attacks in hotels in Burkina Faso and Mali, followed by an attack at a beach outside Abidjan in Côte d'Ivoire, have the industry worried once again.

3.1. *Where to from Here?*

There should be no doubt that demand will expand for the products that Senegal can offer. Rising incomes will enable more and more people to travel internationally, and traditional destinations such as the Canary Islands are becoming saturated.¹⁵ The instability in North Africa and the Middle East is, regrettably, likely to continue for some time. Cabo Verde has managed to surpass Senegal in tourist nights on the basis of two small islands with little more than sun and sand. Senegal offers a special opportunity to discover Africa with minimal risk, combining sun and sea with adventure, nature, and culture. It is sometimes described as 'Africa for beginners'. But past trends and attitudes must change in order to make this a reality.

¹⁴ The final date for completion of the airport remains uncertain but, in the interim, improvements have been made to the old airport.

¹⁵ Currently nine million tourists annually.

The renewed commitment to tourism by the current government is probably the single most important step required to move forward. However, the industry is a complicated one, which calls for a sophisticated understanding on the part of the authorities across various ministries and levels of government, a close and constructive partnership with the private sector, and well-thought-out priorities. Unfortunately, the tourism ministry is weak, its leadership changes frequently, the dialogue with the private sector is inadequate, and the current strategy lacks strategic vision and prioritization.

The top priority would seem to be saving Saly. This is the foundation of the leisure tourism industry and the one known by global tourism actors. At present it does not portray a positive image of Senegal. The beach needs to be rebuilt and protected, the hotels renovated and properly classified, the town cleaned up, and the harassment ended. The situation is so dire that some senior officials appear to turn their back on Saly and focus instead on the development of new resorts farther down the coast. This is also the impression given by the PES. Fortunately, a new World Bank-funded project is focusing on Saly, particularly the beach problem.¹⁶ It is also financing several integrated destination development plans, including one for the Saly-Portudal region. This is probably more useful than revisiting the national tourism strategy.

At the national level, a new tourism promotion strategy is needed to reposition Senegal internationally, emphasizing not just its weather and beaches, but also its stability, culture, and the variety of adventures that it can offer in an African setting. This should include a concerted campaign to reassure tourists of the safety of Cap Skirring in the Casamance.¹⁷ It should also reduce dependence on the French market. A new tourism promotion agency has been created, but its capacity needs to be built up and it should be managed in a true partnership with the private sector. It will need to be combined with an air transport strategy that increases competition and accesses new markets. Much better data must be collected to guide the development of the sector.¹⁸

New tourism resorts, as called for in the PES, are needed for the industry to expand. These should learn from the experience of Saly—emphasizing higher-quality hotels, protecting the beaches, working closely with the local community, and managing the growth in peripheral activities. The plan to make Pointe-Sarène an eco-friendly resort of high-end hotels is a good one, in keeping with evolving trends in the industry.

The new airport needs to be completed as soon as possible. This would enhance the experience of the tourists and improve the country's image

¹⁶ The World Bank Exports and Competitiveness project was due for approval in 2016.

¹⁷ Part of the problem is the classification of Casamance as high-risk by the French Foreign Ministry. This not only discourages tourists but raises the cost of insurance for the airlines.

¹⁸ The new World Bank project also has components to support tourism promotion, public-private dialogue and data collection.

generally. It would also help the new conference centre, which needs business to justify its large investment costs. Completing the nearby airport will improve the attractiveness of the conference centre, especially if it encourages the establishment of new hotels in the vicinity.¹⁹

Finally, but most difficult of all, the authorities need to do whatever they can to avoid a terrorist attack. Hotels have strengthened their security measures, as has the main shopping centre. In any event, this threat should not distract the authorities from a long-term commitment to expanding this sector. Tourists will eventually come back even if there is an incident, and tourism offers one of the best options for job creation and poverty reduction in many regions of the country.

4. Horticulture

Some of the attributes that underpin Senegal's tourism industry are also conducive to the development of horticulture exports. The warm, sunny weather during the European winter makes Senegal well-placed to provide off-season fruit and vegetables. Its proximity to Europe and its direct access to the ocean make it the closest potential tropical supplier (after Mauritania) with the option of lower cost maritime transport.²⁰ Its openness to foreign investors is a third critical advantage. The lack of rain could pose a problem; however, groundwater is adequate in areas close to Dakar and the Senegal River provides ample irrigation potential in the northern part of the country.

Exports remained modest up to 2003, with volumes in the range of 10,000 tonnes, and products dominated by green beans. Starting in 2004, exports to Europe grew rapidly, averaging increases of 20 per cent per year to reach 81,000 tonnes in 2014. Another 4,700 tonnes were exported within Africa, primarily to Côte d'Ivoire and Morocco. However, this impressive growth stopped in 2015 when exports declined, before making a partial recovery in 2016. The product range has diversified significantly. Melons, watermelons, and cherry tomatoes now surpass green beans by volume, while mangoes and sweet corn are now comparable to green beans. Exporters are experimenting with a wide range of other crops (e.g., sweet potatoes, green onions, radishes).

The sector is dominated by integrated multinational companies that handle production, processing and exporting, with distribution channels in Europe, selling either to wholesalers or directly to supermarkets. Production typically takes place on commercial farms to ensure the complete control over the

¹⁹ Currently conference participants have to travel from hotels in downtown Dakar some 30km away.

²⁰ So far, attempts to develop horticulture exports from Mauritania have not succeeded.

production process necessary to meet phytosanitary standards. Smallholders only remain significant in the case of mangoes and green beans.

Horticulture exports remain very small as a percentage of GDP, in the order of 0.5 per cent. But they are now comparable to groundnuts in terms of export value, exceeding the latter in years of poor rainfall. More importantly, their rapid growth stands in sharp contrast to the decline in groundnuts. Groundnuts still occupy far more people, but many of these will have to exit, given the low productivity and poor market prospects. Horticulture export farms offer an attractive alternative, as summarized in Box 1.

One of the keys to the early expansion of this sector was the arrival of Grands Domaines du Sénégal (GDS), an affiliate of Compagnie Fruitière, in 2003. The parent company was best known for exporting bananas and pineapples from Cameroon and Côte d'Ivoire, and had developed special high-speed ships to bring these goods to northern European markets. With excess capacity, they decided to develop a side-business in Senegal, which was on the route. The country was not suitable for their traditional products so they launched a completely different cherry tomato operation in the Senegal River valley. While they coped with many problems, they invited other exporters to use their ships, and at least one was given access to their

Box 1 THE IMPACT OF HORTICULTURE EXPORTS ON POVERTY AND WOMEN IN SENEGAL

In 2005 and 2006, independent researchers from Belgium analysed the impact on poverty of horticulture exports from Senegal. Their initial working assumptions were not positive, as reflected in the title of their subsequent paper, 'Globalization and Poverty in Senegal: A Worst Case Scenario?' First, they looked at employees working for the industry leader in northern Senegal. To their surprise, households with an employee at this company had lower poverty rates (35 per cent) compared to other households in the same village (46 per cent), even though the former households were larger and had less land on average, and should therefore have been poorer. The difference in extreme poverty was even more marked, 6 per cent vs 18 per cent. Their total income was twice as high, and even their income from farming was higher.

Similar results were found in their second study of employees in nine green bean exporting farms in Les Niayes, just north of Dakar. This result is due to the fact that most of the work on these export farms takes place during the dry off-season of October to May, when demand in the European market is strong. Since there is little to do in rural Senegal during this time, the opportunity cost of labour is very low. Employees are then free to return to their farms when the rains come back in July. The researchers also point out that much of the benefit is captured by women, who tend to dominate the workforce on export farms. They speculate that it is better for women to work as employees rather than on their own farms under contract with commercial farms, since such contracts are typically signed by the male head of the household, even though the women will do much of the work. By working as employees they are likely to have more control over the income earned. However, they were unable to test this hypothesis.

refrigerated containers at Farmgate. The sector was able to shift from air transport to maritime, significantly improving its competitiveness. Thus, the transport dilemma was resolved for more than half of all horticulture exports, along with the availability of other ships, and more recently the option of road transport.²¹ In contrast, transport problems have led to the demise of many exporters in the neighbouring Gambia. Maritime transport accounted for 77 per cent of total exports to Europe in the 2014–15 season, road transport 18 per cent, while air transport is marginal (5 per cent).

The second typical problem for such activities is access to land. Indeed, it was for this reason that GDS moved its initial operation from the Mauritanian side of the Senegal River. This had not proven to be a major constraint up to 2014, given the small land requirements and low population density, especially along the Senegal River valley. However, the arrangements were often unstable and occasionally precarious. Few exporters had land titles, and some simply made informal agreements with a village to use land in return for certain promises. The most common solution was to convince a village to transfer land to the government, which was then in a position to sign a long-term lease with the exporter. But this meant that the community lost control of the land and did not necessarily receive any direct benefits, other than the prospect of jobs. Exporters have generally maintained good relations with their communities, though a large biofuel project in the Senegal River valley did not do so well and this may have set off alarm bells. Also new foreign investors are looking for more secure arrangements. Access to land appears to be the main factor explaining the lack of growth observed since 2014.²²

The government has been working with the World Bank to find a solution to this problem without waiting for full-fledged land reform, and they think they have an answer. Rural land is generally classified as *Domaine Nationale* and controlled by rural communities through their rural council. This land can be converted to *Domaine Privé de l'Etat* (private land of the State) and then leased to private operators. The new proposal involves returning such land to the community, and then allowing the community to sign a sub-lease with an investor. Part of the annual lease payment will go to the community and part to the government. A World Bank project will provide technical assistance to the communities to assist them in negotiations with investors. This arrangement has the advantage of not requiring a change in the law, although it did necessitate some new implementation decrees. It has taken longer than

²¹ Recently, some exporters have found that the higher cost of trucking through Mauritania and Morocco can be offset by the greater flexibility, since trucks can depart at any time, while goods may have to wait up to five days for the next ship. This improves the product's shelf-life for clients.

²² In addition, the biggest fruit exporter cut back on production for fear that the Ebola scare would hurt demand.

Box 2 VAT REIMBURSEMENT: THE ACHILLES' HEEL OF THE VAT SYSTEM²³

In 1997 the Senegal government created a special status for enterprises exporting at least 80 per cent of their output, called the *Entreprise Franche d'Exportation* or EFE. Among other things, this allowed companies to import inputs without paying the 18 per cent value added tax. This was judged to be appropriate since these companies would not be receiving VAT payments on their exports and would therefore be eligible for reimbursement by the government, but the reimbursement process typically led to long delays, which could seriously impact cash flow and profitability.

Over the years, many enterprises obtained this status without meeting the minimum export criteria or even exporting at all. In 2012, the government proposed to end the special regime as part of an overall exercise to reduce tax exemptions. However, legitimate exporters in the horticulture and fishing sectors were concerned that this would threaten their viability and pointed out that some of them had invested on the basis of the twenty-year commitment made by the government in 1997. After appealing directly to the President, their status was preserved. The exporters then offered to work with the authorities to weed out ineligible beneficiaries, explaining to the authorities exactly what documentation should be requested from all EFE status holders and why. In the end, the number of EFE companies was reduced from 439 to 77.

However, continued concern over tax exemptions in 2015 led to a tightening of the rules for existing EFE companies and a decision to stop offering EFE status to new investors. Given that the process of VAT reimbursement is still not working well, it would seem advisable to concentrate on removing cheaters while continuing to facilitate legitimate exporters.

hoped, as the government moved cautiously to avoid a backlash, but it was ready for a test in 2016.²⁴

A third problem was related to taxes, specifically value added tax. This came to a head in 2012 in the context of a general tax reform and was only resolved by intervention from the President. The problem re-emerged in 2016 and may yet discourage some new investors, who are not being offered the same advantages as existing exporters (see Box 2).

4.1. *Where to from Here?*

Exporters describe Senegal as virgin territory for horticulture exports. Even though there are more than twenty exporters, most are small and Senegal's share of the European market is tiny. Horticulture has been the fastest growing category of global agricultural trade, along with fish products, and expectations are that it will continue to expand. Senegal enjoys ideal conditions

²³ This expression comes from IMF (2005).

²⁴ The World Bank supported three rounds of consultations with all villages in the project area, in collaboration with local NGOs. While the communities were all supportive, some NGOs continued to express concerns over potential land-grabbing. The project, called Senegal: Sustainable and Inclusive Agribusiness, was approved in 2013.

for fruit and vegetables, and could also re-enter the floriculture market.²⁵ Horticulture is one of the top sectors of interest to new foreign investors.

The current government clearly understands the importance of this sector, and it figures prominently in the PES.²⁶ Now it needs to strengthen its role as facilitator without frustrating the dynamism of the private sector. First and foremost is the land issue. As in most other countries, access to land is a highly sensitive topic, and it has become especially controversial in recent years due to unfortunate examples of 'land-grabbing' in other African countries. The authorities must find a way to provide investors with secure access to land while protecting the legitimate interests of the local population. This process appears to be well underway.

Water is the next critical input. It should not be a major constraint in the Senegal River valley, except around the *Lac de Guiers*. This lake, fed by the Senegal River, is the only lake of any size in Senegal. It provides two-thirds of the drinking water to Dakar, and also supports the only sugar plantation in the country. Horticulture exporters are now locating around the lake. At some point, the authorities may have to choose between the expansion plans of the sugar company and the development of horticulture.²⁷

The authorities would also be well-advised to resolve the VAT reimbursement issue as rapidly as possible, either by continuing to offer EFE status to new investors, or by finally implementing an efficient reimbursement mechanism. Port facilities could be further improved, perhaps with the establishment of a special terminal for fruit and vegetables. The proposed bridge over the Senegal River at Rosso would facilitate the alternative of road transport. Finally, the dialogue with key private sector operators, foreign and domestic, needs strengthening in order to identify and resolve critical problems before they become serious.

5. Information and Communication Technology (ICT)

The communications sector has been the fastest growing part of the economy, averaging over 10 per cent per year, thus its share of GDP has increased from 3.5 per cent in 1995 to 6.7 per cent in 2013. This is close to the total contribution of crop agriculture (8 per cent on average, less in years of drought). And this probably does not include some activities typically associated with ICT, such as software development. Most of this growth has been driven by services

²⁵ Kenyan exporters have recently visited Senegal to explore the options.

²⁶ The Minister of Agriculture has made it clear that he would prefer to focus on horticulture rather than groundnuts, but the latter's problems cannot be ignored.

²⁷ The sugar company is the largest single employer in the region, but it depends on high protection.

for the domestic market, notably through the rapid expansion of mobile phones. But exports have also been important.

Senegal was one of the earliest entrants into outsourcing in SSA. This reflected its reputation for economic and political stability, a well-educated workforce, investments in telecommunications infrastructure, as well as the usual cost advantages. Call centres were the main focus, and companies were able to attract better qualified employees than in France, at one-tenth of the cost.²⁸ By 2000, thirty-five companies exporting IT-enabled services were operational. While call centres have constituted the dominant source of ICT exports, Senegalese companies are involved in a full range of other exports, including data processing, the design and maintenance of applications and websites, systems integration, and software development. Much of this trade is focused on West Africa, especially the higher value-added services.

There are numerous success stories that underline the potential for further growth. The largest call centre company, Premium Contact Center International (PCCI), now has branches in seven other African countries, two offices in Europe, and headquarters in Dubai (see Box 3). On a smaller scale, Samres AB has trained Senegalese to speak enough Swedish to arrange transport services for the disabled in Sweden. Pictoon developed the first African animated TV series, which was sold to several African TV companies.²⁹ A private-public partnership between the customs agency and ICT companies led to the development of ORBUS, a single window for trade facilitation, which has now been adopted in Burkina Faso, Togo, and Kenya. Chaka Computers has developed a money transfer system that is competing with Western Union. And in 2016, the French company, Atos, established a large operation in Senegal, initially to develop a new financial information management system for the finance ministry, but with the intention of exporting this expertise to other African countries.

Senegal is among the top fifty potential suppliers of outsourcing services according to the AT Kearney Global Services Location Index; see Table 13.2. However, it lies near the bottom in 45th place, and its ranking has fallen significantly in the last five years from 29th. Its financial attractiveness is not far behind the industry leaders, India and the Philippines, comparable to other African competitors, and it is well ahead of China and Malaysia, but Senegal has lost ground. The greatest weakness appears to be in the quality and quantity of human resources, and here too its attractiveness has declined. On the third criterion, the business environment, Senegal is not much behind India, and is making slow progress. Overall, Senegal has slipped behind Morocco and Mauritius, two of its main francophone rivals.

²⁸ ILEAP (2014).

²⁹ This company has since closed, but several of its artists have gone on to set up their own companies and a program has been created to train animation specialists from across Africa.

Box 3 PCCI: FIRST CALL CENTRE OF AFRICA AND MORE

PCCI was founded in 2001 by three Senegalese entrepreneurs. Its first call centre was created in Dakar in 2002. Since then it has grown steadily, both in geographic scope and range of services. It now has operations in Cameroun, Côte d'Ivoire, Congo (Brazzaville), Guinea, Guinea-Bissau, Mauritania, and Nigeria, as well as Senegal, and a sales office in France. In 2015, its head office was moved from London to Dubai. PCCI employs 3,000 people, including 1,400 in Senegal.

Call centres are still the core activity, including customer services for the thirty million clients of the MTN cell phone company in five African countries. However, PCCI provides a large number of other back-office services, including electronic document management portals, web portals, content management systems, email processing, and tele-surveys. Turnover is split between Europe (40 per cent) and Africa (60 per cent).

In its earlier days, the company faced many challenges associated with meeting international market requirements, especially pricing and service quality. Costs were high and there was also a severe skills shortage and no local institutions specialized in training tele-marketers. Labour turnover was high due to stiff competition for skilled workers. Today, the entry of the large French company, Atos, into Senegal is increasing the competition for IT engineers, which may make it more difficult for PCCI to expand its higher value-added services. Also the expansion of its domestic sales and the tightening of procedures may jeopardize its status as an *Entreprise Franche d'Exportation*, which allows it to import inputs duty- and VAT-free. For the moment, the authorities have made an exception for PCCI, even though their share of exports in total sales has fallen below the 80 per cent threshold normally required.

Source: ITC (2013); www.pcci-group.com; Groupe PCCI annonce l'ouverture de cinq nouveaux centres de contact, www.ict4africa.net.

Table 13.2. Outsourcing alternatives: industry leaders and African competitors, 2016

	Financial attractiveness	People skills and availability	Business environment	Overall score	Rank
India	3.22	2.55	1.19	6.96	1
China	2.28	2.71	1.51	6.49	2
Malaysia	2.75	1.42	1.89	6.05	3
Philippines	3.17	1.43	1.29	5.88	7
Ghana	3.27	0.85	1.07	5.19	29
Mauritius	2.55	0.94	1.65	5.17	30
Morocco	2.80	0.93	1.34	5.07	34
Tunisia	3.04	0.82	1.18	5.05	38
Kenya	3.06	0.86	1.11	5.03	39
Senegal					
2016	3.06	0.70	1.13	4.89	45
2011	3.23	0.78	1.11	5.12	29

Source: AT Kearney, Global Services Location Index (2011, 2016 editions).

Senegal's ranking is even lower when the focus is on telecommunications infrastructure and human resources, as measured by the International Telecommunications Union ICT Development Index. Senegal was ranked 132nd in 2015, up slightly from 137th in 2010, and only 12th in SSA. Clearly it has lost its leading role within the region.

By 2007, only ten call centres and a handful of other IT-enabled service exporters remained. There has been little progress since then. A Technopole was established in Dakar to attract more companies but it failed to take off. In 2016, there were only nine call centres and they were finding it increasingly difficult to compete outside Senegal. Pressure on French companies to restrict foreign outsourcing appears to be part of the problem. Just three call centres accounted for 70 per cent of the market. Software development appears to be doing better, as solutions developed for Senegal are well-suited to other African contexts. The arrival of Atos is promising, although the competition for local IT engineers worries existing companies.³⁰

The situation with regard to human resources is a mixed picture. Whereas the shortage of IT engineers is becoming a serious problem, call centres are able to hire university graduates from other disciplines, in contrast with France where they typically rely on high-school graduates. Call centres complain of high turnover and the need to train employees in-house, given the absence of such training in independent schools, but this is a common problem for call centres anywhere. The lack of English speakers is another constraint, although learning English is mandatory in high school and an increasing number of post-secondary programmes emphasize English, while some business schools teach exclusively in English. At the same time, Senegalese are moving to Morocco to work in call centres where they are better paid. This suggests that other constraints that increase costs are the bigger problem.

The quality and cost of telecommunications infrastructure is also a mixed picture. Senegal had its first submarine fibre optic cable connection in 2000 and now has three. The internet bandwidth increased to 18.7 Gbit/second in 2013, making Senegal the largest internet portal in West Africa. However, the price is high compared to competitors in other regions. The monthly cost of fixed high-speed internet access was €38 in 2012, compared to €12 in Morocco and €7 in Tunisia.

The contrast between quality and cost reflects a wider characteristic of the telecommunications sector in Senegal. The principal investor in these fibre optic cables has been Sonatel, the former parastatal privatized in 1997. With the threat of increased competition, Sonatel reduced prices significantly in

³⁰ Atos is a French leader in digital services with 93,000 employees in 72 countries. It was reported to be hiring the entire graduating class of IT engineers at the University of Dakar, as well as staff from other companies.

the early 2000s. But subsequently, it has been able to maintain a monopoly on external connectivity, and the number of internet service providers has fallen from nine in 2009 to two in 2012.³¹ The quality of basic telephone and internet services is reasonably good. But the speed of internet access, at 4.52 Mbps is below the average for SSA (5.11) and much slower than Rwanda (9.5) or Kenya (7.3).³² The cost has failed to keep up with global trends, and other services, such as number portability and access to short numbers, are poor. Start-ups have been discouraged and Sonatel has been accused of taking over the most promising new ideas.³³

Sonatel has grown to become the largest Senegalese company quoted on the regional stock exchange, expanding into Mali, Guinea, and Guinea-Bissau. It is the largest taxpayer in Senegal, and since the state still owns 27 per cent of its shares, Sonatel is also a major source of dividends. Some of its staff go on to work for the regulatory agency, ARTP (*Autorité de Régulation des Télécommunications et la Poste*) which observers accuse of failing to promote greater competition.³⁴ A new Telecommunications law was approved in 2011 but it did little to promote new internet service providers and the necessary implementation decrees to render it effective had still not been approved in early 2016. However, the political will for reform appears to have strengthened since then. The law has been amended to simplify the process of establishing an ISP, including the right of a provider to develop its own infrastructure.

5.1. *Where to from Here?*

In 2014, a meeting of all the stakeholders in the telecommunications sector was organized by the responsible Minister as part of the process of defining a new strategy. One of the participants spelled out the key question clearly:

Do you want to maintain the current situation where a few companies dominate the sector, the state receives large tax revenues, and employment increases slowly, or do you want to create a more competitive market where tax revenues fall in the short term, but 50 small start-ups are created in the next few years?

The Minister immediately spoke up in favour of the second option and a general consensus seemed to emerge. Unfortunately, the Minister soon resigned and the strategy process stalled.

³¹ Sonatel had 99 per cent of the market for fixed high-speed internet access in 2012. A third company subsequently obtained access to a new submarine fibre optic cable but this is in partnership with Sonatel, who remain in control. Google (2013).

³² Ookla net index for 2014 as reported in World Bank (2015b).

³³ Several of the internet service providers who closed attributed their failure to unfair competition by Sonatel. Google (2013: 21).

³⁴ Google (2013: 30).

In 2016, the strategy was adopted and the government stated that three new internet service providers would be allowed to enter the market. But at the same time, Sonatel's licence was up for renewal and the government was eager to raise additional revenues to finance its PES strategy. If the government wants to develop ICT exports, it will need to change its pro-Sonatel policy of the last ten years and move quickly to keep up with competitors like Ghana and Kenya, who have adopted concerted strategies to promote ICT.

The PES acknowledges the need to improve the regulatory framework to guarantee fair competition and market entry for new players. This would be an essential first step. It also proposes the establishment of an ICT Board to strengthen the dialogue between the private and the public sectors. Both of these reforms are being supported through a series of World Bank budget support operations over the period 2017–2019. Finally, the PES suggests the creation of a specialized business park to attract firms engaged in business process outsourcing. A project is being developed with the AfDB to be located in the new city of Diamniadio on the outskirts of Dakar.³⁵ It would be a good idea to hire a private company to manage the park, and to focus on the quality of services and infrastructure, notably a reliable energy supply, rather than on fiscal advantages.

6. Conclusions

Senegal is first and foremost a services economy, and is likely to remain so. Second, it is an agricultural society, though the economic role of agriculture is small given the low productivity levels and limited alternatives. Manufacturing is struggling and its most successful components derive from natural resources (phosphates, and limestone for cement). Labour-intensive manufactured exports are virtually non-existent. A new experiment with Chinese participation may start to turn this around, but such trade is likely to remain small. Senegal appears destined to become a major hydrocarbons exporter, though this may take many years and will never employ more than a small share of the growing labour force. It will likely undermine the country's competitiveness in labour-intensive exports.

Consequently, Senegal would be well-advised to build on its established experience in services such as tourism and IT-enabled exports, and to re-orient its agriculture to high value-added products like horticulture exports. These sectors could make an important contribution to the pressing challenge of job creation. Tourism and horticulture have significant potential to absorb

³⁵ The proposed project is called the Parc de Technologies Numériques.

low-skilled labour, notably outside of Dakar where the opportunities are otherwise very limited. At the same time, they generate demand for some skilled labour and provide openings for local entrepreneurs. IT-enabled exports are more demanding and urban-based but offer an outlet for the growing number of graduates from higher education.

The PES clearly recognizes the need for a diversified export strategy with a strong focus on services. However, there remains a lack of solid sector-specific strategies. The new tourism strategy is weak; attention should probably be devoted to regional plans, starting with Saly-Portudal and Casamance. The IT strategy has only just been finalized, and horticulture could benefit from a strategy; however Senegal has a long history of strategies with weak implementation. This will need to change.

When strategies are implemented, the Senegalese government tends to put itself in the driver's seat, expecting the private sector to follow. The relationship with the private sector is often unbalanced, with a tendency to privilege certain insiders while treating others with suspicion and occasionally harassment. The government needs to find a way to listen to and support serious players while sanctioning those who opt for rent-seeking. This need not require significant investments or fiscal incentives. Much can be done by reducing delays in VAT refunds, streamlining tax payments, reducing fiscal controls on low-risk taxpayers, avoiding mistakes like the new visa system, allowing greater flexibility in the use of short-term employment contracts, facilitating access to land, promoting Senegal as a tourist destination, and liberalizing the telecommunications sector.

Senegal will need to go beyond general improvements in the business climate, although this is important. Its high-level economic staff will need to develop a better understanding of the specific characteristics and constraints of the key sectors, and develop partnerships with private stakeholders to ensure that problems are addressed quickly and effectively. Regular sectoral meetings with the main exporters are needed to share concerns, agree on appropriate measures, and to promote accountability. And this will also require a new approach to collecting data, so that authorities know, for example, how much foreign leisure tourists actually spend in Senegal, what the value of horticulture exports really is, and how many people are employed in IT-enabled services.

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14

Understanding and Characterizing the Services Sector in South Africa

An Overview

Haroon Borhat, Christopher Rooney, and François Steenkamp

1. Introduction

The rapid transformation of many of the East Asian economies, including China, has been driven by a process of secondary industry growth, within which the core lever has been the expansion in globally competitive manufacturing exports.¹ Consequently, manufacturing is often seen as the key route to increasing national per capita income levels. However, recent evidence suggests that global demand for manufactured goods is declining, and economic conditions are less conducive to building a development path based on fast-growing manufacturing exports (Rodrik 2014). Thus, there is a distinct possibility—if these global demand trends in manufacturing continue—that manufacturing and manufacturing exports in particular, may play a less central role in shaping the economic growth trajectories of developing countries in the future. In this vein then, as the scope for manufacturing-led growth possibly wanes, closer examination should be given to the services sector as an engine of growth.

The South Asian experience is instructive here, and provides evidence that services can drive development. Indeed, the services sector has been a significant contributor to economic growth in South Asian economies such as India, Pakistan, the Maldives, Nepal and Sri Lanka. Approximately 60 per cent of

¹ The authors wish to acknowledge the contributions of Nomsa Kachingwe and Adrienne Lees, contributing authors on an earlier working paper on which this chapter is based.

overall growth for the period 2000 to 2010 can be attributed to services in these countries (Noland, Park and Estrada 2012). There is evidence showing that this South Asian services-driven growth can be linked to rising labour productivity (Bosworth and Maertens 2009), job and wage growth (Ghani 2009), and poverty reduction (Ghani 2009) across the region. Ghani (2009) argues that, in addition to global technological advancements, the emergence of South Asia, and India in particular, as a leading services exporter, has been ascribed to a combination of effective market integration, the availability of skilled labour, and supportive institutions and infrastructure. A key question is whether a similar services-driven growth path can emerge in the South African context, particularly in the face of a declining manufacturing sector.

This chapter examines the potential of the services sector in South Africa to act as an engine of growth. We examine the growth potential of the services sector by considering, firstly, its export potential, and secondly, its employment potential. The former is concerned with the ability to generate growth-inducing economies of scale, thereby increasing foreign exchange earnings. The latter is concerned with the ability of the sector to generate jobs for a young and growing labour force in South Africa. It is important to note that the services economy is heterogeneous, and thus we place emphasis on the sub-sectors or industries that comprise the overall services economy.

The chapter is divided into four sections, including an introduction and conclusion. Section 2 examines the scale and composition of the services economy in South Africa. This section considers the GDP and employment contribution of the services economy and its respective sub-sectors. It reflects on the extent to which the services economy has driven structural transformation over the post-2000 period. Finally, this section provides a segmentation of the services economy according to the growth potential of the various sub-sectors. The third section considers the export potential of the services economy in more detail. This section starts by considering cross-border trade in services, specifically on the export side. This is followed by a discussion on foreign direct investment (FDI), and thus the commercial presence of South African firms in regional and international markets. Finally, focus is placed on the tourism industry in South Africa as a source of service-driven export growth with strong employment potential.

2. The Services Economy in South Africa

The South African economy is a *de facto* services-based economy. The sector accounted for 62 per cent of GDP in 2000, and its share of the economy has expanded to 69 per cent in 2014. In contrast, the key industrial sectors of mining and manufacturing have both experienced steady declines in their

share of GDP over the period. The former's share of the economy declined from 13 per cent of GDP in 2000 to 8 per cent in 2014, while the latter declined from 16 to 14 per cent over the same period. Agriculture's contribution to GDP has remained low and stable, hovering at around 3 per cent.

The services sector is comprised of a variety of heterogeneous sub-sectors or industries, which manifest in varying contributions to the broader economy. Ghani and Kharas (2009) delineate between modern and traditional services industries, arguing that the former is more dynamic, tradable, and thus able to act as an engine for growth. In the South African context, two traditional service industries, namely government services, and wholesale and retail trade, are the largest services sub-sectors, accounting for 17 and 15 per cent of GDP in 2014, respectively. The relative contribution of these traditional services industries has remained stagnant over the period 2000 to 2014. However, modern service industries have become increasingly important in the South African economy. The business, finance, and communications services industries have increased their combined share of GDP from 19 per cent of GDP in 2000, to 24 per cent in 2014—with this growth being most rapid in the financial services industry.

Ultimately then, the steady decline in the share of GDP accounted for by manufacturing, mining, and agriculture, together with the steady rise in the share of the services sector, re-asserts the notion that the South African economy is not only services-based, but that this structural feature of the economy has intensified over the last 15 years.

The services sector's substantial contribution to GDP is matched by its contribution to employment. The tertiary sector accounted for 65 per cent of total employment in 2000. This rose to 74 per cent in 2014. The sector as a whole was in turn responsible for 119 per cent of employment growth over the period, thus counteracting employment losses in manufacturing and agriculture. The services sector has accounted for almost all of South Africa's employment growth since 2000. Hence, while the primary sector experienced a decline in total employment, and secondary sector employment grew by 126,734 jobs, employment in the tertiary sector rose by over 3 million jobs.

The performance of the services sub-sectors provides further insight into the sector's contribution to employment growth. Traditional services industries, namely, wholesale and retail trade, government services, and other CSP services (as well as modern business services), are the largest sources of employment in 2014. Business services displayed the strongest growth relative to other service sub-sectors in the economy, followed by transport and storage, and government services.

However, recognition of the strong employment growth in the business services sector needs to be tempered by the fact that a large share of employment in this sector is through the use by employers of temporary employment

services (TES) firms.² TES employment refers to the practice of third-party companies providing workers to perform occupations such as cleaning, accounting or security services, to formal sector firms (Bhorat, Cassim and Yu 2016). Bhorat et al. (2016) find that TES employment as a percentage of business services employment has risen dramatically in the post-apartheid period. They estimate that approximately 61 per cent of business services employees were in TES employment in 2014.

The sizeable expansion of the wholesale and retail trade industry needs to be considered in relation to the high levels of informality associated with the industry (Cassim et al. 2016). The forced segregation policies of apartheid resulted in the development of large informal settlements, where vibrant retail markets developed. Estimates suggest that in 2003, informal retail outlets in townships accounted for 10 per cent of total retail trade in South Africa (Ligthelm 2008). Estimates derived from the Labour Market Dynamics Survey from Statistics South Africa (2014), show that approximately 41 per cent of employment in wholesale and retail trade services is informal sector employment.

In contrast to the services sector as a whole, manufacturing and agriculture account for a relatively small and declining share of employment. Over the 14-year period, close to a quarter of a million manufacturing jobs were shed. Agriculture experienced the largest decline in employment, with losses of over 700,000 jobs. Small gains in employment were experienced in mining, utilities, and construction.

The above, then, ultimately suggests that the historical importance of the primary sectors (namely agriculture and mining) has significantly waned in the post-apartheid South African economy. In addition, the poor output and employment performance of the manufacturing sector is manifest in the steady decline, bordering on de-industrialization, of the domestic economy. The upshot of the latter two trends has been a rapid growth in the job generating capacity of the services economy. This services employment growth in turn can be understood within the context of several underlying trends. Firstly, in the pursuit of regulatory avoidance, formal firms have increased the use of temporary employment services—thus increasing the share of workers categorized as ‘business service’ employees. Secondly, South Africa’s consumption-driven economic growth model has resulted in a rapid rise in the growth of retail employment. Thirdly, the poor employment generating capacity of the formal sector as a whole has witnessed a rapid rise in the

² TES is classified as ‘Business Activities Not Elsewhere Classified’ in the survey data. We also observe that most of the workers tend to also be employed in services-type occupations (see Bhorat et al. 2016). Hence, these are not predominantly TES workers in the manufacturing sector, for example. We are thus confident that the services employment category for TES captures workers who are largely in services-based occupations (e.g. contract cleaning, security services).

number of individuals working in various informal services sectors, especially in wholesale and retail trade. Finally, in constituting close to a quarter of all new jobs generated in South Africa since 2000, the public sector has become possibly the key generator of jobs in the economy—ensuring that much of the country’s first-order services employment is shaped by national and provincial government practices.

2.1. Structural Transformation and the Services Sector

Structural transformation involves the shift of resources from low-productivity activities towards high-productivity activities. Using a method of analysis in line with that applied by McMillan et al. (2014), we examine the extent to which services has played a role in structural transformation in South Africa over the period 2000–14. Figure 14.1 shows the correlation between the natural log of relative labour productivity and the change in total

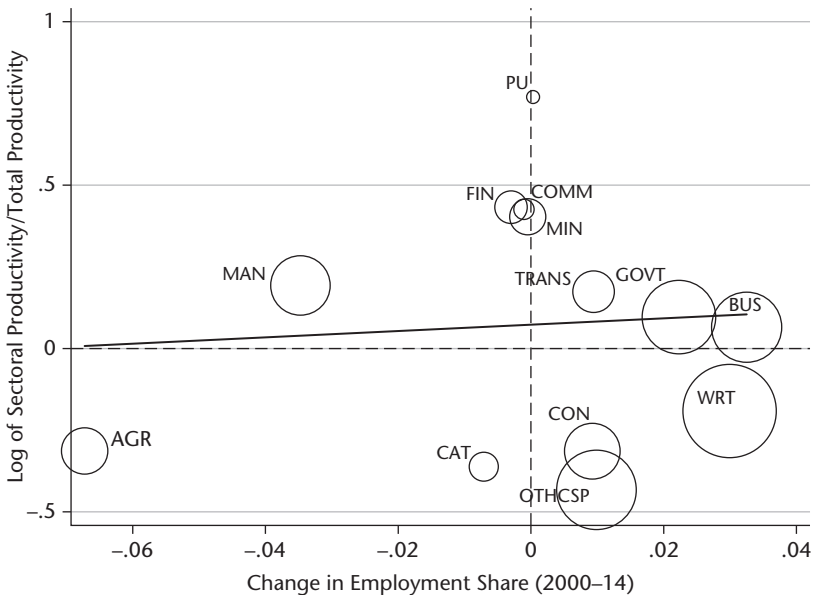


Figure 14.1. Correlation between sectoral productivity and change in employment shares in South Africa, 2000–14

Notes: 1. Size of circles represents employment shares in 2014. 2. Coefficient of fitted is 0.97 (t-stat 0.23, p-value 0.82). 3. AGR = agriculture; MIN = mining; MAN = manufacturing; PU = utilities; CON = construction; CAT = catering and accommodation; WRT = wholesale and retail trade; TRANS = transport and storage; COMM = communication; FIN = finance and insurance; BUS = business services; OTHCSP = other community, social and personal services; GOV = government services. 4. Total productivity is defined as GDP divided by total employment (formal plus informal). Sectoral productivity is defined as sectoral contribution to GDP divided by sectoral employment.

Source: Authors’ calculations based on Quantec (2016).

employment by industry. The market size for each industry represents the industry's share of total employment in 2014. The linear regression line indicates whether structural transformation has been growth inducing (positively sloped) or not (negatively sloped). Given that structural transformation is the shift of resources from low-productivity activities towards high-productivity activities, one would ideally want to see declining employment shares in low-productivity industries (bottom left quadrant) and rising employment shares in high-productivity industries (top right quadrant).

The positively sloped linear regression line points to, albeit weak, growth-inducing structural transformation. There is a shift in employment away from relatively low-productivity industries, such as agriculture, and catering and accommodation, towards relatively higher-productivity activities in business services, transportation services, and government services. The slope of the regression line is slightly positive and the estimated coefficient of the slope is not statistically significant, thus pointing to, at very best, a marginal growth-inducing structural transformation.

Based on Figure 14.1, one could argue that the structural transformation that has taken place has been services-led rather than manufacturing-led. Structural transformation following the East Asian model would depict manufacturing in the top right quadrant (i.e. growing employment in a high-productivity industry). In South Africa's case, manufacturing appears in the top left quadrant, suggesting a shift of resources (labour) away from this high-productivity industry. One does observe that there has been a decline in the employment share in low-productivity industries, such as agriculture, and catering and accommodation services (bottom left quadrant). Concurrently, there has been a shift of resources toward relatively high-productivity industries in the services sector—in particular, transportation services, business services, and government services. This does point to services-led structural transformation over the period 2000–14. However, it is worth noting that there is no shift of resources toward the modern high-productivity communication and financial services industries.

We also see a shift of labour resources towards the relatively low-productivity wholesale and retail industry, which now comprises a substantial share of employment in South Africa. As mentioned above, the concern with this growth in wholesale and retail trade, as expressed by McMillan et al. (2014) regarding structural transformation in Africa and Latin America, is that a large share of it may be in low-productivity informal sector activities.

As in McMillan et al. (2014), we decomposed South Africa's productivity growth. Productivity growth can be realized along two dimensions: Firstly, growth can occur within economic sectors through capital accumulation or technological change. Secondly, growth can occur as labour moves across sectors from low-productivity activities to high-productivity activities.

The decomposition of South Africa's productivity growth over the period 2000–14 indicates that productivity growth within sectors grew by 1.7 per cent per annum, while productivity growth across sectors grew by 0.06 per cent per annum. Therefore, 97 per cent of the growth of productivity in South Africa took place within sectors. This suggests that there is a shift of resources within industries toward high-productivity firms.

There are also some cautionary tales regarding this services-led structural transformation. Firstly, it is evident that government services is a large and growing employer in South Africa. The economic sustainability of an expanding public sector is cause for concern. It is highly questionable of course, whether sustained long-term economic growth and development can be achieved via a growing public sector. Secondly, and as discussed in more detail in the previous section, the positive aspects of growth in the relatively high-productivity business services industry needs to be tempered by the fact that a large share of employment in this sector is through the use of TES providers. Therefore, one does need to exercise caution about the notion that growth in the South African economy is being driven by a high-productivity services sector, that will be a significant long-run job generator for the economy.

2.2. Segmentation of the Services Sector

To gain further insight into the services sector, we seek to understand the skills profile of these industries. This allows one to identify which sub-sectors can be identified as future growth drivers and sources of employment. It is also important to consider the skills profile of these various sub-sectors in relation to the endowment structure of the South African economy. For instance, the extent to which services industries are skill-intensive, may be a constraint on growth given the abundance of unskilled and semi-skilled labour in the South African labour market.

An analysis of the proportions of unskilled, semi-skilled and highly-skilled workers in each services sub-sector provides a clear delineation of the services economy. Unskilled workers are disproportionately located in traditional services industries, such as CSP services (20 per cent), catering and accommodation (18 per cent), transport and storage (17 per cent) and wholesale and retail trade (17 per cent). Conversely, the share of unskilled workers in modern services industries, such as business (5 per cent) and financial (6 per cent) services is relatively low. Semi-skilled workers are also well represented in traditional services industries, such as catering and accommodation (71 per cent), transport and storage (70 per cent), wholesale and retail trade (67 per cent), and government services (61 per cent). Modern services industries tend to be much more skill-intensive than traditional services industries. Highly-skilled workers are particularly prevalent in the business services (61 per cent),

finance (55 per cent), and communications (42 per cent). The lowest proportion of highly-skilled workers are in catering and accommodation (11 per cent), and transport and storage (13 per cent).

Along with occupational differentiation and scarcity in skills, earnings are accordingly differentiated. We detail in Borhat et al. (2016), the importance of individual occupations in predicting average earnings in the labour market.

Bhorat et al. (2016) find that the earnings estimates across the various services sub-sectors suggest an interesting segmentation of the services sector of the South African economy. Firstly, individuals located in modern skill-intensive services industries, namely business, finance, and communication services, experience wage premiums. Secondly, a wage premium is also evident in government services, which Borhat et al. (2015) argue is a result of strong public-sector unions that regularly secure above inflation wage increases for their members. Thirdly, there is evidence of negative earnings premia in services industries characterized by relatively lower skill requirements. These include the wholesale and retail trade industry (restricted to formal sector employees), the TES component of business services, and services workers in the informal sector. The lower skills requirements associated with these industries allow for easier entry into employment, but they are associated with lower levels of productivity and lower returns.

The preceding analysis concerning the segmentation of the services sector provides an analytical lens through which we can understand and characterize this sector in South Africa. Firstly, the high-wage premium sectors of modern business, finance, and communication services, serve as the potential platform for a growth and development strategy. However, for these modern service industries to continue to grow, the proportion of skilled labour must also grow. However, South Africa faces a skills shortage (Rasool and Botha 2011), which suggests growth in these industries may be constrained in the future. Secondly, while the public sector is skills-intensive, the wage premium offered to these workers suggests the formation of a new labour elite (Bhorat et al. 2015), which is both fiscally unsustainable, and not an optimal route to long-run economic growth. Thirdly, the informal sector—although small in South Africa in comparison to other developing countries (Kingdon and Knight 2004)—can act as a potential avenue for immediate job creation. Between 2000 and 2014, the informal non-agriculture sector grew from 1.8 million jobs to 2.4 million jobs—an increase of 600000 jobs over fourteen years.³ The low barriers to entry for this sector—specifically, the low level of skills required—are particularly suited to a labour market such as South Africa, where there is a persistent skills shortage amidst an excess supply of

³ An individual is regarded as part of the informal sector if he or she is working for a business that is not registered for tax purposes.

labour. Finally, as perhaps the source for a large numbers of jobs within the cohort of semi-skilled workers, the formal retail and communication services sectors—under specific conditions such as suitable export opportunities and competitive wages—do serve as a key opportunity for positive growth and employment opportunities for the South African economy.

Ideally then, the burden of job creation would fall on the relatively highly-skilled and high-productivity segment of the services sector. In the South African context, this can be broadly located within the financial and business services sectors together with communications, and the formal component of the retail services sector. However, South Africa's current labour endowment is a constraint on the ability of these sectors to act as drivers of employment growth. This leads us to consider TES and the informal sectors that, despite being low-productivity sectors, may be a potential medium-run conduit for immediate forms of economic activity and income generation.

3. Export Potential of Service Industries

In order to generate sustained long-term economic growth, it is important that service industries exhibit export potential. This is crucial in the South African case, where the combination of relatively low global commodity prices and weak manufacturing sector export growth have lowered foreign exchange earnings. Services have traditionally been considered inputs into the production and trade of goods, or as outputs produced mainly for domestic consumption. Over the last two decades, however, globalization, coupled with advances in technology, have facilitated a rapid rise in the trade of services—driven largely by trade in *modern services*, such as business, finance, and communication services, as opposed to *traditional services* such as transport and travel (tourism) services (Mishra, Lundström, and Anand 2011). Services exports have thus become increasingly important not only as a source of export diversification and global competitiveness (Saez et al. 2014), but also as a key driver of economic growth (Mishra et al. 2011).

Given the large and growing role of domestic services in the South African economy, South Africa appears relatively well positioned to reap the growth benefits from the export of services. This section presents a discussion on the export potential evident across the services sector.

3.1. *The Export of Services*

In this section, we firstly examine broad trends in services exports using data from the South African Reserve Bank and the World Bank World Development Indicators. Both data sets report aggregate measures of services exports for the

period 1960–2014, where services exports for Modes 1, 2 and 4 are covered. Secondly, we examine the composition of services exports. This is aided by using the World Bank Trade in Services Database (TSD) that covers Modes 1 and 2 for the period 2005–10.

TRENDS IN SERVICES EXPORTS

In terms of growth, services exports have outstripped goods exports in the post-1994 period. This is evident in Figure 14.2. Over the period 1994–2014, services exports have grown at more than double the pace of goods exports. Services exports grew at an average annualized rate of 6.7 per cent, while goods exports grew at 2.7 per cent per annum. This relatively rapid growth must also be considered in context of broader historical performance, where services exports declined steadily in the 1970s and stagnated in the 1980s. This was likely a result of economic sanctions, and the reversal of foreign capital flows, during the final years of apartheid, which appears to have had a disproportionately negative impact on services exports vis-à-vis goods exports (Levy, 1999). However, in the 1990s, South Africa’s reintroduction into the global economy, through trade liberalization and the removal of economic sanctions stimulated both goods and service trade (Edwards and Lawrence 2008).

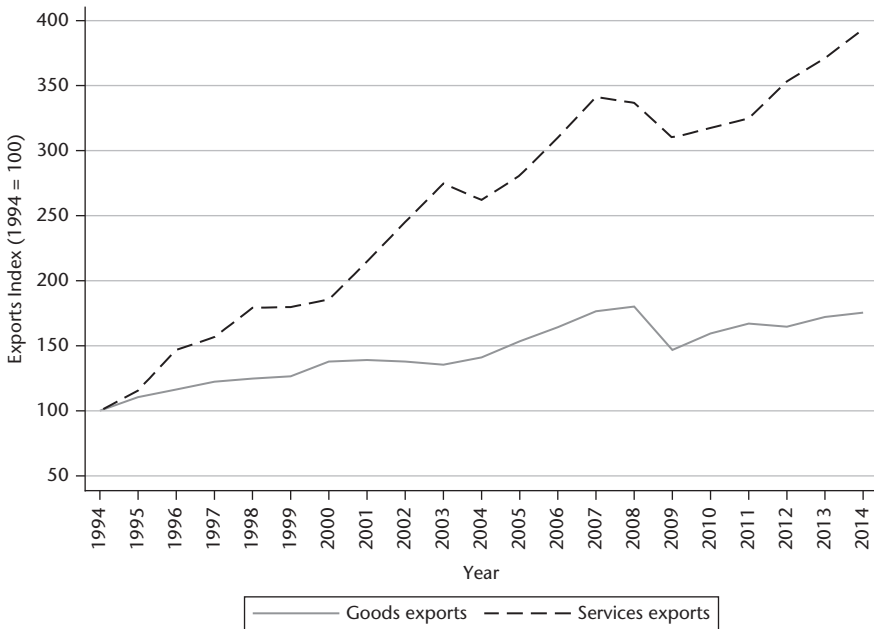


Figure 14.2. Trend in growth of goods and services exports in South Africa, 1994–2014

Note: Services and goods export values based on constant 2010 Rand values.

Source: Authors’ calculations based on SARB (2016).

As a result of this relatively robust growth, services exports have increased in relative importance, albeit from a low base. Over the period 1994–2014, services exports as a share of total exports more than doubled from 8 to 17 per cent. Nevertheless, despite the growing relative share of total exports, the tradability of South Africa’s services sector remains low. Between 2000 and 2014, South Africa exported an average of only 7 per cent of services value added, despite services making up slightly over 60 per cent of GDP. When compared to peer countries on the continent and beyond, South Africa appears to be lagging behind. For instance, with services in Turkey making up a similar share of GDP, the average share of services exports in services value added was relatively higher, at 11.7 per cent.⁴ In Ethiopia, where services made up an average of only 42 per cent of GDP, the average share of services exports in services value added was 17.9 per cent.⁵

Therefore, the overall trend suggests that while recent growth in services exports has exceeded that of goods exports, services comprise a rather small portion of South Africa’s total exports. This is despite the services sector contributing the most value to the domestic economy. This outcome may be a reflection of several bottlenecks—including low skill levels in the labour force, trade protection in specific services industries (such as telecommunications), and lower productivity in the services sector—in comparison to other emerging markets such as India and China (Freytag 2011).

However, the composition of South Africa’s services exports may also be a factor determining its expansion. As Mishra et al. (2011) argue, the composition of services exports matters. In addition to increasing the volume of services exports, increasing the sophistication and quality of services exports is essential to unlocking sustained and rapid economic growth (Mishra et al. 2011).

COMPOSITION OF SERVICES EXPORTS

Figure 14.3 shows the change in composition of South Africa’s services exports between 2005 and 2010. Travel and commercial services constitute the bulk of services exports over the period. However, the share of commercial services exports relative to travel services exports declined between 2008 and 2010. Specifically, in 2005, commercial services exports were valued at US\$8,064 million compared to US\$2,004 million for travel services exports. Yet by 2010, commercial services exports had declined to US\$3,906 million, compared with travel services exports which increased to US\$9,071 million. This

⁴ Authors’ calculation using World Development Indicators (2016).

⁵ Authors’ calculation using World Development Indicators (2016).

Industries without Smokestacks

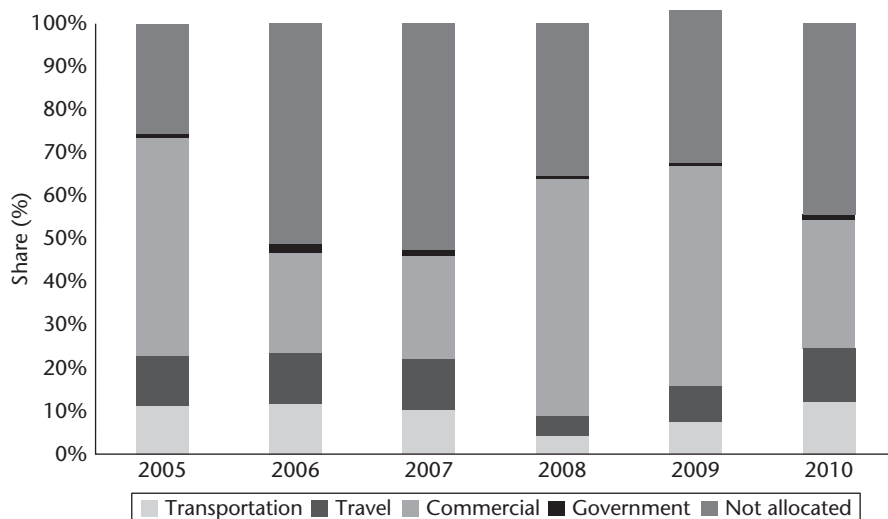


Figure 14.3. The composition of services exports, 2005–10

Note: Service exports are total exports to the world ('WLD').

Source: Author's calculations based on Trade in Services Database (TSD)(World Bank, 2016).

suggests that rather than a shift from traditional to modern services, South Africa's services exports appear to have shifted in the opposite direction.

The rapid growth in travel services exports between 2008 and 2010 is likely a reflection of increased tourism in the run up to the 2010 FIFA Football World Cup. Historically though, South Africa has been a popular tourist destination on the continent given its diverse natural environment and culture, as well as its relatively well-developed infrastructure (Fourie 2011). The decline in commercial services export growth may be a reflection of several factors: The protection of domestic services industries such as telecommunications, which stifles innovation and motivation for international competitiveness; and a lack of sufficient skills in the labour force, which creates a constraint on expansion and also raises the cost of labour and ultimately the cost of services (Freytag 2011).

Further examination of the composition of commercial services exports, based on calculations from the Trade in Services Database (TSD) (World Bank 2016) provides a number of insights. Firstly, the share of high-productivity modern services exports related to finance (2 per cent), communications (2 per cent), and ICT (3 per cent) constitute a marginal share of commercial exports. This indicates that the current composition of South Africa's services may not be sufficient to generate the levels of growth seen by its middle-income country peers, like India and China. However, given the sophistication of South Africa's financial services sector, and its rapid expansion into the rest of the African continent (discussed below), it is likely that the TSD underestimates the value

of South Africa's insurance and financial services exports.⁶ In particular, one of the country's leading financial institutions—Standard Bank—was noted to have a presence in seventeen countries on the African continent in 2010, with several subsidiaries in other countries around the world.

Secondly, 'other business services' constitutes the largest portion of commercial services exports (87 per cent), and this is almost exclusively comprised of merchant and trade-related services, and miscellaneous business services. The implication being that South Africa's services exports remain largely geared toward supporting the exports of goods. In 2010 these exports were made up of legal and accounting services, followed by research and development, architectural and engineering services, and services between related parties. Despite limited exports of high-technology services, further specialization within these businesses services exports, particularly in R&D and engineering services, can still yield considerable gains for economic growth.

An important data omission, however, is that South Africa's services trade, particularly with African countries, is largely through FDI and therefore not captured in the TSD.⁷ South Africa has a large presence of banks and other financial institutions, as well as retail companies, such as clothing and Fast-Moving Consumer Good retailers, on the African continent. Therefore, without accounting for these operations, the value and sophistication of South Africa's services exports, particularly in financial services, may be underestimated.

3.2. South African FDI: Dynamic Firms Entering Global and Regional Markets

There are a number of South African companies that have successfully entered the global market. The Forbes Global 2000 list of top companies in 2017 contains the following South African firms that are services orientated (ranking in brackets): Standard Bank Group (421), FirstRand (423), Naspers (655), Sanlam (838), MTN Group (1020), Shoprite Holdings (1,454), Remgro Limited (1,786), Bid Corp. (1829) and MMI Holdings (1,910). In addition, there are a number of South African companies that are listed in other countries, such as: Old Mutual (409), Steinhoff International (456) and Investec (1085). An investigation of outward bound FDI from South Africa, particularly that derived from service-orientated firms, allows for a more complete picture of the export potential of South African firms.

⁶ In addition, given that much of this expansion has been through the setting up of branches and local subsidiaries in other countries, this will not be captured in the TSD as it covers only services exports in Modes 1 and 2, which do include exports via a commercial presence (Mode 3).

⁷ Mode 3, which measures FDI, is not captured in the SARB and World Development Indicators data sets.

Industries without Smokestacks

South African companies have become bold in investing in new markets. In 2001, South African companies had assets worth US\$17,751 million overseas, and this increased six-fold to US\$111,780 million by 2012. This translates into an average annual growth rate of 16.6 per cent. This might also indicate the desire for South African companies to diversify their revenue streams, given saturation in the domestic market.

The regional composition of South African FDI outflows is depicted in Figure 14.4. It is evident that between 2001 and 2005, more than 90 per cent of FDI outflows were directed toward countries outside Africa and Asia. The bulk share of these outflows was directed toward developed economies, particularly in Europe. Many established South African companies have access to networks and capital in various European economies, hence the shift into Europe is not surprising.

However, this has not prevented many other corporates from entering into emerging markets in Africa and Asia, particularly from 2006 onward. The share of FDI into Asia has expanded from 2 per cent in 2001 to 21 per cent in 2012. This is evident in companies such as Naspers investing heavily in the Chinese technology company, Tencent, and Sanlam partnering with the Shriram Group to create a life insurance company in India. South African companies have increasingly turned to Africa. The proportion of FDI in

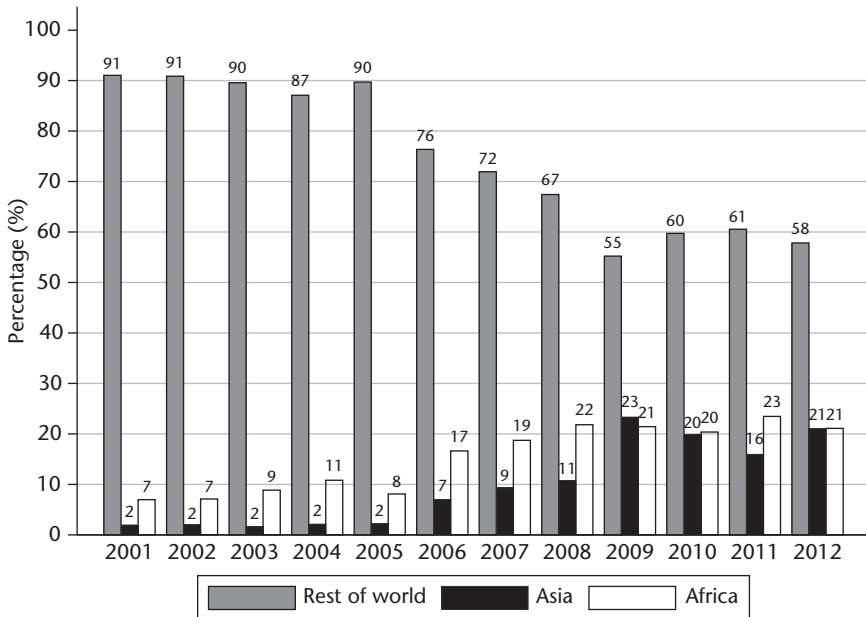


Figure 14.4. FDI stock outflow by 2001–12

Source: Author's calculations based on UNCTAD (2014).

Africa tripled from 7 to 21 per cent over the period 2001–12. This indicates that an increasing number of South African companies see Africa as a key growth frontier.

In 2001, Southern Africa comprised 47 per cent of South African FDI in Africa, that rose to 73 per cent in 2002, and declined slightly to 69 per cent in 2003. However, that proportion declined rapidly to 29 per cent, in 2012. The big investments in Southern Africa in 2001–3 are a reflection of the proximity of these markets to South Africa. The relative decline since 2003 is not due to disinvestment from Southern African countries—absolute investment has increased by 12 times in Southern Africa—it is simply that other regions, particularly East Africa, have grown at a faster rate over the same period.

In 2001, 53 per cent of South African FDI in Africa was invested in East Africa. However, between 2002 and 2005, this dipped to a low of 26 per cent. In 2006, it increased substantially to 65 per cent, and in the last five years has stabilized at between 50 and 53 per cent. The majority of FDI in East Africa is due to investment in Mauritius, which accounts for 91 per cent of investment from South African firms. The attractiveness of Mauritius as an investment destination is due to political stability, a low corporate tax rate (15 per cent compared to 28 per cent in South Africa), and an abundance of professionals (Stones 2015).

Overall, South African companies have become increasingly globalized, primarily in order to increase revenue streams. This points to a dynamic set of South African firms that are able to successfully compete in the global marketplace.⁸

3.3. *Tourism Energizes South Africa's Economy*

The services industries associated with high export potential, such as finance, communications and business services, are typically skill-intensive. These industries are at odds with South Africa's endowment structure, which is characterized by an abundance of unskilled and semi-skilled labour. Thus, the employment potential of these modern services industries is curtailed by the scarcity of skills in the South African economy. As such, the question arises whether there is a source of export growth with labour demands better aligned to the composition of South Africa's labour market. It could be argued that the answer may lie in tourism. This section considers the economic contribution and potential of tourism services.

⁸ In the earlier working paper version of this chapter, we provide a case study analysis of two South African firms—Shoprite and Netcare—that have successfully entered developing and developed country markets.

As the world has become more inter-connected, tourism has emerged as one of the pivotal service export sectors for many countries; and particularly developing countries. Tourism is an important driver of economic growth around the world, accounting for approximately 277 million jobs, and constituting some 10 per cent of global GDP in 2014 (Daly and Gereffi 2016). South Africa, with its multitude of cultural, historical, and scenic sites, has been well placed to take advantage of this rise in demand for tourism (Phiri 2016). South Africa has a well-developed tourism industry when compared with other African countries. In 2014, 9.5 million tourists visited South Africa—by far the biggest volume in Sub-Saharan Africa, and third only to Morocco (10 million) and Egypt (9.6 million) (UNWTO 2015). In terms of total tourism spend, Daly and Gereffi (2016) show South Africa to be the second largest tourism market in Africa, behind Egypt.

It is worth noting that measuring the economic contribution of tourism services to a country's economy is difficult since industry data does not typically attempt to classify economic activities according to whether they are related to tourism. Statistics South Africa's Tourism Satellite Accounts 2005–2012 and Tourism Satellite Accounts 2013–14 attempt to address this data shortcoming. The discussion in the remainder of this section draws on this data source.

Tourism services account for a fairly modest share of GDP, but have shown strong employment growth potential over the period 2004–14. Tourism services account for approximately 3 per cent of South Africa's GDP, and this has remained constant over the period 2004–14. The sector's contribution is in line with that of Agriculture. In terms of employment, tourism services account for approximately 4 per cent of total employment. In 2005, the number of jobs dependent on tourism was approximately 475,000. This rose to 680,000 in 2014, representing an annual average growth rate of 4 per cent. In contrast, aggregate employment grew at 3 per cent in the same period.

Tourism-reliant jobs are spread across a variety of industries, which are characterized by relatively lower skills requirements. Four industries—road passenger transport, food and beverage, retail and trade, and accommodation for visitors—are responsible for 83 per cent of tourism-related jobs. Interestingly, only the accommodation sector is heavily reliant on tourism, while the other three sectors have a moderate reliance on tourism.

The key challenges facing South Africa's tourism industry relate to security and regulation. Although the probability of a terrorist attack in South Africa is low, common crimes against tourists such as theft and the perception that crime is pervasive, impacts negatively on the country's brand image as a tourist destination of choice. As in any industry, regulation plays an important role. For example, in mid-2014, the Department of Home Affairs

introduced new visa regulations to reduce child trafficking (Oxford Business Group 2015). The regulations were onerous in that they required all children who were under the age of 18 and entering South Africa to have an unabridged birth certificate. In addition, for countries in which a visa is required to enter South Africa, parents had to appear in person during the application process to obtain the new biometric visa (Oxford Business Group 2015). It was estimated that the immediate impact of the regulations would see South Africa losing R4.1 billion in service exports and 9,300 tourism-related jobs (Oxford Business Group 2015). Furthermore, business bookings went down by between 40 and 70 per cent. This is indicative of the important impact regulation can play, both positive and negative, in influencing industry performance.

South African tourism is a key services sector, as its contribution to GDP and employment show. Although employment is somewhat volatile, it is a key contributor in three aspects. Firstly, the industry provides jobs for individuals across the skills distribution, and in many senses, is a key generator of unskilled employment, and possibly small, micro, and medium enterprise jobs. Secondly, tourism has a unique spatial component, where employment can be generated in economically under-developed, but pristine and tourist-friendly areas. Thirdly, the industry's propensity to generate employment opportunities for women and youth indicates its ability to promote a more inclusive form of economic growth. In order to grow, however, challenges such as security and regulations must be addressed.

4. Conclusion

Employment and GDP shares show that the South African economy can *de facto* be classified as a services-based economy. However, a key issue is whether the services sector can act as an engine for growth, while also being a source of employment in a high labour surplus economy such as South Africa. A more detailed analysis of the services sector reveals an interesting segmentation of services industries, which has varying implications for the nature of economic growth and its possible impact on employment generation.

Firstly, we observe modern high-productivity export-orientated services industries, such as business, finance, and communication services. These industries are characterized by high levels of productivity, high skill requirements and corresponding wage premiums. Although the potential exists for these industries to serve as a node for long-run employment and growth expansion, they are constrained by the supply of an adequately skilled workforce. There is the possibility that growth of these industries may be accompanied by second round effects that impact positively on employment and

growth in less skill-intensive sectors. However, it could be argued further that, although these multiplier effects are likely to materialize, it will certainly not be sufficient to increase employment to the levels required by the extraordinarily high unemployment numbers found in South Africa.

Secondly, there has been significant employment growth in government services. Government services are, on average, characterized by relatively high-productivity activities, high skill intensity, and thus relatively high wage levels. The high wage levels are in part explained by strong public-sector unions. However, this industry cannot act as a driver of growth, given that a bloated public sector is not fiscally sustainable, and never a positive contributor to long-run economic development.

Thirdly, we observe a set of low productivity industries with relatively low skill requirements. These include the wholesale and retail industry (which is characterized by high levels of informality), the informal sector, and the TES component of business services. The lower skill requirements associated with these industries allow them to better absorb the abundance of inadequately skilled workers. There is a high productivity element to the wholesale and retail trade industry that exhibits export potential, with multi-national South African firms such as Shoprite and Steinhoff, which invest strongly in foreign markets, providing evidence of this.

There are two key elements to the export potential of the services sector. Firstly, modern commercial services, such as finance, communications, and ICT, do not show strong growth or presence in cross-border trade. However, the export potential of these industries is revealed by the strong presence of dynamic South African firms investing in both regional and international markets. The key constraint to firms within these typically skill-intensive industries is the supply of a suitably skilled workforce. Secondly, there is evidence of strong potential in tourism services. Tourism services account for shares of GDP and employment akin to agriculture, which while small, offer much in terms of export potential. Most importantly, industries falling under tourism are characterized by relatively low skill requirements, which points to an industry with export potential that is better aligned to South Africa's labour market.

The services sector can contribute to a sectoral-based strategy for growth and employment. Focus however should not necessarily be placed on any single industry, but rather on a selection of different industries that allow for the realization of different economic policy objectives. High productivity skill-intensive industries, such as finance, communications, and business services, have export and thus growth potential, but their employment potential is constrained by the composition of the labour market. The public sector is not a driver of long-term growth and temporary employment services is not a viable employment strategy. Formal semi-skilled activities in transport, retail

and communications offer employment potential. Tourism is possibly best aligned as an industry with both growth and employment potential, given that it is driven by export growth, and the industry is a source of employment for less-skilled workers. It is worth noting that the informal sector, which is predominantly characterized by service activities, offers a possible avenue for employment creation that aligns to the composition of South Africa's labour market. It is at the low-productivity end of the services sector, and thus does not offer long-term growth potential. However, the barriers to entry into the informal sector are low for the unemployed, and it is thus a critical economic channel for immediate forms of economic activity and income generation.

The services sector constitutes the majority share of GDP, and as such is a significant cog in South Africa's economic engine. The question then, is whether South Africa can exploit the large existing share of GDP constituted by the services sectors—ranging from wholesale and retail, communication, to financial services and tourism across the entire product market, customer, productivity, and employment spectrum—in order to build a set of globally competitive services firms, which not only continue to create local employment, but also serve to provide the impetus for South Africa's longer-run economic development trajectory.

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Employment and Productivity Growth in Tanzania's Service Sector

Mia Ellis, Margaret McMillan, and Jed Silver

1. Introduction

Between 2002 and 2012 Tanzania's economy grew more rapidly than at any other time in its history: average annual GDP growth was 6.5 per cent and average annual labour productivity growth was 4.1 per cent. More than three-quarters of this labour productivity growth is accounted for by structural change; the remainder is largely attributable to within-sector productivity growth in agriculture. The growth attributable to structural change is almost entirely explained by a rapid decline in the agricultural employment share and an increase in the non-agricultural private sector employment share. However, only 11.4 per cent of employment growth in the private non-agricultural economy is due to the expansion of the formal private sector; the remaining 88.6 per cent occurred in the informal sector (Diao et al. 2016).^{1,2}

This chapter assesses the role that services—both formal and informal—have played in Tanzania's recent growth and the role that they could play in its economic future. Section 2 examines the current pattern of structural change in Tanzania and estimates the contribution of the services sector to employment and productivity growth. Section 3 provides a snapshot of the formal services sector and highlights strategies for accelerating its growth. Section 4 presents new data on the size, structure, and productivity of micro, small, and medium-sized enterprises (MSMEs) in the services sector. These data reveal large numbers of firms in the right-hand tail of the MSME

¹ Our definition of informality is based on that of the Tanzanian government, which distinguishes formal from informal firms based on licensure status and size.

² For details of these calculations, see Diao et al. (2016).

productivity distribution, with output per worker exceeding the economy-wide average for manufacturing, and show that this ‘in-between’ sector (Lewis 1979) offers the potential for growth and job creation, if policies are better targeted at firms with the greatest potential to grow. Section 5 is devoted to the tourism sector, which has significant development potential. Section 6 concludes.

2. Employment and Productivity Growth in Services: The Big Picture

To place the services sector in the context of the larger economy, we employ the growth decomposition methodology developed by McMillan and Rodrik (2011). To this end, we divide the economy into ten main sub-sectors and split economy-wide labour productivity into that which can be attributed to within-sector productivity growth and that which is attributable to structural change. For the purposes of this chapter, we define within-sector productivity growth as growth in labour productivity in any of the ten sub-sectors and define productivity growth attributable to structural change as the productivity growth that occurs when employment is reallocated across these ten sub-sectors as a result of different levels of average labour productivity.

Table 15.1 highlights the main results of this exercise. Our analysis confirms that close to 80 per cent of Tanzania’s recent growth in labour productivity is attributable to structural change. Employment shares have declined in agriculture—the sector with the lowest average labour productivity—and increased in various non-agricultural sectors, most of which are significantly more productive than agriculture.

The growth decomposition presented in Table 15.1 does not tell us whether structural change in Tanzania was the result of job creation or simply labour reallocation across sectors. Like many African countries, Tanzania has had high population growth over the past decade, leading millions of young people to enter the job market. To this end, Table 15.2 links the growth in employment with the change in the economic structure by displaying ‘new’ employment opportunities across all non-agricultural sectors.

We define new employment by sector as the net increase in the number of employees in each sector between 2002–12, computed using the population censuses. For these calculations we exclude agricultural employment, primarily because it has not played an important role in job creation: the net increase in agricultural employment accounted for only 11 per cent of the total increase in employment between 2002–12; almost 90 per cent of the jobs created over this ten-year period were in the non-agricultural sector. Considering that agricultural employment made up more than 80 per cent of total

Table 15.1. Tanzania's economy-wide labour productivity growth decomposition, 2002–12

	Value added per worker (constant 2005 in TZS billion)		Labour productivity growth in 2002–12 (%)	Sector GDP share		Sector labour share		Labour productivity growth decomposition, 2002–12 total (%)		
	2002	2012		2002	2012	2002	2012	Within	Between	Total
Agriculture	351	509	44.8	34.2	27.0	81.7	65.8	15.5	−9.7	5.7
Mining	4,057	1,581	−61.0	2.4	3.3	0.5	2.6	−1.5	4.0	2.5
Manufacturing	3,575	3,706	3.7	8.2	9.6	1.8	3.2	0.3	6.2	6.5
Utilities	6,467	1,792	−72.3	2.3	1.9	0.3	1.3	−1.7	2.2	0.5
Construction	5,560	5,119	−7.9	7.3	9.9	1.0	2.4	−0.5	8.6	8.1
Trade services	1,607	1,760	9.5	14.9	16.0	7.5	11.3	1.4	8.0	9.4
Transport services	5,968	5,442	−8.8	6.5	7.5	0.8	1.7	−0.5	5.9	5.4
Business services	35,298	20,860	−40.9	12.1	13.5	0.2	0.8	−3.5	15.0	11.6
Gov't services	3,178	3,762	18.4	11.2	10.7	4.1	3.5	2.9	−2.6	0.3
Personal services	213	114	−46.4	0.8	0.7	2.1	7.4	−0.2	0.7	0.5
Total private economy	761	1,148	50.1	88.8	89.3	95.9	96.5	9.2	41.0	50.1
Total	832	1,240	50.4	100	100	100	100	12.1	38.3	50.4
Contribution to total economy's labour productivity growth (total economy's labour productivity growth in 2002–12 = 100)										
Agriculture								30.7	−19.3	11.4
Mining								−3.0	7.9	5.0
Manufacturing								0.6	12.4	12.9
Utilities								−3.3	4.3	0.9
Construction								−1.1	17.1	16.0
Trade services								2.7	15.9	18.7
Transport services								−1.0	11.7	10.7
Business services								−6.9	29.8	22.9
Gov't services								5.7	−5.2	0.5
Personal services								−0.5	1.4	0.9
Total								23.9	76.1	100.0

Source: Based on Diao et al. (2016).

Table 15.2. Contribution to new employment by sector, non-agricultural formal and informal, 2002–12

	Total		Formal		Informal	
	Number of increase	Share in total increase (%)	Number of increase	Share in total increase (%)	Number of increase	Share in total increase (%)
Mining	404,212	11.4	9,021	0.3	395,192	11.1
Manufacturing	313,882	8.8	103,049	2.9	210,833	5.9
Utilities	194,960	5.5	194,960	5.5	–	0.0
Construction	281,864	7.9	521	0.0	281,343	7.9
Trade services	966,807	27.2	1,304	0.0	965,503	27.2
Transport services	182,383	5.1	18,497	0.5	163,886	4.6
Business services	105,871	3.0	56,924	1.6	48,947	1.4
Personal services	881,053	24.8	0	0.0	881,053	24.8
Public sector	224,579	6.3	224,579	6.3		0.0
Total private non-agriculture	3,331,032	93.7	384,275	10.8	2,946,757	82.9
Total non-agriculture	3,555,611	100.0	608,855	17.1	2,946,757	82.9

Source: Based on Diao et al. (2016).

employment in 2002 (Table 15.1, first panel, column 6), it is remarkable that almost all of the new jobs were created outside the agricultural sector.

Two key facts need to be highlighted in the 'new employment' decomposition presented in Table 15.2. First, a majority of new jobs were created in the private sector; almost 94 per cent of increased non-agricultural employment between 2002–12 is in the private sector (Table 15.2, column 2). Second, 83 per cent of these private-sector jobs were created in the so-called 'informal economy' by micro and small firms (Table 15.2, column 6).

This trend in private-sector job creation by micro and small firms is often seen as a distressing phenomenon, as firms in the informal economy, or small firms in general, are often associated with low productivity and a lack of dynamism. However, once we link the trend in private-sector job creation with the results of the growth decomposition analysis shown in Table 15.1, the following stylized facts become evident. First, structural change accounted for almost 80 per cent of economy-wide labour productivity growth in Tanzania between 2002–12 (Table 15.1, last row). Second, structural change was primarily achieved by growth in employment in small firms in the informal economy. These two facts together raise the possibility that some of Tanzania's growth in labour productivity is linked to the growth in employment in small firms.

There are two sectors that stand out as having contributed significantly to job creation in Tanzania over the period 2002–12. These are manufacturing and trade services. Average labour productivity in Tanzania's manufacturing sector is more than seven times that of the agricultural sector. Although the sector is still relatively small, its extremely high productivity compared with the rest of the economy means that increased employment in this sector contributed 12.4 per cent of economy-wide labour productivity growth (Table 15.1, second panel, column 2). Notably, more than two-thirds of this increase in employment is accounted for by small, mostly informal, firms.

Like manufacturing, trade services productivity is relatively high in Tanzania. While labour productivity in this sector is only half that of manufacturing, it is still 3.5 times that of agriculture (Table 15.1, first panel, columns 1 and 2). More importantly, more new jobs were created in this sector than in any other sector between 2002–12. As Table 15.2 highlights, amongst the nearly one million new jobs created in trade services, more than 99 per cent were created by the informal economy. Further, although these jobs were created by small firms in the informal sector, productivity in trade services did not fall. As the growth decomposition analysis of Table 15.1 shows, within-sector productivity actually increased modestly in the trade services sector between 2002 and 2012 (Table 15.1, comparing row 1 with row 2). As a result, job creation in Tanzania's trade services sector accounted for more than 18 per cent of economy-wide productivity growth between 2002–12.

Trade services includes retail, wholesale, and the food and beverages trade, and in Tanzania makes up the biggest share of the informal sector: about 55 per cent of informal businesses (FSDT 2012). In the last few years, it has been transformed into a competitive and private market and, though it is generally considered an unproductive industry, trade services is not without potential (FSDT 2012; McMillan and Rodrik 2011; NBS 2010; NBS 2014b). As a labour-intensive industry, trade services offers jobs to large groups of unskilled workers, including youth and those coming from agriculture, and the industry is already an important source of employment in Tanzania.

The business services industry in Tanzania is much smaller, accounting for only 0.8 per cent of total employment in 2012. It consists of financial and insurance activities, and the split between informal and formal firms in this sector is roughly 50/50. The numbers in Table 15.1 indicate that, although labour productivity in the business services sector is still quite high, it declined between 2002–12, perhaps on account of the entry of more informal firms. However, the importance of business services comes from its impact on other industries rather than on employment. Financial and business development services are crucial for making other industries, such as manufacturing, more efficient, in turn creating more jobs and production (Jensen et al. 2008).

Mobile money services and firms providing business development services exemplify how business services can improve the functioning of other firms. All of the major telecommunications companies in Tanzania offer mobile money services, which makes it easy for businesses—most importantly, for MSMEs—to send and receive payments.

A number of firms, large and small, provide business development services to other businesses, mainly MSMEs. For example, Match Maker Associates is an impact investment fund that works closely with MSMEs, providing them business development services (BDS) and making loans to the ones that prove their viability; e.g. through its SME Impact Fund. A number of BDS providers help their clients in a variety of areas, such as registering and formalizing their businesses, developing written business plans, and providing general advice.

The transport and communication industries also provide essential services for other industries. Transport and communication services and business services are not especially labour-intensive, but can be skill-intensive, with about 60 per cent of firms in both transport and ICT being classified as high-skill (Tan et al. 2016). Therefore, their biggest contribution to the economy is realized in their impact on other industries, rather than in their contribution to employment or their direct output. For example, improving the transportation infrastructure and increasing the capacity of maritime ports may result in more jobs in manufacturing. Just as the financial infrastructure for business services is lacking, so too does Tanzania currently suffer from poor transport and ICT infrastructure.

Tourism is an important services sector in Tanzania but it does not neatly fit into any of the categories described in Tables 15.1 and 15.2. This is because it is made up of parts of several other industries, including: accommodation; food and beverages; transport; and, culture, sports, and recreational services. Because of the important role that tourism plays in Tanzania, with its natural wonders and game parks, we include a detailed discussion of tourism in Section 5 of this chapter. However, it is worth pointing out that a unique feature of the tourism industry relative to most other services industries in Tanzania is its potential for foreign exchange generation. Tourism brought in over US\$1 billion in direct annual revenues and over US\$4 billion in total (direct and indirect) contributions—amounting to approximately 14 per cent of GDP (WTTC 2015).

3. Employment Growth in Formal Services

This section presents data on the contribution of formal services to employment and productivity growth in Tanzania using data from the Formal Employment and Earnings Survey (FEES). It then addresses some of the constraints that explain the slow growth of formal services, and examines the prospects for formal services growth in the near future, while considering some approaches the government could take.

As mentioned above, the vast majority of private employment growth has occurred in the informal sector, while the private formal services sector has remained quite small, accounting for just 7.6 per cent of total employment growth. Nearly three-quarters of this growth occurred in the utilities sub-sector, while formal business services contributed 1.6 per cent, transport services 0.5 per cent, and trade services a fraction of a per cent to total employment growth. This may be explained by the fact that the formal services sector comprises relatively skilled jobs, but employee skills and education levels are still low in Tanzania in comparison with other countries. Although mainland businesses with more than four employees are required to pay a 5 per cent Skills Development Levy, which is used to finance VETA, the government-run vocational training institute, the infrastructure in place to train workers appears to be largely ineffective. Tan et al. (2016) find that workers with secondary or vocational education do not make a greater contribution, on average, than workers with only primary education. They also find that firms may lack the capacity to conduct adequate in-house training, as this is found to have no association with better firm performance. Instead, firms appear to be bridging the skills gap by outsourcing professional services or hiring expatriate workers (Tan et al. 2016).

Further opportunities for formal services may lie in tradable services. Tanzania has consistently been a net services exporter since 2005, although 81.4 per cent of its exports come from travel and transport services (UNCTAD 2015). While most of the available analysis focuses on private firms, public services such as health and education may also be important sources of skilled employment growth. Tanzania's rapidly increasing population and its health and education initiatives are likely to lead to increased job creation in these sectors. For example, the ratio of teachers to students (1:45.6 for primary and 1:26.4 for secondary in 2012) is decreasing despite increasing enrolment (World Bank 2016). This suggests that more jobs are being and will continue to be created here.

4. Services Firms in the MSME Sector

We have shown in Table 15.2 that 82.5 per cent of the increase in services-sector employment in Tanzania between 2002 and 2012 took place in the informal sector. To understand the nature of these firms, we used Tanzania's first nationally representative survey of MSMEs, conducted by the Financial Sector Deepening Trust in 2010. While this survey is not without its limitations, it provides the only comprehensive data we have for assessing the role of small (and particularly informal) firms in Tanzanian services.³ The survey covers about three million formal and informal businesses, with a total of around five million employees. These firms accounted for almost 30 per cent of national private non-agricultural GDP in 2010. For detailed statistics describing the MSMEs in the survey, see Ellis et al. (2017: tables 4–6).

As shown in Ellis et al. (2017: table 7), MSMEs contributed 99.6 per cent of total trade services value added in 2010. These smaller firms were mostly retail shops and hotels/restaurants, and their total value added was TZS5.14 trillion.

4.1. *Productivity and the In-Between Sector*

The literature on firm-level productivity commonly argues that firms in the MSME sector are unproductive (see, for example, La Porta and Shleifer 2014).

³ The sampling frame is households and the selection of households is based on the 2002 census. This poses at least two problems. First, because the survey is household-based, it is representative of households and not businesses. Thus, since Tanzania is still a very poor country, the survey is likely to have missed some of the more productive businesses. Indeed, an analysis of the data reveals that mid-sized firms are under-represented in this dataset (FSDT 2012). Second, because the sampling framework is 2002 and there was a significant reduction in rural activity between 2002–12 (Diao et al. 2016), the survey oversamples rural households. Therefore, readers should keep in mind that our analysis is likely to understate the contribution of small businesses to economy-wide productivity and employment and also to understate the importance of small businesses in urban areas.

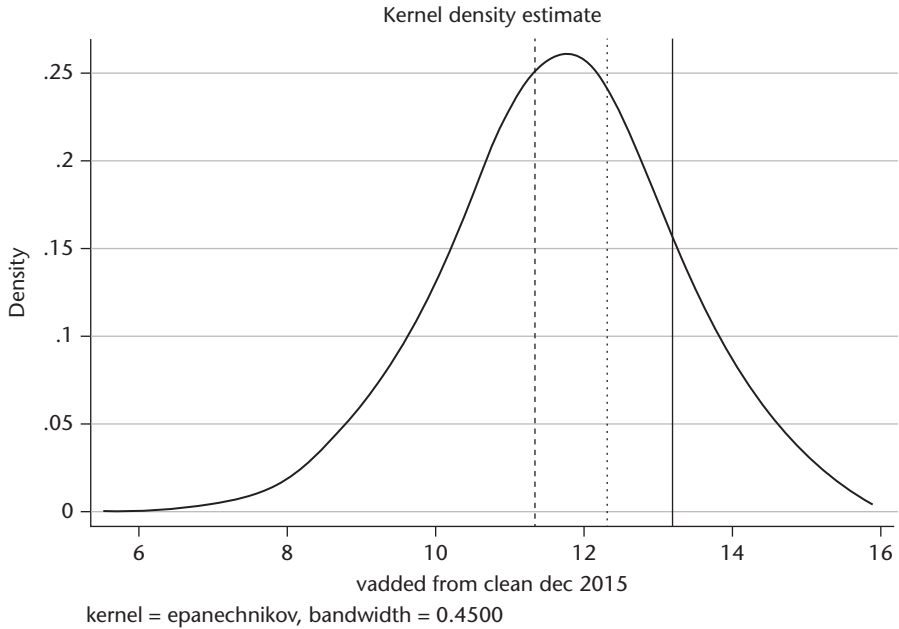


Figure 15.1. Productive heterogeneity of small firms

Notes: Dashed line = average ag productivity; dotted line = average services productivity; solid line = average manufacturing productivity.

Source: Authors’ calculations using MSME survey 2010 (FSDT 2012).

However, it misses the enormous heterogeneity among MSMEs. We show this heterogeneity in Tanzania in Figure 15.1, which plots the distribution of the log of monthly value added per worker for all firms in the MSME sector in 2010. The vertical lines in Figure 15.1 represent economy-wide average productivity in agriculture, trade services, and manufacturing.

Figure 15.1 shows that the majority of MSMEs have average productivity levels higher than that among agricultural firms. This is consistent with evidence presented in McMillan and Rodrik (2011) and McMillan et al. (2014): that structural change outside agriculture in Tanzania has been growth-enhancing since about 2000. A large share of these firms have productivity levels higher than economy-wide trade services productivity, and a smaller but still sizeable chunk of firms have productivity greater than economy-wide manufacturing productivity. This is important because it means that a good number of MSMEs contribute to raising labour productivity (and growth) in Tanzania’s economy. In the process, they provide jobs for a large number of Tanzanians, especially youth.

Arthur Lewis (1979: 219) was among the first to identify the subset of firms we find in Figure 15.1 as

... units of production of all sizes, and in particular a great number of one-to-five-man undertakings in manufacturing, transport and a wide range of services—often nowadays called the informal sector. Some of this activity belongs in the modern sector as we have defined it; i.e., it will expand with economic development; the rest—e.g., some of the handicrafts and some of the services—belong to the traditional sector in that they will contract.

He called these ‘small- to medium-scale’ firms with the potential to grow the ‘in between sector’—neither completely formal and modern, nor traditional. Following Lewis, we define firms in the in-between sector as MSMEs whose value added per worker is greater than the economy-wide value added per worker in manufacturing.⁴ This is because the exceptional performance of these firms strongly indicates that, as the economy grows, their owners will acquire the skills needed to stay in business and the potential to grow with it. This is consistent with recent writing on the importance of ‘managerial capital’ in economic development (Bruhn et al. 2011), a concept closely linked to that of ‘firm capabilities’ (Sutton 2012). These are the subset of high-capability firms in the MSME sector.

Ellis et al. (2017: table 3) report output per worker and the number of in-between firms by sector. The leading in-between sub-sector is food retail shops, followed by some manufacturing sub-sectors. Although trade services firms in the in-between sector are not as productive as their manufacturing counterparts, with about 78 per cent of their value added per worker, the gap between trade services and manufacturing is much smaller in the in-between sector than overall (according to the 2012 Census data presented in Table 15.1, trade services has about 47 per cent of the value added per worker of manufacturing overall). Moreover, services accounts for over 90 per cent of firms and 85 per cent of employment in the in-between sector, with over 800,000 workers. The fact that there is a subset of service sector firms that are more productive than ordinary manufacturing firms and almost as productive as the top-performing small manufacturers suggests that service firms can contribute highly to productive employment.

4.2. MSME Policies

Tanzania implemented its first national MSME sector policy in 2003, when the Ministry of Industry and Trade published the Small and Medium Enterprise Development Policy (SMEDP). The SMEDP is one of several programmes designed to help Tanzania realize ‘Vision 2025’,⁵ an important part of which is

⁴ See Diao et al. (2016) for an analysis of a different definition of the in-between sector.

⁵ Vision 2025 is a national long-term development strategy adopted in 1999 by the Mkapa government that focuses on livelihoods and economic growth, among other issues.

focused on facilitating productivity growth in agriculture, manufacturing, and MSMEs. The policy commits the government to supporting MSME development by addressing the constraints specific to MSMEs. Two other policy initiatives of the early 2000s also address the development of MSMEs. The National Microfinance Policy of 2001 aimed to achieve widespread access to finance by MSMEs in urban and rural areas, while the Economic Empowerment Policy of 2004 sought to empower Tanzanians to participate actively in the economy by creating a favourable business environment, improving the legal and regulatory framework, and facilitating access to finance, skills, technology, premises, and information.

A wide range of MSME programmes are in place in Tanzania and they are executed by an equally wide range of government institutions, donors, and NGOs. The rationale for most of these programmes is to contribute to job creation and growth, but assistance to the MSME sector by government, donors, and NGOs has been fairly ad hoc and certainly not targeted at firms with growth potential. A UNIDO (2012) report evaluating Tanzania's MSME policies found that inadequate coordination, weak synergies among stakeholders, insufficient resources to implement programmes, a lack of prioritization, and inconsistencies in legislation had hampered Tanzania's efforts to foster productivity growth in MSMEs.

4.3. *Targeting the In-Between Sector*

One clear implication of our work is that not every owner of a micro or small firm is an entrepreneur. As illustrated in Figure 15.1, more than half of MSMEs have extremely low productivity. These businesses help families to survive and so are important. But unlike the owners of the businesses in the in-between sector, many of these business owners report that they would prefer to have a wage-paying job. In other words, they are what Banerjee et al. (2015) have dubbed 'reluctant entrepreneurs'.

We have found a surprisingly large number of firms in the in-between sector. There is a significant right-hand tail of firms in the MSME manufacturing sector that have productivity levels equal to or greater than those in the formal manufacturing sector. The total number of employees operating in the in-between sector in all activities falls slightly short of 1 million, and average monthly value added per worker for these firms is US\$351. These are the firms that are most likely to have the capability to grow into medium-scale manufacturing enterprises.

Sutton and Olomi (2011) provide a 'map' of Tanzania's firm capabilities in manufacturing. One of their conclusions is that in Tanzania, as in several of the other African economies where they carried out enterprise mapping exercises, few business owners were capable of managing a medium-sized firm

effectively. The scarcity of ‘organizational capital’ (Sutton and Olomi, 2011) suggests that public policies aimed at growth and job creation should be attempting to identify and assist those micro and small firms that are in the right-hand tail of the productivity distribution—those with organizational capital.

A logical place to begin is by talking to the owners of these small businesses. There is no substitute for face-to-face dialogue between business owners and government officials, but such structured engagements between the public sector and private firms, especially small enterprises, are rare in Tanzania.⁶ An important lesson that the government of Tanzania can learn from China is that Chinese officials had and still have regular meetings with ordinary business owners. As a result of these meetings, officials often take concrete steps to remove constraints on profits and growth. An example is provided by Zhang and Hu (2014), who recount the story of one province’s journey to becoming the largest potato growing region in China and eventually an exporter of potato chips.

The survey that we have been using to identify firms in the in-between sector (FSDT 2010) asks MSME owners to identify the three most important things that the government (or other partners) could do to facilitate small business growth in Tanzania. The results were as follows: 45 per cent of the firms in the in-between sector reported that providing access to finance was the most important thing. The second and third most important actions were to provide information about market opportunities and to ease the regulations controlling business. It is telling that access to credit was repeatedly singled out as a severe obstacle, since the ratio of domestic credit to GDP in Tanzania is one of the lowest in the world (te Velde 2015).

The survey findings are consistent with the evolving literature on micro-finance. The assumption that breaking financing constraints will boost business start-ups or allow micro and small business owners to scale up their operations and grow into larger firms appears to be true only when business owners have the skill and resources to profit from the investment (Banerjee et al. 2013; Bauchet et al. 2011). In India, for example, Banerjee et al. (2015) found that while microfinance *on average* had no effects on firm performance, it did have a significant positive impact on firms with high growth potential. Similarly, in Nigeria, a business plan competition was launched in order to identify high-potential entrepreneurs. The winners were given a substantial amount of money—on average US\$50,000—to implement their business plans. Three years after the implementation, a follow-up survey of these businesses showed that the programme had been successful in helping the winning firms

⁶ The Tanzania National Business Council (TNBC) is the organization that acts as Tanzania’s forum for public–private dialogue. Its membership consists of representatives drawn equally from the business community and the public sector. The TNBC has attempted to represent the interests of small firms, but it has a strong large-firm bias in its membership, and it meets infrequently.

to achieve higher survival rates, acquire more capital and employ more workers (McKenzie 2015). MSME-financing programmes in Tanzania, on the other hand, make no attempt to screen firms for their growth potential.

Many programmes implemented in Tanzania focus on MSME training. Recent research from other countries suggests that microenterprise training initiatives have been largely ineffective (McKenzie and Woodruff 2012). A review of impact evaluations of training programmes revealed that few of the evaluations found any significant impacts of training on sales or profitability; this was due to a combination of small changes in business practices and low statistical power (Fafchamps and Woodruff 2016). Although it is not clear from the existing evidence whether the training was ineffective because the trainers themselves were ineffective or because training is not what the business owners required, it is relevant that none of the programmes evaluated addressed gaps in market information, the second most important constraint identified by in-between sector business owners. Significantly, none of the MSME owners in the 2010 survey reported a need for training.

One resource that provides services to MSME owners in Tanzania is the Small Industries Development Organization (SIDO), which is a government organization specifically geared to small business development. It is present in all regions of mainland Tanzania, where it provides business training, technology development, market facilitation, and small loans to entrepreneurs. However, its training programmes are mostly geared towards basic skills for micro-entrepreneurs and its loan ceiling of TZS6 million (US\$2,750) is considered to be far too small by both clients and staff. Many loans go to petty traders because the demand for loans of that size from SIDO's target clients (especially those that can be considered in-between sector firms) is not enough to utilize the full portfolio; these firms are seeking loans ranging from TZS5 million to TZS50 million.

5. The Tourism Sector

Tourism is one of the most important industries in Tanzania, which has the resources to attract those interested in adventure trips, hiking, beach holidays, and cultural history tours. Since the late 1990s, Tanzania has been taking advantage of its tourism assets in the hope of growing into one of the world's premier tourism destinations. By all indications, its efforts are paying off, but there is still much unrealized potential. In this section, we reference information from the World Travel and Tourism Council (WTTC) as well as the 2015 Travel & Tourism Report (World Economic Forum 2015) to examine the characteristics and potential of the tourism sector, comparing it to other sectors in Tanzania as well as tourism industries in similar countries.

It is worth noting that government estimates put tourism's contribution significantly higher than the WTTC; however, the WTTC has more recent and more consistent data. It is also important to note that the tourism data used in this chapter include only tourism's direct contributions to the economy (ignoring indirect contributions), and do not necessarily include the informal sector; thus, the numbers discussed likely under-represent tourism's importance in the overall economy.

5.1. *Economic Contribution*

While we cannot exactly compare tourism with the other services industries, looking at its economic contribution over 2002–12 gives us some idea of its relative importance. As Ellis et al. (2017: table 8) shows, tourism's real contribution to GDP has grown consistently since 2002, and recently has been worth more than US\$1 billion annually. Its share of GDP in 2012, however, was only about 4.5 per cent, which is a small share of the services sector as a whole. However, its indirect contribution to GDP is estimated to be much higher, suggesting that, like business, transport, and communication services, tourism has wide-ranging economic benefits. Ellis et al. (2017: table 8) also show that the number of jobs in tourism has steadily increased. Tourism's share of employment was about 3.15 per cent in 2012, putting it above both transport and business services, and indicating that tourism may have the potential to account for a significant portion of employment in the country.

Productivity in tourism grew by approximately 50 per cent from 2002–12, and the value added per worker in 2012 was US\$4,381 (Ellis et al. 2017: table 8). Tourism is therefore more productive than trade services, and similar to transport. However, while tourism performs relatively well in terms of its economic contribution, it is important to note that its contribution to both GDP and employment has not increased over the period 2002–12. This section will go on to examine the factors restricting further growth in the tourism industry, and consider its potential if those restrictions are removed.

We first want to better understand the tourism market in Tanzania, including the products it offers, who its primary clients are, and where most consumption takes place. Tanzania is dominated by foreign and leisure tourism, with most foreign tourists coming from Europe and the United States (Ellis et al. 2017: table 9). These tourists travel a great distance to reach Tanzania, often at a very high price, and are only likely to do so for longer holidays. Residents of East African Community (EAC) countries represent a great source of potential. The EAC is home to approximately 140 million people, who would be able to travel to Tanzania cheaply and on short holidays (Rugimbana 2016). Further research is needed to identify this market, and more marketing and promotion should be aimed at this group.

Ellis et al. (2017: table 9) also shows that domestic tourism has risen. According to an interview with the Executive Director of the Tourism Confederation of Tanzania, Richard Rugimbana (2016), it is generally understood that domestic tourism is composed primarily of Tanzanians travelling for business meetings or to see friends and family. Developing domestic tourism would be fruitful for Tanzania, as the benefits of foreign tourism tend to be repatriated to foreign firms. The World Bank (2015) suggests that almost 30 per cent of tourist spending leaks into foreign markets, through the consumption of imported goods or services from foreign-owned businesses, while domestic tourism revenue may be more likely to remain in-country. While there is major potential for domestic tourism development in Tanzania, further research is needed to identify its current structure and value contribution, and the products consumed by domestic tourists.

5.2. *Restrictions and Solutions*

Though tourism appears to be doing well in terms of performance, Ellis et al. (2017: table 8) show that it made essentially the same contributions to GDP and employment in 2012 as it did in 2002. There are several remaining challenges in the industry, which are preventing it from unlocking its full potential. According to a report completed by the Tourism Task Force in 2016, these challenges include the destruction of wildlife and natural resources, overregulation and the heavy burden of taxation, poor infrastructure, lack of human capital in the tourism industry, insufficient investment in and diversity of tourism assets, and insufficient marketing, promotion, and branding (Tourism Task Force 2016).

The issue of wildlife depletion is especially concerning, as Tanzania's competitive advantage in tourism comes from its natural resources. Poaching, deforestation, interference with water sources, and dynamite fishing all serve to devalue Tanzania's tourism assets (Tourism Task Force 2016). Additionally, high-density tourist flows in areas such as the Serengeti and Kilimanjaro contribute to wildlife erosion (World Bank 2015). If drastic action is not taken to preserve its wildlife, Tanzania could lose its competitive edge in less than 20 years (Rugimbana 2016). Already, Tanzania's global rank for natural resources has dropped from 2nd in 2011 to 7th in 2015, thanks primarily to poaching decimating the elephant population (Blanke and Chiesa 2011; Crotti and Misrahi 2015; Tourism Task Force 2016).

To address the impact of high-density tourism, the government has implemented a 'high-value low-density' (HVLD) tourism policy, attempting to make Tanzania a 'high-end' tourist destination that caters to a very wealthy population (World Bank 2015). This strategy aims to conserve Tanzania's tourism assets, while attracting high-spending tourists. However, the quality of tourism services in Tanzania is currently too low to make this HVLD policy feasible,

and it does not depict the reality on the ground. Moreover, costs for tourism in Tanzania are currently high relative to its competitors (Rugimbana 2016).

These high costs are partly due to overregulation and taxation, which force tour operators and other service providers to charge higher prices in order to break even. The environment for tourism investment in Tanzania is harsh, and the number of licences required, taxes to be paid, and other regulatory burdens ranges from 10 to 115 per provider. These regulations are levied by the central government as well as local officials, and it becomes very expensive for tourism operators to meet all of the requirements (Tourism Task Force 2016).

The overriding fact remains, however, that Tanzania does not offer a level of service quality commensurate with its HVLD policy. A major issue is the shortage of high-quality hotel accommodation; if Tanzania hopes to increase its international tourist arrivals significantly, it will need more quality accommodation. Additionally, there are not enough well-trained people working in the tourism industry. Tanzania lacks training options for those in the tourism industry, and those that it does have provide a low quality of instruction (Tourism Task Force 2016). Even if Tanzania were to improve its service quality, the HVLD policy would be viable only for certain tourism packages, such as safaris (World Bank 2015).

Tanzania's tourism strategy also lacks an emphasis on diversifying the products it offers. Currently, about 80 per cent of tourism goes to the North, largely because of a lack of infrastructure in the South and West (Rugimbana 2016). To make these corridors attractive to tourists requires the development of infrastructure, accommodation, and differentiated tourism products (World Bank 2015). Developing more circuits will also result in job creation, in addition to helping Tanzania keep pace with its regional competitors.

The final major concern for Tanzania in tourism is its marketing. The country does not go far enough to promote its tourism products abroad, and the government should direct more of its budget towards this goal. As of now, Tanzania may be considered indistinguishable from its competitors. However, it boasts some of the most iconic tourist sites in the world—the Serengeti, Kilimanjaro, Ngorongoro Crater, and Zanzibar. If Tanzania amplifies its international branding and advertising efforts, it will likely increase the number of international tourist arrivals (Tourism Task Force 2016; World Bank 2015).

5.3. *Potential (Country Comparisons)*

If Tanzania were to successfully address these restrictions, it would unlock great potential. To better understand how the tourism industry might contribute to Tanzania's economy, we refer to Ellis et al. (2017: table 10). Tanzania's tourism industry currently ranks ninety-third in the world, suggesting that there is significant room for improvement (Crotti and Misrahi 2015).

Ellis et al. (2017: table 10) compares Tanzania with South Africa and Kenya (both with populations similar to Tanzania) to get a better idea of how it is faring regionally. Kenya is a major regional competitor of Tanzania, offering similar services but with a higher level of service quality and lower prices. South Africa is also a regional competitor, but provides a better example of an industry to emulate, offering even higher-quality tourism services and introducing new types of products, such as lifestyle tourism.

As shown by Ellis et al. (2017: table 10) Tanzania's tourism industry is ranked significantly lower than South Africa or Kenya. Its share of GDP is on par with its regional competitors, but tourism accounts for a lower employment share in Tanzania than in the similarly-sized South Africa, indicating that tourism could contribute more to employment growth in Tanzania in the future. Value added per worker is significantly lower in Tanzania than in the other countries, suggesting that more could be done to improve productivity.

The direct GDP contribution of the tourism industry is significantly lower in Tanzania than in the comparison countries, which, notably, is due to the lower number of visitors and not to their level of spending. In fact, visitors to Tanzania spend significantly more than visitors to either of the comparison countries, as would be expected with the HVL model. While this is a positive factor for conservation and would benefit the industry if it could increase tourist numbers without lowering prices, it is likely that costs are currently prohibitive to large numbers of tourists.

If Tanzania were to address the major restrictions to growth of its tourism industry, specifically investing in infrastructure development in the South and West, reducing taxes and regulations, and improving the quality of services, this sector could achieve higher productivity and might double its contribution to GDP and employment (Rugimbana 2016).

6. Conclusion

Services, both formal and informal, have been extremely important to the Tanzanian economy in recent years, accounting for the bulk of employment growth while positively affecting overall labour productivity by absorbing labour from agriculture. However, different sub-sectors contribute in different ways. Trade services is not extremely productive but contributes significantly to employment. Meanwhile, business services and transport and communication services do not have high employment densities but provide valuable services enabling other firms to function. Tourism, which spans the formal and informal segments of different service sub-sectors, has played a major role in the growth of services in Tanzania but still has much untapped potential, despite its efforts to transform the country into a high-value destination.

The growth of formal services in Tanzania has been slow in recent years, possibly due to the skills deficit of the Tanzanian workforce. The current educational system and vocational training programmes have not been doing enough to endow workers with the skills their employers need. An alternative model to promote vocational skills could be similar to the one used by Malaysia, where a 1 per cent levy is used to finance in-house employee training for MSMEs run by private providers (Tan and Gill 2000). This enables the training provided to be demand-driven and directly relevant to specific firms' needs. However, there is a subset of MSMEs within the informal sector that resemble formal firms, in that they are more productive than economy-wide manufacturing averages and have significant potential to grow. Targeting these firms with support to overcome the obstacles they face in formalizing and growing may have a substantial impact on employment and productivity growth.

To support the growth of in-between sector firms, the government needs to develop more targeted interventions designed to identify small firms with the potential for growth and address the constraints they face. For example, rather than providing subsidized loans or training to an untargeted range of micro and small firms determined mainly by the availability of resources, the government could use existing institutions, such as SIDO, to develop programmes better targeted at in-between sector firms. By adapting its training programmes and advisory services to its higher-potential clients and by offering larger loans to such clients rather than the current practice of providing small loans to petty traders, SIDO could have a greater impact on businesses with growth potential despite its limited resources.

Heavy regulation and multiple taxation are cited by services firms as major obstacles to growth, especially in the tourism sector. In addition to the easing of these burdens, targeted public investment, both in hard infrastructure and in soft business and worker skills, could go a long way towards strengthening the services sector. Such investments could include improving roads and power supplies and reworking the vocational training model in line with those that have succeeded in Asian countries, as well as targeting high-potential firms with relevant business development services and affordable credit programmes. Overall, Tanzania will require a broad-based approach if it is to transform its services sector from the sector of last resort for labour into an engine of growth.

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16

Rwanda

From Devastation to Services-First Transformation

Kasim Munyegera Ggombe and Richard S. Newfarmer

1. Introduction

Rwanda has undergone an astounding transformation in the two decades since a civil war and massive genocide destroyed a large segment of the country's population, left its government and political institutions in tatters, and its economy in ruins.¹ Growth rates since 1995—the year after the genocide—have averaged 8 per cent annually over this period, more than four times the decade before. Poverty rates have fallen, maternal health has improved, and infant mortality has plummeted. Investments in infrastructure have produced transport systems, widened access to power, and provided cheap telecommunications. Once shattered institutions of government—the customs services, standards agencies, telecoms regulation, and whole ministries—have been rebuilt and gained a reputation for efficiency and probity in administration that is today the envy of Africa.

To be sure, the country has not yet established political institutions commonly associated with Western democracies. It is a society still struggling to overcome tribal divisions and to forge a genuinely national Rwandan identity. Even so, the government has sought to create other forms of citizen feedback and accountability that facilitate some policy adjustments. These include the annual 'national dialogue', citizen report cards, and a fairly open public discussion of aspects of economic policy. A wide literature has documented the post-genocide transitions, their success and shortcomings (see Behuria

¹ The authors would like to thank Phil English, John Spray, Victor Steenberg, Sebastian Wolf for their thoughtful comments, as well as other colleagues at the Helsinki conference on 'Industries Without Smokestacks'. The authors wish to pay special thanks to Victor Steenberg for his generous comments and help.

and Murray 2017, Booth and Golooba-Mutebi 2012; Crisafulli and Redmond 2012; Kinzer 2008). The bottom line is the transformation in people's lives and living standards has been remarkable.

How was it that a country could go from utter devastation into a high-growth economy? What were the building blocks of policy that contributed to this success—and what was the role of structural transformation? And, looking forward in a new era of globalization, what economic activities can drive growth in Rwanda into the next decade? The answers can be found in examining the growth path of the Rwandan economy. Four features stand out. First, the government has played a leading role in recovery and reconstruction period, and continues to do so today. Second, labour is indeed moving from low-productivity jobs into higher productivity activities—structural transformation—but Rwanda has inverted the normal sequence of structural change in the development process; labour is moving from agriculture first to services and only now beginning to develop its manufacturing sector. Third, the government succeeded in establishing an impressive partnership with the international community that allowed the latter to provide finance and expertise to drive growth, but foreign direct investment (FDI) in recent years is beginning to play a more central role—particularly in industries without smokestacks. Finally, these industries without smokestacks—services exports, agro-processing, information and communication technology (ICT) as well as selective labour-intensive manufactures—are becoming increasingly important drivers of growth.

To elaborate these points, the first section of this chapter describes briefly the pre-1994 policy regime and political economy to illuminate the difficulties of reconciling a country torn apart by civil and tribal war. The second section reviews economic policy and outcomes in the two decades after 1995. It argues that policy coherence emerging from unusually capable leadership lies at the foundation of Rwanda's success. The third section analyses the patterns of growth peculiar to Rwanda—and finds that Rwanda is indeed engaged in structural transformation, but mainly by releasing labour from low-productivity jobs into higher productivity jobs in the services sector, and mainly in cities and much of it financed through development assistance. The final section focuses on the future, outlining the new industrial policies undertaken by the government and ways it is dealing with the challenges of diversification.

2. Laying the Foundations for Growth over the Ashes of Genocide

2.1. From Reconstruction to Economic Expansion, 1995–2000

The four-year civil war that culminated in genocide left in its wake a country annihilated and destitute. Because of the vast destruction of physical capital

and infrastructure, disintegration of social capital, and the loss of human skills, reconstruction was an ambitious and complex task, arguably as difficult as that Europe confronted after the Second World War. Elements included establishing social peace, providing emergency relief, and rebuilding and staffing the institutions of government, particularly fiscal capacity. Central to these efforts was putting in place a coherent macroeconomic programme genuinely owned by the government. Even though it involved a greater degree of state leadership than many donors would have preferred, the absence of large private companies and paucity of wealthy entrepreneurs led them to accept a large role for government, and they provided substantial development finance and technical assistance. Rwanda was to become a textbook case of how to orchestrate a successful post-conflict reconstruction.²

The government undertook several measures to revive the economy and restore industrial production. Foreign exchange markets were liberalized, allowing exchange bureaus and commercial banks to exchange foreign currencies at market-determined rates, a move partly aimed at easing access to foreign currencies by the emerging private exporters. The government also pursued liberalization of coffee marketing, processing, and export, removed export taxes and improved the export regulatory framework to allow for market-based transactions and revive the coffee sector, a major source of foreign exchange. Price controls were terminated and state enterprises adjusted relative prices to phase out subsidies.

While the fifteen years before 1995 had averaged less than 1 per cent in economic growth, the five years to 2000 produced a rapid recovery and averaged more than 10 per cent. Much of this growth was a simple peace dividend associated with the reconstitution of agricultural markets and internal trade.

Political leadership was crucial. The provisional government of the RPF, buttressed with a monopoly on force and little tolerance for dissent, launched new efforts to build national unity, focusing on suppressing tribal identities, equal representation in parliament and elimination of ethnic identity cards that had been used since colonial times. Ethnic rehabilitation of social norms and eventual reconciliation were necessary to build incipient legitimacy for the minority and mostly Tutsi-led government, and this laid the foundation for economic recovery, which had become an immediate priority as massive destruction of farms, livestock and economic infrastructure during the civil strife had decelerated the country's economic growth. The government immediately began to work for the eventual repatriation of some 2 million ethnic Hutus who had fled into the DRC in the wake of the RPF takeover.

² The IMF, in its paper on post-conflict reconstruction, uses Rwanda as a key example illuminating best principles; see Gelbhard et al. (2015).

The strong leadership under the RPF and sound policies attracted donor support and eventually revived investor confidence in the reconstruction agenda. In the aftermath of the civil war and genocide—mid-1994 to late 1995—donor assistance largely focused on emergency humanitarian needs; approximately US\$300 million was directed to humanitarian relief efforts in Rwanda and refugee camps in neighbouring Uganda, Congo, Tanzania, and Burundi, where Rwandan refugees had fled during the civil conflict. As the emergency subsided, donors worked with the government to help gradually reconstruct economic and social institutions. Foreign aid shifted from humanitarian relief to reconstruction and development assistance to rebuild a strong economic and institutional base, with focal attention on addressing the country's needs in education, health, water, energy, transport, and communication infrastructure. These paved the way for policy reforms that included revamping the public investment programme, streamlining administrative structures, and compiling economic statistics.

The government, even while taking a leading role in economic activity, encouraged the growth of private investment. A new investment code and one-stop investment promotion centre were also established in 1998 to provide a conducive investment environment for both local and foreign investors. Forms of technical and financial assistance were also initiated, including loan guarantees and liberalization of selected economic sectors to attract private investment. The government launched a partial sell-off of state-owned enterprises that had largely dominated industry in the years before the civil war. The privatization campaign reached its peak in the period 1998–2000, when fifty-five state enterprises were earmarked for privatization; among these were coffee and tea factories, public utilities, and the state-owned telecommunications company, Rwandatel. Private investment in the mining sector culminated in tremendous increases in the production of cassiterite and coltan, with the latter increasing from 147 tonnes in 1999 to 1,300 tonnes in 2000, constituting the country's largest single export at the turn of the century. However, the government—and the RPF and the military—retained ownership of selected enterprises designed to play a pivotal role in reconstruction and subsequent growth; see Booth and Golooba-Mutebi (2012); Behuria (2016).

The financial policy measures taken by the government during the recovery process were remarkably successful; GDP, which had declined by half in 1994, grew by over 35 per cent in 1995 and sustained an average growth above 10 per cent per year in the subsequent five-year period. During the same period, inflation reduced substantially from 64 per cent in 1994 to 9 per cent in 1996, before food demand from returning refugees and insecurity in some food-producing regions caused inflation to skyrocket to 17 per cent in 1997. Foreign aid had financed much of the recovery and development agenda, posing a risk

to its stability and sustainability. In partial response to this challenge, the government pursued a prudent fiscal policy to raise domestic revenue through the adjustment of tax rates and reforms to tax and customs administration, ultimately raising the revenue-to-GDP ratio from 4 per cent in 1994 to 10 per cent in 1997. As part of the efforts to reduce the prevailing large budget deficit, public spending was cut by banning purchase of government vehicles, and limiting budget allocations for ministerial travels, among other measures. The enhanced revenue performance was partly responsible for the increase in government savings in the 1998–2000 period.

3. From Recovery to Sustained Growth: Politics, Policy, and Performance, 2000–15

In 2000, Paul Kagame, then Vice President and head of the army since 1994, became President after the resignation of Pasteur Bizimungu. Following the adoption of a new constitution in 2003 that established a parliament and presidential system, Kagame, in carefully controlled elections, won subsequent victories to serve seven-year terms in 2003, in 2010, and, after a controversial constitutional change permitting him to run for subsequent terms, again in 2017. The government suppressed political opposition and relied on rising incomes and social peace to establish its legitimacy. Further political developments were undertaken, including improvements in the *gacaca* system (public hearings for alleged genocide perpetrators), with the aim of achieving faster reconciliation and restoring Rwanda's social fabric that was torn apart by the civil war and genocide. There was also progress in decentralization up to the sector level in order to bring services closer to the people and improve the service delivery channel.³ The country ensured equal political representation for women; female representation in the parliament has been over 60 per cent since 2003, one of the highest in Africa. Although the government has eschewed OECD-style democratic institutions, the country has made strides in forging a national Rwandan identity out of two formerly warring ethnic groups, and has created opportunities for all ethnic groups in governance, actively promoted gender equality in governance, has created one of the most corruption-free countries in Africa (see Transparency International various years), and established a highly ranked legal and regulatory environment (see World Bank 2016b).

³ Sector (sub-district) is the third smallest unit of administration after village and cell.

3.1. Economic Growth Accelerates . . . and Improves People’s Lives

Stable politics, prudent macroeconomic management, and a sound investment climate laid the groundwork for a dramatic turnaround in economic and social performance. Economic growth accelerated to a new plateau (Figure 16.1). Rwanda has been cited among top performers in the World Bank’s Doing Business indicators. For example, the number of days it takes to register a business reduced substantially from forty to sixteen between 2003 and 2008. Economic growth from 1995 to 2015 averaged 8.2 per cent annually, substantially higher than the 1.5 per cent a decade earlier. Per capita incomes rose dramatically—in effect giving the average Rwandan an average annual pay raise of more than 5 per cent year for two decades.

Even discounting the rebound effects immediately after the devastation of 1994, Rwandan growth has been substantially better compared to many comparator countries in the region, including long-running star performers like Botswana, to say nothing of Uganda, Tanzania and Kenya.

The proportion of people living below the national poverty line declined steadily from 60.6 per cent in 2001 to 56.7 per cent in 2005, further reducing to 44.9 per cent in 2010 and 39.4 in 2014. Other social indicators also improved. A national effort to provide universal access to health care has cut maternal mortality from 1,558 per 100,000 live births to 253 between 2000 and 2014. Infant mortality was cut in half. Besides poverty reduction, the

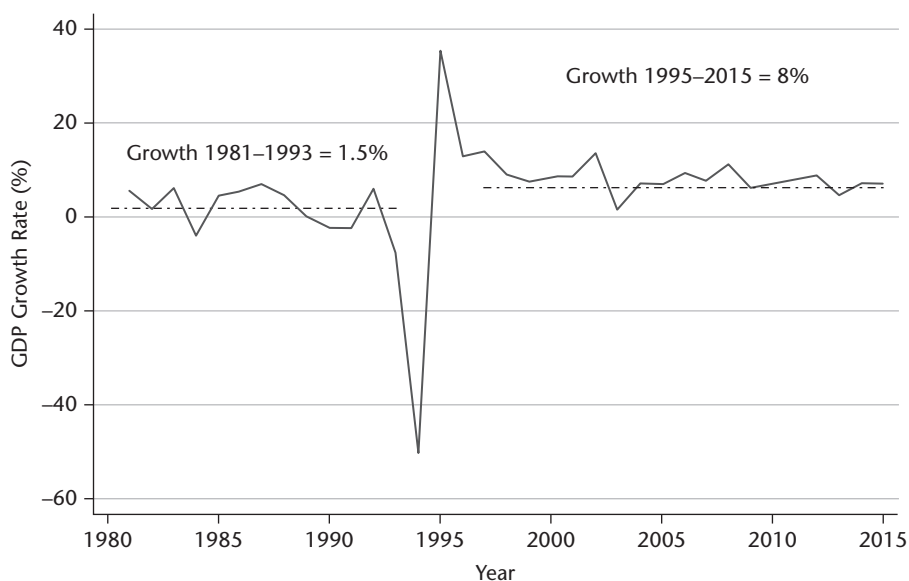


Figure 16.1. Rwanda’s GDP growth 1981–2015

Source: Authors’ illustration based on World Bank, World Development Indicators (WDI).

Industries without Smokestacks

government of Rwanda pursued inclusive growth policies, resulting in a modest reduction in inequality, measured by the Gini coefficient, from 0.52 in 2006 to 0.49 in 2011. Growth in agricultural production contributed 35 per cent of the poverty reduction between 2004 and 2014, while 10 per cent of the reduction came from increased commercialization (World Bank 2015).

3.2. Policy, Planning, and Public Investment: The Centrality of Government

From the early days of the reconstruction, the government has played a central role in the economy. Public investment typically comprised half or more of all investment in Rwanda in this two decades of growth—and more so than in other countries (Figure 16.2). Several reasons explain this pattern: the extremely limited initial capacity of the private sector, which is populated mostly with household enterprises and small firms; poverty-constrained low domestic savings and the absence of a financial system; and a reliance on donor savings to finance investment.

The government took the lead in investing in roads, electric power, fixed-line telecommunications, and later the internet backbone, as well as schools and hospitals. One example is the government’s early decision to build the

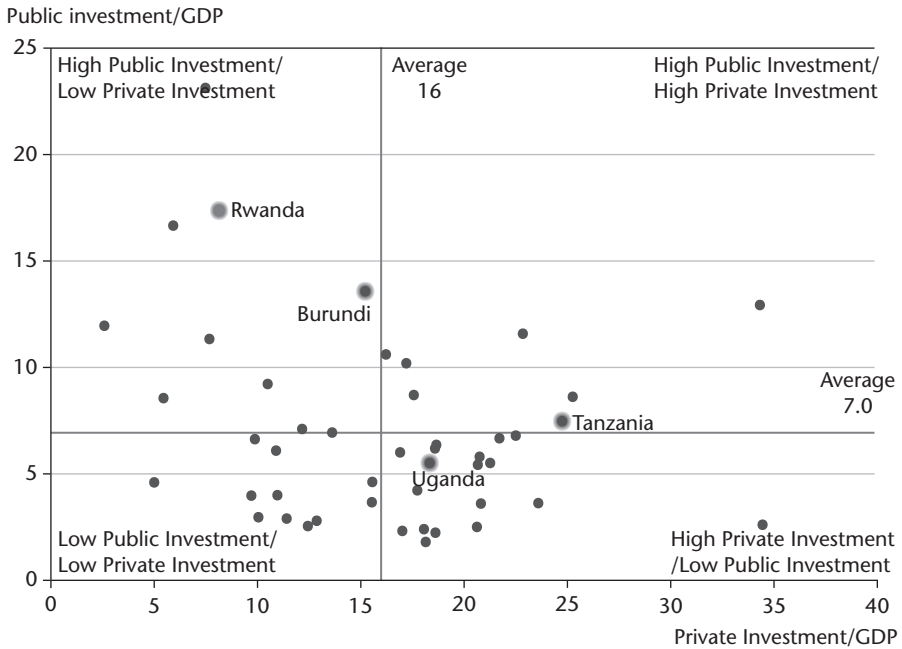


Figure 16.2. Public investment is a leading source of growth

Source: World Development Indicators, NISR, World Bank staff calculations as calculated in World Bank (2015).

internet backbone that would link up virtually the whole country—and lay the basis for access to the global lines connected up via the EASSy (Eastern Africa Submarine Cable System) cable through Uganda and Tanzania. Aside from these large projects, the government has provided a steady flow of public investment in urban infrastructure, particularly in Kigali, and in agriculture, notably in irrigation and terracing. It has used two state-affiliated companies—Crystal Ventures and Horizon—to invest in productive activities to develop the market.⁴ Some activities, such as the Serena Hotel in Kigali, have later been privatized, but these state-affiliated companies maintain a portfolio of commercial activities, including, for example, dairy.

Recently, the government has devoted resources to expanding the electrical grid, built a large convention centre to tap into the MICE (meetings, incentives, conferences, and events) business tourism, invested in new aeroplanes to make RwandAir into a regional carrier, and substantially upgraded and renovated the existing airport. It has continued to push forward plans to build a railroad connection through Uganda and Kenya to the coast, and bought land to eventually build a new airport. In recent years, the government has turned its attention to leveraging its investments through public–private partnerships. For example, the government has signed several memoranda of understanding (MOUs) with private power developers to build generation capacity. In summary, these investments have been a driving force in economic growth.

To a large extent, public investment explains the substantial growth in industry, particularly construction. Whether it was road construction, urban infrastructure, or digging trenches for internet cables, all were labour-intensive activities that have contributed to growth and productivity gains.

3.3. *The Critical Role of Foreign Savings*

Foreign savings have been an important source of investment finance (Figure 16.3). Over the period 2000 to 2015, foreign savings amount accounted for about 78 per cent of investment finance, a share that was only slightly less at the end of the period (Figure 16.3).⁵ Of these foreign savings, the greatest percentage originated in ODA. In the wake of the genocide, the international community provided about US\$400 million annually for the rest of the decade; the number rose steadily to average US\$629 million in 2001–10; and then to US\$1.1 billion in 2011–14.

⁴ Behuria (2016) sketches out three categories of state-affiliated enterprises: informal investment groups comprising regional companies, Petrocom (petroleum and minerals), and the Rwanda Investment Group; RPF-controlled companies subsumed in Crystal Ventures (active in dairy, construction, and coffee); and military enterprises including the Horizon Group, some agricultural entities, and a diverse portfolio spanning pharmaceuticals, transport, and ICT.

⁵ The numbers in this paragraph are calculated from the World Development Indicators.

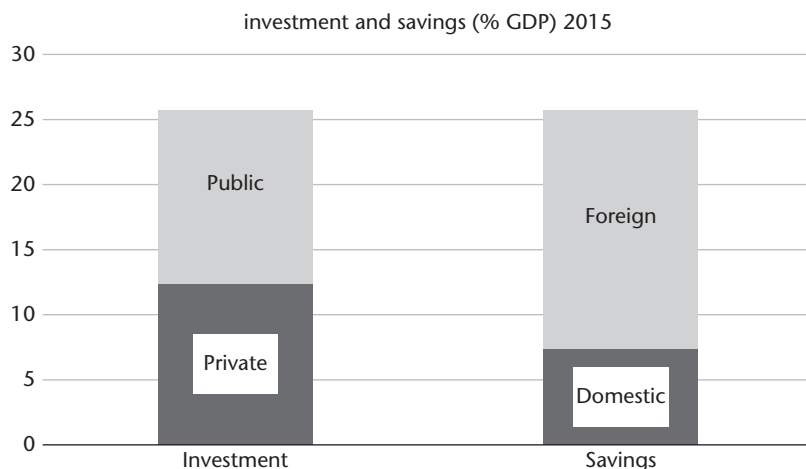


Figure 16.3. Foreign savings finance a large share of investment
Source: Authors' illustration using data from IMF (2017).

What differentiates Rwanda from most other aid recipients is how well the country has used development assistance. Because of its low levels of corruption—Rwanda ranks fourth best in Africa on the Transparency International Corruption Index behind only Botswana and the two island states of Cape Verde and Seychelles, and just ahead of Mauritius—and its capacity to implement a public investment programme, Rwanda has managed to channel virtually all of foreign savings into productive investment. One IMF-sponsored study created an index of public investment efficiency.⁶ Rwanda ranked in the top quartile worldwide, and received the third best score among sub-Saharan African countries (behind South Africa and Botswana) (Dabla-Norris et al. 2012). A detailed case study of Rwanda's use of aid for trade illuminates the process of public investment and implementation (Newfarmer et al. 2013). That said, no system is perfect, and in late 2016 early signs of strains in excessive investments, particularly in tourism infrastructure, have begun to appear, requiring government attention.⁷

⁶ The index is comprised of four major consecutive phases associated with public investment management: strategic guidance and project appraisal; project selection; project management and implementation; and project evaluation and audit. Under each of these stages, the emphasis is on capturing the basic processes and controls that are likely to yield efficient public investment decisions, while recognizing the role of institutions, capacity, and incentives. Each of these stages is made up of several individual components (17 in total). See Dabla-Norris et al. (2012).

⁷ Overly rapid addition of four- and five-star hotel rooms have led to near term excess capacity, and led the government to intervene to stave off bankruptcies.

4. Patterns of Growth: Services Before Manufacturing

These circumstances gave rise to three patterns of growth that shape Rwandan development: first, the recovery of agriculture provided a major growth impulse during the immediate years after the genocide, and recovery of consumption provided greater impetus than investment; second, the country invested in services in advance of manufacturing, and services became a leading sector in growth for much of the last two decades; and, finally, exports, though not a principal source of growth in the early period, have become more diversified and more important in the latter period.

In the period of reconstruction in the late 1990s, it was logical that rising private consumption would be one driver of growth. Even though, after 2000, investment and exports began to assume a new importance, rising private consumption remained important. In a way this is to be expected because of the high levels of subsistence poverty prevalent in Rwanda.

But the composition of GDP changed dramatically relative to 1990. Industry, exclusive of manufacturing, led the growth dynamic, with services not far behind (Figure 16.4). Non-manufacturing industry reflected growth in mining, electricity and construction. These sectors stimulated services inputs such as engineering, architectural and legal services. Services also provide inputs into other activities as the economy expanded—particularly high value-added services such as telecommunication and finance. Retail trade and informal employment in urban services have absorbed many low skilled workers. Only later has the export of services become important, notably tourism. Bridging both the export and domestic market, transport too has

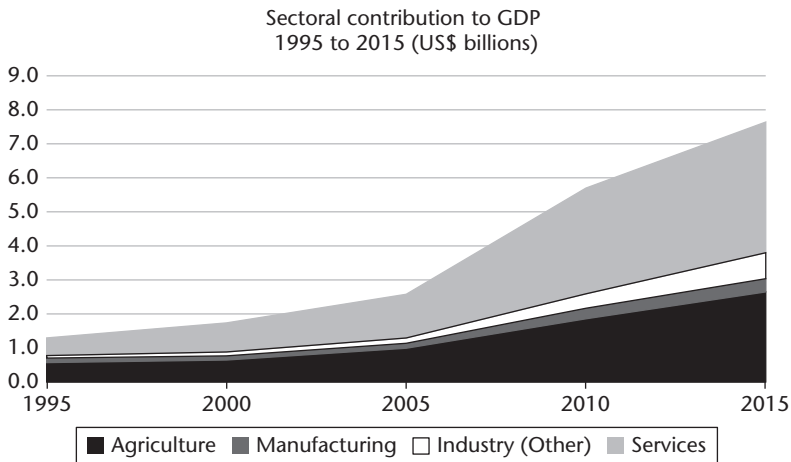


Figure 16.4. Agriculture gives way to services and industry as drivers of growth

Source: World Bank, WDI (accessed November 2016).

increased substantially. Finally, service growth also reflects the steady growth of government itself.

Steady increases in agricultural yields among domestic and export crops facilitated the sector's expansion. Tea and coffee grew relatively rapidly—at times aided by high prices after 2003 and until 2015. There were also increases in domestic yields of food crops, in part powered on the supply side by increased investments in fertilizer and on the demand side by greater integration of the domestic market. The implementation of the National Agriculture Policy since 2004 and the Strategic Plan for the Implementation of Agriculture in Rwanda resulted in massive increases in yields for the main food crops; 225 per cent for maize, 129 per cent for wheat, 90 per cent for cassava, 66 per cent for potatoes, 62 per cent for beans, and 34 per cent for rice. In order to accelerate poverty reduction, especially among the rural poor, government priorities were centred on the diversification of rural incomes into non-farm activities, which contributed 16 per cent of the poverty reduction achieved in the past decade (World Bank 2013).

Manufacturing receded in importance in GDP. This was the result of a surge in growth in the other sectors that simply out-distanced the small manufacturing sector, but no doubt too the unwinding of the very high levels of protection at the end of the import substitution period in the early 1990s also contributed to its relative contraction.⁸

4.1. *Structural Transformation: Labour Moves out of Agriculture, into Services*

The dominant structural transformation was to occur in agriculture and in services growth. As the process of urbanization and growth has accelerated over the two decades since 1995, a conventional picture of agriculture releasing employment to industry and services (Figure 16.5a). The urban wage and non-wage sectors began to absorb a large amount of labour. Many of the new jobs were in the self-employed sector, amounting to 13 per cent in 2011, up four-fold from 2001 (World Bank 2016a) (Figure 16.5b).

Of the 8 per cent annual growth in the 2006–11 period, the World Bank calculated that about half was due to increases in output per worker (4 per cent) and about half due to increases in employment (3.9 per cent). The increase in labour productivity, according to World Bank calculations, was virtually all associated with these inter-sectoral shifts—structural transformation. Some 90 per cent of the total gain in labour productivity during this period was associated with movement out of agriculture (World Bank 2016a).

⁸ See the discussion of Gathani and Stoelinga (2012) for a concise but comprehensive discussion of the pre-1995 policy regime.

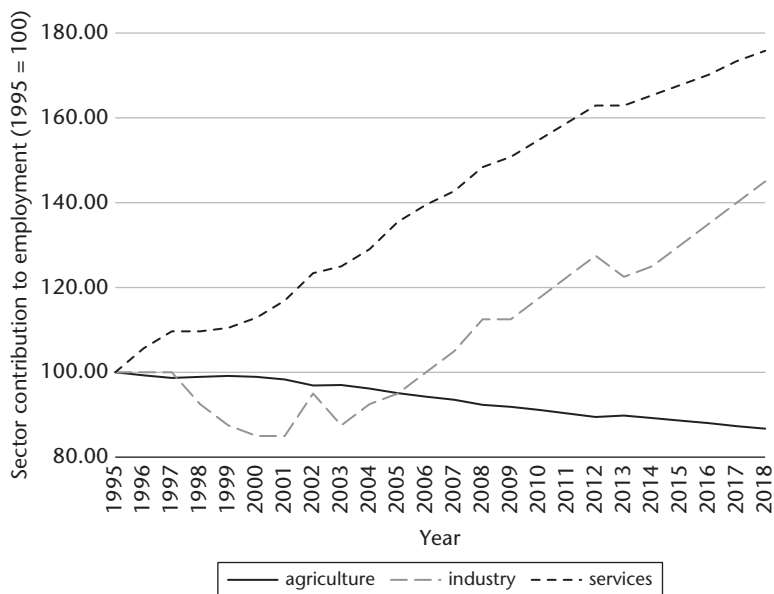


Figure 16.5a. Sector contribution to employment, 1995–2015

Source: Authors' illustration based on data from Rwanda Integrated Household Living Standards Survey (EICV).

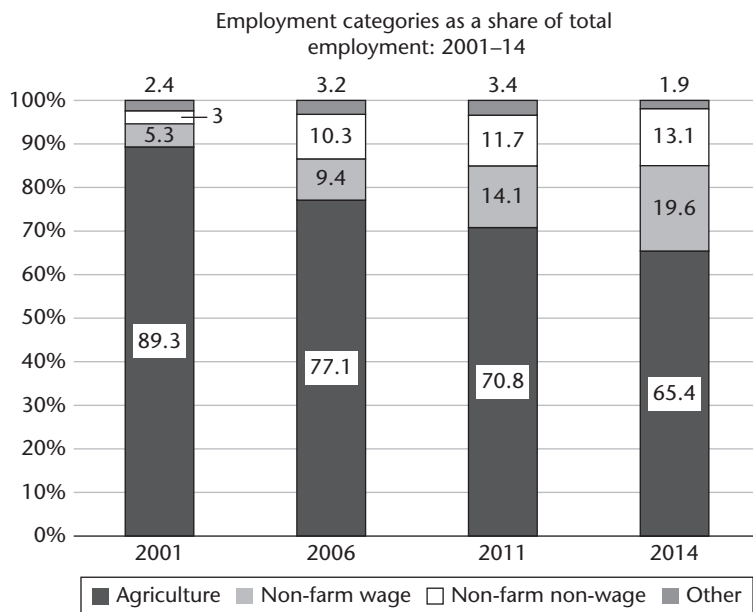


Figure 16.5b. Workers moving out of agriculture into urban activities

Source: Authors' illustration based on data from Rwanda Integrated Household Living Standards Survey (EICV).

This increase in labour productivity has been accompanied by a change in employment patterns. Particularly striking was the proliferation of off-farm part-time employment. In 2006, only 9 per cent of farmers had secondary employment outside of agriculture; that figure a mere five years later had jumped to 21 per cent. By 2011, 45 per cent of all workers—farmers and non-farmers—had moved completely out of agriculture, up from 30 per cent in 2006 who at least had a secondary job in agriculture (see World Bank 2016a).

Services productivity has generally outpaced productivity growth in the rest of the economy. The Overseas Development Institute, decomposing annual productivity growth from 1991 to 2013, calculated that services were responsible for more than 90 per cent of the annual growth in labour output during that period.⁹ Services were clearly a driving force of growth during this period. This is also evident in the sample of firms studied by Spray and Wolf (2016). They found that average output per worker was 21 per cent higher in services than in agriculture (9,855 versus 8,166). Manufacturing productivity, interestingly enough, was less than both agriculture and services (5,729).

4.2. *Exports Become Progressively More Important in Services' First Transformation*

Exports played a small role in the post-genocide recovery period, and only began to take off after 2000 (Figure 16.6). Even though Rwanda succeeded growing its exports by about 20 per cent annually from 2000 to 2014, this performance was built on a very low base—and exports were not a driver of growth. By 2016, total exports reached 15 per cent of GDP, still less than half of the average for sub-Saharan Africa. Nonetheless, since 2000, the country has undergone three transitions.

First, the country has become less dependent on a few traditional commodities—notably tea and coffee—and, though these are still important, today Rwanda embarks on its future with a more diversified portfolio of exports. In 2003–5, the top five merchandise exports, coffee, tea, tin, coltan, and tungsten, accounted for 79 per cent of the total for formal exports.¹⁰ By 2013–15, their share had dropped to 71 per cent (excluding re-exports and cross-border trade). However, if one takes the top ten exports, the situation has not changed much—80 per cent in 2003–05, 79 per cent in 2013–15. Nonetheless, several exports have become important, such as hides and skins, live cattle, beer, and maize flour.¹¹

⁹ Calculated from Figure 5 in Balchin et al. (2016).

¹⁰ This section draws on English et al. (2016).

¹¹ Unfortunately, beer exports were on the decline in 2015 as DRC slapped on new taxes.

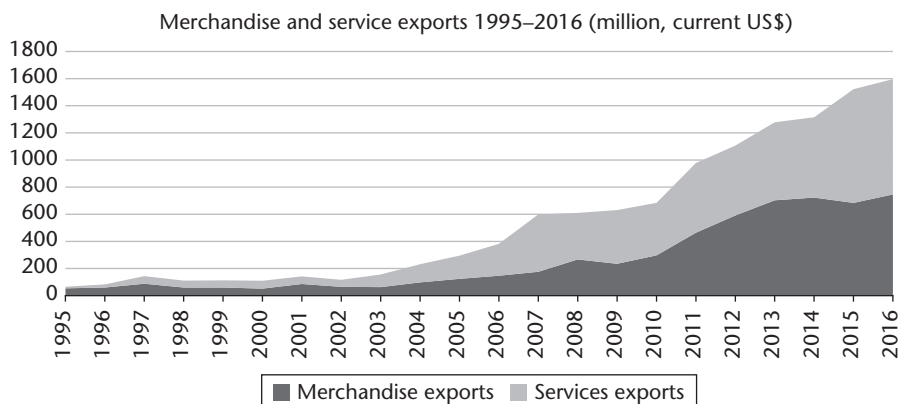


Figure 16.6. Rwanda's services-led export growth

Source: World Bank, WDI (accessed January 2018).

Rwanda has undergone a second transition besides diversification: it is rapidly becoming a services-exporting economy. Today, about half of its total export earnings come from services. In 2016, for example, tourism constituted 23 per cent of foreign exchange earnings, while government services (mainly participation in peace keeping) and transport accounted for another 20 per cent.¹² This does not count services associated with the large volume of re-exports.

By 2016, earnings from tourism rose to US\$390 million from very low levels a mere decade earlier. Overall tourism receipts have grown by over 20 per cent annually over the last ten years. However, they appear to have been levelling off since 2012. The Ebola epidemic in West Africa impacted Rwanda in 2014. The main driver of tourism, gorilla trekking, is reaching full capacity and the country needs to develop additional attractions to keep the sector growing. Conference tourism (MICE) is doing well, increasing by 24 per cent in 2014 and helping to offset the decline in other business travel. This is the harbinger of a future driver of growth, but requires a high level attention to the efficiency of services (Table 16.1).

A third transition is the expansion of trade to regional markets. There was considerable diversification in markets and products associated with regional trade. After 2007, when Rwanda joined the EAC customs union, the country saw a considerable increase in intra-regional exports of goods. Better access to the ports of Mombasa and Dar es Salaam also contributed to large increases in

¹² These percentages exclude re-exports of US\$178 and US\$224 million from the totals for 2015 and 2016, respectively. For accounting purposes the net value addition to re-exports ought to be counted as an additional services exports, but numbers are unavailable.

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Table 16.1. Exports by broad category, 2005 and 2016

Type	Sub-Sector	2005		2016	
		US\$ Million	Share (%)	US\$ Million	Share (%)
Services	Services Total	120	39	848	50
	Tourism	49	16	390	23
	Government goods and services	38	12	254	15
	Transport	33	11	91	5
	ICT	0	0	41	2
	Construction	0	0	37	2
	Financial services	0	0	28	2
	Maintenance and repairs	0	0	7	0
Industry	Industry Total	88	28	447	27
	Minerals	65	21	282	17
	Light manufacturing	23	7	94	6
	Agro-processing	1	0	72	4
Agriculture	Agriculture Total	62	20	174	10
	Coffee and Tea	61	20	133	8
	Other agriculture	0	0	32	2
	Horticulture	1	0	9	1
Re-Exports		41	13	216	13
Total		311	100	1685	100

Source: Authors' calculations, COMTRADE 2017 data.

exports. Other non-EAC neighbouring markets also have become important. While conflict in the DRC limited trade prior to 2007, it has increased over the last decade, and by 2016 exceeded exports to the EAC. Today, the two largest export destinations for Rwandan goods are the DRC and the EAC. Informal cross-border trade, is particularly important to the DRC. In 2015, their value was roughly the same as that of formal non-traditional exports. All told, the DRC accounts for some 40 per cent of total merchandise exports. By 2016, Rwanda exported more goods to the DRC than the EAC. The main formal exports to DRC include livestock and crops, but there is also an important source of (informal) cross-border trade in services such as finance, transportation and wholesale trading.

4.3. The Role of FDI in Services: First Structural Transformation

Because of its links to global value chains and services, foreign investment is central to Rwanda's export future. For most of the first decade and a half after 1995, Rwanda received relatively low amounts of FDI. However, the country's reputation for solid growth performance, sound economic policies, and political stability became attractive to multinational companies, and FDI began to take off after 2005 (Figure 16.7). Much of the new investment went into services, particularly finance, telecommunications, and eventually tourism. During this period, ECO Bank, MTN, and later TIGO entered the

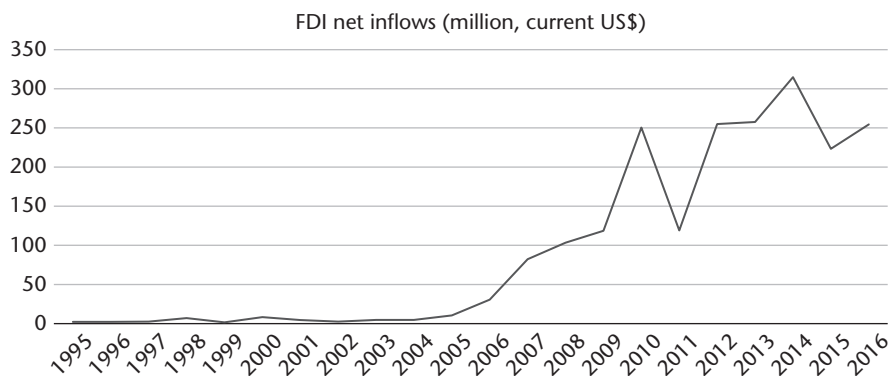


Figure 16.7. FDI picks up in the last decade

Source: World Bank, WDI (accessed January 2018).

Rwandan market. In the case of telecommunications, new entrants competed directly with the state enterprise; in other cases they entered by acquiring state assets, such as the Serena Hotel. Only towards the end of the period did Rwanda experience incipient entry into manufacturing. China has become a leading investor, with such apparel firms as C&H. Agro-processing has also begun to grow of late. Perhaps more indicative, Rwanda’s share of all global FDI going to developing countries has gone up some six-fold—from an annual average of 0.35 per cent in 2000–1 to 2.1 per cent in 2014–15.¹³

Compared to other countries in the region, Rwanda had neither an abundance of mineral and petroleum riches to attract resource-seeking investment, nor a large market to attract market-seeking FDI, nor a particularly skilled labour force to attract investment seeking cheap labour. Nor does it have easy access to coastal ports that would otherwise give it a transport cost advantage. On the contrary, transport costs are high. This makes its recent performance relative to other countries in the region all the more remarkable. Though FDI was low at the turn of the century, Rwanda, alongside Uganda and Tanzania, has now surpassed regional averages in its share of FDI of GDP.

This new surge in FDI comes at a time when ODA, though still high, has levelled off as a share of GDP. Though still larger than FDI in total flows and important in financing public investment, development assistance has begun to fade just as FDI is increasing. Because ODA flows remain substantially larger than FDI flows, the government has made it a priority to reduce its dependence on aid flows in the latest development plan.

¹³ Calculated from World Bank, World Development Indicators.

5. Policies to Promote Exports: The Centrality of Industries without Smokestacks

To stay on its high growth plateau, Rwanda has to expand its exports. Industries without smokestacks will play an increasingly important role. This means promoting growth of services, connecting to local value chains in light manufactures, and adding value to its commodity exports as well as developing new exports. This, in turn, requires both economy-wide policies and industry-specific policies.

5.1. *General Policies to Expand Trade*

The government has developed programmes to reshape the domestic productive environment. First, power is unreliable in supply and expensive. Power costs of US\$0.20 per kilowatt hour (kWh) constitute a notable cost disadvantage to the manufacturing sector. In response, the government has developed a medium-term expansion programme for domestic generation that includes more than doubling installed capacity in the next five years. Second, transportation costs are a huge tax on competitiveness. Transport costs from Mombasa port to Kigali add roughly 50 per cent to prices for imports and exports. Investing in inland cargo transportation facilities would reduce the cost of cross-border trade and increase the competitiveness of Rwanda's exports by reducing transport costs for export products and the cost of imported inputs for the manufacturing sector.

Already, Rwanda has made exceptional progress in improving the business environment. Its ranking has progressively improved on the World Bank's Doing Business scale from 139 in 2009 to 56 in the 2016 rankings (it is one of the top three countries in Sub-Saharan Africa and the top-ranked low-income country). However, this effort has yet to be rewarded with large private investment inflows. Rwanda's low ranking on the 'trading across borders' sub-index (87 in 2017), partly because of high transportation costs, is a clear manifestation of the constraints (World Bank 2017).¹⁴

Finally, the government (along with other EAC members) should revisit trade policies that inadvertently disadvantage exports. Such measures include:

- *Reducing the costs of trading and removing non-tariff barriers in the EAC.* Despite the removal of tariff barriers within the EAC, non-tariff barriers (NTBs) shackle trade growth (see Cadot et al. 2012). Progress on removing the 35 NTBs that EAC ministers agreed on has been halting.

¹⁴ This paragraph and the one that follows draw on Newfarmer et al. (2013).

- *Improving incentives for private investors to export.* The tariff regime shapes relative price incentives to private producers, and high tariffs tend to make it more profitable to produce for the domestic market than for export, biasing productive capacity towards import substitution, usually with a cost penalty in growth.¹⁵ Frazer (2012) calculated that when Rwanda lowered its tariffs on intermediate inputs from an average of about 12 per cent to 7 per cent, exporting firms increased their sales abroad by 5–10 per cent.
- *Liberalizing trade in services.* Even though Rwanda is among the most open of the EAC countries in services trade and has benefitted from that openness, markets with the EAC are still highly segmented. The lack of competition in EAC telecommunications markets in the past, for example, has conferred a dominant position on MTN in Rwanda, mirrored by that of dominant producers in other EAC countries, and this has led to restrictive pricing that has impeded the expansion of the competitive fringe of operators (Argent and Pogorelsky 2011). Similarly, lingering EAC restrictions on professional services are a regional brake on technological absorption and growth in the region and derivatively on Rwanda (Brenton and Gözde 2012). The recent efforts of the government to eliminate roaming charges has reportedly led to greater cross-border communication at lower cost.

5.2. Trade and Industrial Policy Toward Industries without Smokestacks

At the centre of the government's industrial and trade strategy is an effort to diversify the economy, create new activities, and add value to traditional products. The government is pursuing an ambitious programme of industrial policies over the next two years, with the objective of reducing the current account deficit through a more rapid growth of exports and greater import substitution. Medium-term policies are designed to promote exports and reduce imports in several sectors: textiles, garments, and leather industry; agriculture export crops; agri-business; construction; livestock; wood industry; minerals; tourism; and ICT.¹⁶ In agriculture, it seeks to reduce imports through increasing sugar and rice production. It has a major objective of increasing the proportion of fully washed coffee, which increased to 50 per cent in 2015 from 21 per cent in 2010, to rise gradually and reach about 80 per cent over the next two years. In construction, it seeks to expand cement production.

¹⁵ See Newfarmer and Sztajerowska (2012) for a literature review of some 15 recent econometric studies dealing with tariff liberalization and economic growth.

¹⁶ Plans and numbers in the section are taken largely from Government of Rwanda (2016), 'Letter of Intent' for an IMF Standby Arrangement, 25 May 2016.

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Plans are in place to raise the production of the national cement company six-fold to 600,000 tonnes per year. To stimulate manufacturing exports, the government has set up a Special Economic Zone in Kigali and designated sites in other cities to follow suit (see Steenbergen and Javorcik 2017). It has set up an export growth facility in the Rwanda Development Bank (BRD) to promote exports. Moreover, it has set up an export promotion fund. Targeted areas include processed food, and the development of textiles, garments, and leather industry, as well as beginning to export cut flowers soon. It also has plans to export laptops assembled in Rwanda. The objective is to accelerate the move towards high value sectors. The most successful and promising of these are services exports, notably tourism, horticultural products and agro-processing, ICT, and labour-intensive light manufactures.

SERVICES EXPORTS

Services is an area where Rwanda could generate new activity. Rwanda, like many other African countries, has benefited from a leapfrog from the twentieth-century fixed-line technology directly into the twenty-first century mobile technology. Mobile phone subscriptions rose 63 per cent in 2013 to 70 per cent in 2014 while 4G LTE (long-term evolution) was rolled out in November 2015, with an ambitious target of connecting 95 per cent of the population by mid-2017. In the financial services sector, the digitization agenda has seen tremendous modernization of service delivery and the emergence of pro-poor and efficiency-augmenting financial innovations. Between 2011–14, mobile payments subscriptions increased from 639,673 to 6,480,449 between 2011–14, and the value of transactions increased from 51 million to 691 million Rwandan francs (RWF). Mobile money—a financial product that allows users to make financial transactions via the mobile phone—was introduced in February 2010 and has since revolutionized financial inclusion and payments efficiency; mobile money users shot up from nearly 200,000 in 2010 to over 1.4 million in 2012. Partnerships between mobile network operators (MNOs) and commercial banks have taken place to leverage market potential among people formerly without access to the financial system, especially in rural communities. Unexploited opportunities still exist for Rwanda to expand its export of ICT services in the region, and increase the competitiveness of its exports.

TOURISM

Tourism is proving to be one of Rwanda's highest potential export-oriented service sectors, generating about a quarter of the total export of goods and services earnings. It is a sector in which Rwanda's strengths are the safety, comfort, and stability of the country. The government has adopted a MICE strategy aimed at making Kigali a hub for major regional and international

conferences. The opening of the Kigali Convention Centre and, together with new upscale hotels being built, has provide high-quality rooms for up to 6,000 guests. Revenues from MICE tourism were US\$39 million in 2015 and projected to increase significantly in 2016–17, as more than twenty international events are expected to be hosted in Rwanda (Government of Rwanda 2016: 13). To promote tourism, it has invested heavily in the national airline, RwandAir—including the purchase of two airbuses. With new routes to India and China, RwandAir is also part of these plans to bring guests from afar, as well as stimulate trade.

Recently, priorities have focused on medical tourism, with the aim of making Rwanda the medical tourism hub of the EAC region. Investment in high-class and specialized hospitals like the Rwanda Military Hospital (RMH), where patients from the EAC region and beyond could come for high-quality medical services, is expected to boost medical tourism in particular, and generally increase tourist arrivals and revenue. Notwithstanding numerous challenges in realizing this goal, Rwanda has the potential to attract medical tourists from the DRC, where health services are relatively less efficient. Improved digitization of tourist services and marketing of tourist attractions to potential regional and international tourists is still missing and holds great value-addition potential.

HORTICULTURE, CUT FLOWERS, AND AGRO-PROCESSING

The National Export Strategy (2010–15) highlighted export diversification as a key priority, focusing on agro-processing in non-traditional sub-sectors, including horticulture. Horticultural products have increased in importance, leaping from 13,700 metric tonnes in 2008 to 25,600 metric tonnes in 2012 (World Bank 2015). Investment incentives targeted to horticulture in particular, and export development in general, include dedicated land sites for investment, cold chain development—including a Kigali pack house at the National Agricultural Export Development Board (NAEB)—and access to finance, notably through the export growth facility managed by BRD. The six months of rainfall is ideal for horticulture farming; the wet and cool climate in the high-altitude north and west are convenient for temperate fruits, big-headed roses and herbs, while avocados, beans, chillies, and Asian vegetables thrive well in the sunny and warm south and east.

The government plans to expand revenue from horticulture from the US\$3 million it produced in 2009 to US\$9 million in 2015. There are, however, no major horticulture exporters in the country, partly because of the difficulty in maintaining optimal quantities and standards. Besides, the high cost of obtaining an organic licence implies that the majority of horticulture farmers are not licensed organic farmers—even though an estimated 85 per cent of them use organic inputs and practices. Limited land for expansion and

inadequate knowledge among value chain players on proper crop cultivation, fertilizer, and pest management, post-harvest handling, and export procedures further plague the horticulture sector. In order to bridge the knowledge and skill gap, the government has stepped up efforts to train farmers on agricultural and agronomic practices through the One Acre Fund. There is potential for Rwanda to maximize revenues from horticulture by reducing the costs of airfreight between Kigali and international markets, which are among the highest in the region. With airfreight costs substantially reduced, Rwanda would be in a position to serve the increasing demand for fresh fruits and vegetables in the EAC region and the DRC. Physalis are grown in the high-altitude regions of Rwanda and present potential to feed the high demand from Europe and the Middle East—currently supplied by Colombia. Avocado, an oil fruit grown by over 500,000 smallholder farmers, has potential for agro-processing into avocado oil.

INFORMATION AND COMMUNICATION TECHNOLOGY

ICT has expanded greatly in recent years, attracting 47 per cent of FDI between 2008 and 2011, according to data from the National Bank of Rwanda, and contributing 3 per cent of GDP in 2014. The sector has received policy focus under the multi-phase National ICT Strategy and Plan: the first phase (2001–5) focused on institutional, legal, and regulatory reforms, liberalization of the telecom market and reducing entry barriers. The second phase (2006–10) was centred on establishing world-class communications infrastructure as a backbone for the country's communication needs. The major goal in the third phase (2011–15) was to develop ICT for improved service delivery in both the private and public sectors.

ICT continues to grow rapidly and drive innovations in several sectors, offering great growth potential for the economy. The government is a major consumer of ICT services through its line ministries and authorities. One of the main landmark digitization initiatives was the establishment of electronic and mobile declaration (e-declaration and m-declaration) of tax returns in the Rwanda Revenue Authority in 2011. The success of this initiative was backed by the recently (2015) introduced mobile payment for taxes, both initiatives ultimately saving tax payers time and transport costs that would be incurred in declaring and paying taxes. The regulatory agency, the Rwanda Development Board (RDB), has worked closely with technology solutions companies to earmark the digitization of a hundred services, including application for birth certificates, registration, and school examination fee payment, among other key services. The education sector has also embraced ICT by designing online learning platforms and the creation of a private–public partnership between the government of Rwanda and technology company Postivo BGH, in 2014, to set up a laptop factory in Kigali and sell laptops to schools.

The development of mobile apps such as RapidSMS, and e-Diagnosis in the health sector, have eased knowledge sharing and patient tracking by health service providers. In the agriculture sector, the Fertilizer Voucher Management System helped to smooth the distribution of fertilizers to farmers; farmer uptake rose by 11 per cent between 2013 and 2014. Other market platforms like e-Soko help farmers to access real-time price information for agricultural produce.

To meet its ambitious objectives, the government will have to invest heavily in education and in importing professional services to develop fully its ICT and financial sectors. In the short run, the availability of skills in the local market is likely to be the main brake on rapid growth.

LABOUR-INTENSIVE LIGHT MANUFACTURES

Manufactured exports can be divided into two categories according to the markets they target: regional or international. The vast majority fall into the former group and, as already described, focus primarily on DRC, followed by Burundi. There are only seventeen companies which export at least 2 per cent of their output (Frazer 2016). Of the fourteen for which market information is available, only one of them had its primary market outside the region. For eleven, the primary market was DRC or Burundi, and these two markets plus Uganda were the secondary market for eleven as well. Most companies have one principal export product, and these products are generally relatively low value and based on local or regional inputs. Maize flour, beer, and other beverages, plastic shoes, cement, rebar (reinforcing bars), and other construction materials are among the main exports. As explained above, Rwanda is well-positioned to access the DRC and Burundi markets. This has attracted investment from companies based in Kenya, Tanzania, and Uganda.

Past growth in this trade has been impressive and there remains much untapped potential. That said, it is a very complex, indeed difficult, environment to work in and recent events are not encouraging. Corruption is endemic, many rebel groups remain active across the border in DRC, and Burundi is in a state of political turmoil. Business leaders in Rwanda often refuse to travel out of concern for their personal safety, preferring to let buyers come to their factories if they wish. Recently, authorities in Burundi have closed the border, blaming Rwanda for the political problems they face at home. DRC has raised taxes on beer and other beverages, and imposed new licensing requirements for cement, wheat flour, and alcoholic beverages. It is difficult to know what to expect from these two markets, and how much effort to place on expanding this trade.

In contrast, very few manufactured products are exported beyond the region, yet the government has high hopes for the future. In particular, it plans to expand labour-intensive manufactures through participation in

global value chains. Chinese wages have been rising fast and China is now seeking to relocate low value production overseas. Rwanda has attracted interest due to the high productivity of its labour force relative to its low cost, although the size of its non-farm labour force is small. The establishment of one Chinese clothing exporter in the Special Economic Zone is indeed promising. However, Rwanda's landlocked status poses a major challenge, since competitive clothing exports are likely to depend on imported textiles from China. The transport time required to import raw materials and then export the finished product leaves insufficient time to complete actual production and meet the deadlines for seasonal apparel. Thus, the current operator's exports are focused exclusively on uniforms for the time being, along with production for the domestic market.¹⁷ One other company is exporting home design products, which are also not seasonal. In general, this type of trade is highly competitive and Rwanda does not seem to be an obvious candidate. However, industry sources claim that Rwandan productivity relative to its labour costs offsets disadvantages of distance. The question remains whether the new textile factory will prove viable and sustainable over the long run.

6. Conclusions

Rwanda has achieved remarkable rates of socioeconomic transformation since the end of the civil war and genocide that tore apart its economy and social fabric in the early and mid-1990s. Recovery and development processes have for long been based upon building sound political and institutional structures to foster unity and reconciliation in a once highly fragile state. An effective, pragmatic, and corruption-intolerant political system has provided a conducive platform for the success of public policy and a conducive investment climate attractive to both local and foreign investments. The government of Rwanda has exhibited a strong commitment to poverty-reducing economic growth by initiating pro-poor policies to raise the income and productivity of the poor, registering a tremendous decline in poverty and inequality. Donor support has also been an invaluable source of funding throughout Rwanda's recovery and development phases. Going forward, measures will have to be devised to reduce the economy's over-reliance on foreign aid and its associated exposure to external growth shocks. Strategies to diversify the export base, improve domestic revenue collection, and lower the costs of energy and transport would increase the robustness of the country's economy and aid in the realization of a middle-income status envisaged in the country's Vision 2020.

¹⁷ C&H Garments currently employs 300 workers for export production while training another 550 to respond to increased domestic demand given recent decisions to reduce used clothing imports.

Growth of exports and imports have become increasingly important to Rwanda's future growth strategy. If the country can continue to push reforms for the economy as a whole, and in these particular sectors, Rwanda will likely maintain its growth momentum in coming years. Industries without smokestacks will play a central role.

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Industries without Smokestacks in Uganda and Rwanda

John Spray and Sebastian Wolf

1. Introduction

Consensus among many development economists and policy makers is that the development of the manufacturing sector is requisite for wider economic development (Rodrik 2016; Chang et al. 2016). However, in Africa the initial conditions for structural transformation and productivity growth driven by the manufacturing sector are largely absent (Newman et al. 2016). After several decades of lack of growth and failed government attempts to stimulate the manufacturing sector (Isaac et al. 2014; Söderbom and Kamarudeen 2013), it is time for African countries to consider ‘industries without smokestacks’ as potential engines for the transformation of their economies.

In this chapter, we exploit a novel firm-level data set derived from Ugandan and Rwandan tax records to present a set of growing, high-productivity industries in the service, and service-enabled agriculture sectors in the two countries. We study the characteristics of firms active in these industries, and analyse their buyer and supplier networks to gauge whether these types of industries without smokestacks have potential to transform the two countries’ wider economies by driving growth across sectors.

In 2017, Uganda and Rwanda can look back at more than two decades of relatively stable economic growth and diversification. Trade has played a key role in this development. Largely due to the governments’ trade-friendly policies and the regional integration of markets in the EAC, exports grew from 5 per cent to 15 per cent of GDP in the case of Rwanda, and from 12 per cent to 20 per cent of GDP in the case of Uganda. Behind this stand a large number of new export entrepreneurs, supported by a growth of annual FDI inflows from 0.2 per cent to 3.7 per cent of GDP in Rwanda and 2 per cent

to 4.2 per cent of GDP in Uganda. Exports to the East African Community (EAC) made up a roughly constant share of total exports throughout this twenty-year period, so the deepening EAC integration has not led to an over-reliance on regional markets. While unprocessed commodities (mainly coffee and tea) and mineral exports (in the case of Rwanda) still dominate the two countries' export portfolio, the importance of resource-based value addition products, as well as services, has grown substantially in both countries. Services made up less than 25 per cent of exports in the two countries twenty years ago, but in 2014 made up more than 40 per cent (all data from the World Bank 2016).

Despite relatively strong export growth, pressures persist to further increase exports to drive growth and alleviate current account deficits, which averaged 8.5 per cent of GDP over the last five years in Uganda and 9.5 per cent of GDP in Rwanda (World Bank 2016). In this chapter, we suggest that industries without smokestacks will be central in this endeavour.

Our analysis relies on two unique data sets that cover the full population of formal sector firms of the two economies on a monthly basis and hold information on their characteristics and their business networks. This enables us to study industries at the micro level and compare their development over time, features that survey data sets do not hold at a similar level of detail. We utilize the data sets to explore two dimensions of structural economic transformation: within sector productivity growth and across sector productivity spillover. First, we study the characteristics of firms in industries that have driven within-sector productivity growth, and are now productivity leaders. Sorting industries by their average labour productivity, we look at their firms' average size, their wage levels, their participation in and connectedness to the external sector, and their export destinations. Second, we study across-firm and across-sector spillovers by using the Ugandan data to analyse the connectedness of firms in the different sectors and by exploring correlations of output and productivity growth as a function of network distance.

Our analysis shows that industries without smokestacks are already among the productivity leaders in Uganda and Rwanda. To further understand these industries, we single out three firm characteristics that most high-productivity industries without smokestacks in our data sets share, and that present clear policy lessons. First, we find that firm size seems to matter for productivity not only in the traditional manufacturing industries, but also in services and agri-processing. The creation of an environment that supports firm scale-up is therefore an important policy tool across sectors. Second, we find that service and agri-processing industries that have strong connections to the external sector are more productive, re-emphasizing the importance of a liberal trade regime, and encouraging further service trade liberalization. Importantly, the data also shows that, to realize the productivity gains from external sector engagement, firms need not necessarily be actively importing or exporting

themselves, but can realize these gains indirectly through their network by dealing with suppliers and buyers who are directly engaged in the external sector. Third, firms in industries without smokestacks rely relatively heavily on imported inputs, but less so than industries in the manufacturing sector. Hence, expanding high-productivity industries without smokestacks could indeed alleviate current account pressures.

Finally, in our analysis of industry networks, we find that service industries make up six of the top ten most interconnected industries of the economy in Uganda and five in Rwanda, confirming that the service sector is vital in knitting the economy together. We show that productivity growth in these industries is strongly associated with the performance of the whole economy.

The chapter is structured in five main sections. The second section reviews the fundamentals of the data set. The third section looks more closely at the distinctive features of industries without smokestacks. The fourth section analyses the potential of sector-level spillover effects. The fifth section concludes.

2. The Data

We analyse transactional level data from the value-added tax (VAT), pay-as-you-earn¹ (PAYE) and customs declarations submitted to tax authorities to study industries without smokestacks at the firm level in Uganda and Rwanda. The data covers the period 2010–14/15, and includes the full population of formal enterprises in the economy.²

The data sets cover only formal firms that report to the tax authorities. We consider this an acceptable limitation for our analysis, since we are interested in the type of high-productivity firms that interact with the external sector and are more likely to be formal. Because it is more difficult to avoid customs duty than domestic tax, the coverage of the external sector of the economy in the data set is much better than that of the domestic sector. All information in the declarations is self-reported and only in a subset of cases verified by audits, with the exception of customs declarations where verification is standard. A recent IMF report estimated that the URA collects only 60 per cent of the potential VAT (Hutton et al. 2014), and we expect similarly large compliance gaps in other tax heads in Uganda and Rwanda. The report finds the highest level of tax avoidance in the service sector, particularly construction, hotels and restaurants, wholesale and retail trade. We therefore expect that our estimates of output, input and wages are biased downwards particularly for the service sector, although we do not anticipate this to alter results substantially.

¹ Pay-as-you-earn tax is personal income tax withheld by the employer.

² See Spray and Wolf (2017) and Spray (2017) for a more detailed description of the data set.

While the data sets hold a wide array of variables, we focus our analysis on a sub-set of key variables for which we have enough observations to exploit overlap between the different data sources. Our analysis relies as much on the numerical variables as on the categorical variables derived from the business register, and the connections between firms implied by transactions in the VAT declarations. We use VAT declarations to extract information about firms' input use and outputs, as well as their supplier and client network. We then supplement the resulting network structure with details on firms' staffing (from PAYE) and their relationship with the external sector (from customs).

After cleaning, the Ugandan data set contains information submitted by 100,428 firms between 2010 and 2015, and the Rwandan data set contains information submitted by 65,193 firms submitted between 2009 and 2014. The numbers of actively declaring firms per year are lower as firms enter or exit the data sets. In 2010 the data sets contained 29,274 and 18,714 actively declaring firms in Uganda and Rwanda, respectively. In 2009 and 2012 the Ugandan and Rwandan tax authorities, respectively moved to electronic declaration systems for domestic taxes which decreased tax reporting transaction costs for firms and helped the tax authorities expand their tax base gradually. The numbers of actively declaring firms have since risen to 41,578 in Uganda and 32,330 in Rwanda in 2014.

We use four-digit International Standard Industry Classification (ISIC)³ codes to classify firms into industries and, at a higher level, into five sectors: agriculture, manufacturing, mining, 'other'⁴ and services. The standard ISIC groups agriculture, manufacturing and mining industries into single sectors, but splits the service sector into 16 smaller subsectors, which we combine into one sector for the purpose of this study.

The service sector is the biggest in terms of the number of firms covered, making up 80–93 per cent of all declaring firms in the different data sets. This figure by itself does not accurately represent the sector's share of the economy, as the mean service sector firm is considerably smaller both in terms of employees and output than firms in the other sectors. The manufacturing sector has the second highest number of firms, making up 9–13 per cent of firms in Uganda and 4–9 per cent of firms in Rwanda. The agriculture and mining sectors have many fewer formal firms, making up fractions of 0.5–3 per cent of the datasets. Overall, the distribution of industries in our data sets closely resembles the distribution of business established by the Ugandan Bureau of Statistics in the 2010–11 Census of Business Establishments (COBE)

³ International Standard Industrial Classification of economic activities (ISIC) is the standard classification unit used in the data. We use four digit sectors which yields disaggregated detail.

⁴ The 'other' sector includes two subsectors that do not count towards the private economy: extraterritorial organizations and public administration.

and the 2014 Establishment Census (EC) produced by the National Institute of Statistics of Rwanda. See Spray and Wolf (2017) for a comparison, as well as a description of firm characteristics across sectors.

3. What Does an Industry without Smokestacks Look Like in Uganda and Rwanda?

In answering the question posed in this section's title, we are interested in high-productivity industries that have the potential to modernize the Ugandan and Rwandan economies, both through sector-level growth and economy-wide spillovers. Traditionally, only the manufacturing sector has been credited with the potential to increase both sector level and economy-wide productivity. More recently there has been a shift of the mainstream focus towards industries in the service and service-enabled agriculture sectors that can play a lead role in structural transformation. This recognizes the fact that many African countries do not feature the initial conditions necessary to become competitive in manufacturing, and that new global opportunities have evolved in services trade and from participating in global value chains. These industries are coined 'industries without smokestacks' in the project that this study contributes to. This section focuses on the first dimension of economic transformation: sector-level growth. Growth within a sector is driven by industries with high productivity, particularly industries where productivity is high enough to compete internationally. In this section, we compare the productivity performances of all four-digit ISIC industries in our data sets, and find that industries without smokestacks feature prominently among the top thirty most productive industries in Uganda and Rwanda. To learn more about these productivity leaders and what sets them apart, we study their average firms' labour productivity relative to firm size in terms of output and employees, wages paid, connection to the external sector and direct participation in the external sector.

Before beginning our analysis at the industry level, we present sector-level averages of our variables of interest in Table 17.1. For Uganda it shows that average labour productivity of formal firms⁵ is highest in the agriculture sector, where it is almost 33 per cent higher than in the manufacturing sector and 58 per cent higher than in the service sector. In Rwanda, the picture is different. There, labour productivity among formal firms is highest in mining, where it is 60 per cent higher than in services and twice as high as in agriculture.⁶

⁵ It is important to re-emphasize that our data sets only contain formal firms that report to the tax authorities; i.e. the agricultural sector as a whole would not be considered the sector with the highest productivity in Uganda.

⁶ For the mining sector we expect that the labour productivity values presented here are biased upwards by the high capital intensity characteristic of this sector.

Industries without Smokestacks

Table 17.1. Labour productivity, connection to and participation in the external sector

		Av (output/ worker) ¹	Export/ Import ²	% are exporter	% export to EAC	% export to OECD
Uganda						
	Agriculture	10,802	2.46	0.21	0.08	0.13
	Manufacturing	8,125	0.15	0.17	0.11	0.04
	Mining	6,128	0.14	0.18	0.05	0.10
	Other	569	0.02	0.03	0.00	0.02
	Services	6,856	0.29	0.03	0.01	0.01
Rwanda						
	Agriculture	8,166	3.20	0.12	0.06	0.08
	Manufacturing	5,729	0.11	0.15	0.10	0.02
	Mining	16,080	16.76	0.21	0.02	0.13
	Other	942	0.05	0.05	0.02	0.00
	Services	9,855	0.16	0.05	0.02	0.01

Note: ¹Output per worker is calculated on the yearly firm-level average, then averaged at the industry level.

² Export/imports is calculated by summing all exports in an industry and dividing by the sum of imports in the industry.

Source: Authors' calculations.

The difference in sectoral productivities for formal firms between Uganda and Rwanda confirms expectations regarding the two countries' comparative advantages and target sectors.⁷ In Uganda, industrial policy in recent years has been focused on agricultural value chains such as maize and sugar, while Rwanda has focused on mining as well as high value services such as tourism (Daly et al. 2016).

However, the sector-level averages cover up important productivity differentials within sectors, and hide the importance of industries without smokestacks. In Tables A17.1 and A17.2 in the Annex we thus present our variables of interest at the industry level. More specifically, we present the 30 most productive industries in the Ugandan and Rwandan formal economies in terms of labour productivity, and report firm-level averages of our variables of interest. 17 out of the top 30 industries in Uganda, and 21 out of the top 30 in Rwanda are service industries. This by itself emphasizes the importance of the service sector and its industries without smokestacks in the two countries' productivity performance. However, in both Uganda (9 of top 30) and Rwanda (4 of top 30) traditional manufacturing also still represents a high productivity sector that has not yet become obsolete. Remarkably, in Uganda three and in Rwanda one agricultural industries also form part of the high-productivity group. They can broadly be classified as service-enabled agri-business industries. We now turn to study productivity leaders one sector at a time.

⁷ See Isaac and Othieno (2011), Hausmann et al. (2014) and Hausmann and Chauvin (2015) for analysis of Uganda and Rwanda's revealed comparative advantages, and opportunities for diversification.

3.1. *Agriculture*

Three agriculture industries in Uganda are among the top ten most productive industries in the economy in terms of labour productivity: Marine aquaculture, post-harvest crop activities, and marine fishing. The industries dealing with aquaculture and fishing are on average larger in terms of output than in post-harvesting, yet all three have higher output than the sector average, emphasizing the importance of scale. The proportion of firms in these industries exporting directly is also high, ranging from 27 to 67 per cent and accounting for 35 to 65 per cent of output. Most of their exports go to OECD markets, suggesting that firms in these industries manage to meet rigorous phytosanitary standards, an essential skill that other agri-business industries in both countries are still lacking. All three industries rely on complex value chains that are service-heavy and produce products that are of comparatively high value-added. All three also seem to rely on high-skilled labour as they pay wages well above the sector average. However, neither industry features more than 15 companies, and on average the number of workers per company ranges between 22 and 103, so the firms in these industries are not very numerous and their employment creation impact as of now is limited.

Rwanda has fewer success stories in agri-business than Uganda. The only agriculture industry that joined the top thirty industries is animal production. Yet, with seventy firms, and an average of 168 workers per firm, the industry is relatively large and employs relatively many people. But its mean firm output and its number of exporters are only slightly larger than in other industries, so its characteristics differ from agri-businesses in Uganda. It appears that while the high-productivity industries of Ugandan agri-business have managed to join global value chains, Rwandan agri-business is still mainly serving the domestic market with the exception of coffee and tea. This suggests that regional value chain integration with high-productivity industries in Uganda could serve as a stepping stone for Rwandan agri-business companies towards joining global value chains.

3.2. *Mining*

Uganda's mining sector is very small, so we don't study it further. Rwanda's mining sector in turn is large, though a high number of mining firms in Rwanda are small, informal and use artisanal mining methods. Unfortunately, our data only allows us to observe the formal side of this important sector, which is made up of large-scale firms that use modern techniques, have access to capital and are highly productive.

Two of the top five most productive industries in Rwanda are in the mining sector, making up 72 per cent of companies in the sector. Mining of metal ores

is characterized by high labour productivity, high wages, and exports to the OECD. While integrated in a global value chain, the industry as a whole is still very small. The larger of the two is 'Other mining and quarrying', which includes quarrying of stones, sand, clay, mining of chemical and fertilizer mineral, extraction of peat and salt, as well as further unclassified mining and quarrying. Firms in this industry are large, with an average of 52 employees and US\$212,198 output, but the pay is lower than the economy-wide average, which suggests that this sector relies heavily on productivity gains from capital equipment, rather than high-skilled labour. 16 per cent of all companies in the industry are direct exporters, and 7 per cent export to OECD economies. Clearly there is scope for within-industry learning to expand the percentage of directly exporting firms, and to increase the number of firms linked to OECD economies where higher value-added exports are demanded than in non-OECD markets. A market opportunity lies in the construction industry, which currently relies on a high percentage of imported construction materials that could be produced using raw materials from the domestic mining industry, especially given Rwanda's extraordinarily high transport costs, the heavy nature of construction materials, and the level of protection offered by the EAC Common External Tariff.

3.3. *Manufacturing*

The manufacturing industries that feature in the top thirty ranking of labour productivity in Uganda are, in decreasing order, producing building material such as cement, agricultural inputs such as fertilizers, beverages, plastic goods, pharmaceuticals, fats and oils, leather goods, as well as pumps. None of them features more than twenty-five companies, and the average number of workers reaches up to eighty, bracketing the sector average of thirty-eight. The proportion of firms that are directly involved in the export market is considerably higher than in the rest of the sector: with the exception of one outlier, all industries feature a share of at least 32 per cent active exporters. Some industries have managed to penetrate the OECD market, testimony to their mastering minimum standard requirements. Particularly notable in this regard is the tanning and dressing of leather and fur products industry, in which five out of nine companies export to the OECD. Five out of nine companies also supply exporters. However, when considering volume of exports, it appears that most of the industries, except for the leather and fur industry, sell by far the biggest share of their output on the domestic market, while relying relatively heavily on imported inputs, even in comparison with sector averages. This shows that the value-addition potential differs widely among these industries, and that the fraction of firms that achieve high value

addition is small. Given its success on the external market and relatively low reliance on imported inputs, the leather and fur industry can be singled out as a very promising infant industry deserving closer attention by policy makers. While the cement industry has the highest labour productivity in the sector, we cannot proclaim it as the productivity miracle that it appears to be. Since it is a highly capital intensive industry, the high labour productivity value proxies the effect for capital, as well as the high degree of protection enjoyed, which gives companies in this industry market power and disincentive to become competitive globally; see Dihel et al. (2013) for more details on the cement industry in the EAC.

In Rwanda only three manufacturing industries made it into the top thirty ranking of labour productivity. In decreasing order they are manufacture of tobacco products, non-classified manufacturing, and manufacture of communication equipment. While the tobacco product industry is small in size, it has very high average output, and sells products both domestically, in the EAC, and to the OECD. Wages in this industry are high, which suggests a high degree of automation and the use of skilled labour to run machines, logistics and related high value added activities. However, the industry relies relatively strongly on imported inputs; its output is only 180 per cent of its import. There might be a case to work with the companies in the industry and find ways to encourage import substitution, which could also trigger cross-industry and cross-sectoral learning. The communication equipment industry offers a different story. The industry does not seem to be adding much value in-country, having a high import/output ratio, and given its companies' very small sizes in terms of employees. Rather, the industry seems to profit from Rwanda's location as a hub for re-exports to Burundi and the Democratic Republic of the Congo (DRC). This emphasizes the importance of transport and logistics services in Rwanda.

3.4. *Services*

Service sector firms make up most of the top thirty industries in both countries. We find that these are in general made up of a large number of relatively small companies. Wages are mostly lower than in the top thirty agriculture and manufacturing industries, with the exception of telecommunications, wholesale, air transport, specialized construction, holding companies, and electricity services in Uganda, and other retail, reservation services, leasing of personal and household goods in Rwanda. None of the industries has an average staff number higher than forty-eight employees, which is on average considerably smaller than in the manufacturing and agriculture businesses in the top thirty (at least in Uganda), yet bigger than the sector average. The proportion of firms dealing directly in the external sector (at least as per

the customs declarations)⁸ are small, and so are average export volumes, but the proportion of firms acting as direct supplier to exporters is higher than the sector average. Professional services play an important role in Uganda, with medical practices, holding companies, and ICT featuring prominently.⁹ In Rwanda, it is travel agency and tour operator activities, inland water transport and other reservation service and related activities that can be singled out. They are the industries with the highest average wages in the sector, and examples for Rwanda's recent success in stimulating the travel and tourism market in the country.

3.5. Key Lessons Regarding Productivity Leaders in Uganda and Rwanda

In this section we confirm that industries without smokestacks are already important productivity leaders in the Ugandan and Rwandan economies. Three main important patterns emerge from our analysis of firms in these industries. Firstly, industries with high labour productivity feature, on average, larger firms in terms of output than the sector average. This suggests that scale is not only important in the manufacturing sector, but also in industries without smokestacks in the agri-business and service sectors. Secondly, highly productive firms do not need to be exporters, but they are connected to the external sector as suppliers more often than not. This is consistent with the notion that external sector firms require firms in their supply chain to be competitive enough to compete with other regional or global supply chains, and it is true for all sectors that made it into the top thirty. Thirdly, all industries with high levels of labour productivity rely on imported inputs. This is particularly noticeable in the manufacturing sector and it highlights the importance of a liberal trade regime to raise firm productivity, but it also points to windows of opportunities for domestic companies that can aspire to substitute these inputs. It also suggests a positive impact of industries without smokestacks in improving external sector balance, at least relative to the manufacturing industry.¹⁰

Considerable skills development will be required if domestic firms are to substitute the inputs that are essential in making the top thirty industries as productive as they are. The question how these skills might be grown is closely related to our analysis in Section 4, which looks at the role of industries without smokestacks as economic hubs that allow knowledge and productivity to spill from industry to industry and firm to firm.

⁸ Most service sector exports are not covered in customs declarations.

⁹ See also Dihel et al. (2010) for a review of the state of professional services in the EAC and their role as pivotal inputs in other sectors.

¹⁰ Refer to Spray and Wolf (2017) for a discussion of the role of the Common External Tariff (CET) and the sensitive item list for industries in the top 30.

4. Spillover Effects of Industries without Smokestacks

Structural change remains one of the central pillars of development economics. The argument in favour of this approach rests on the assumption that a country's economy can be partitioned into low growth traditional sectors and high growth modern sectors. One rationale for this distinction is that modern sectors require better technology and higher skilled workers than more traditional sectors. This creates the opportunity for learning by doing and the space for substantial productivity growth. Another rationale is that the modern sectors provide higher potential for knowledge transfer from abroad given the simple observation that machines can be moved between countries much more easily than farming techniques (Rodrik 2013).

Economic growth in this context, is simply a matter of equipping your economy with the skills and technologies to gradually replace old sectors with new modern sectors (McMillan et al. 2014). Equipped with higher-value factors of production, the economy can experience virtuous cycles both within the modern sector and spilling-over to other more traditional sectors and consequently access higher growth paths. By contrast, traditional sectors can be characterized as more isolated with fewer spillovers to the rest of the economy. In this section, we consider whether these dynamic linkages exist in industries without smokestacks in East Africa.

We look to identify the role of hub sectors, which knit together the rest of the economy. By combining Ugandan firm-level input-output data and firm-level productivity data, we correlate output and productivity across different sectors. Using this approach we identify whether there is something special about industries without smokestacks in their relationship to the output and productivity of other connected sectors.

4.1. *Output and Productivity Spillovers*

We first consider how central industries without smokestacks are to the rest of the Ugandan and Rwandan economies by looking at sectoral input-output linkages. We then consider the correlation of output and productivity between different sectors in Uganda.

In Figures 17.1 and 17.2 we present a graphical representation of the sectoral input-output matrix for Uganda and Rwanda. Each node represents an industry classified at the ISIC four digit level. This partitions the Ugandan economy into 275 different industries and the Rwandan economy into 136 industries. Each edge shows a directed input-supply connection between the industries—i.e. a flow of inputs from supplier to customer. An edge is only shown if trade between the two industries exceeds 5 per cent of the industries' total trade over the period. This restricts the analysis only to the observation of

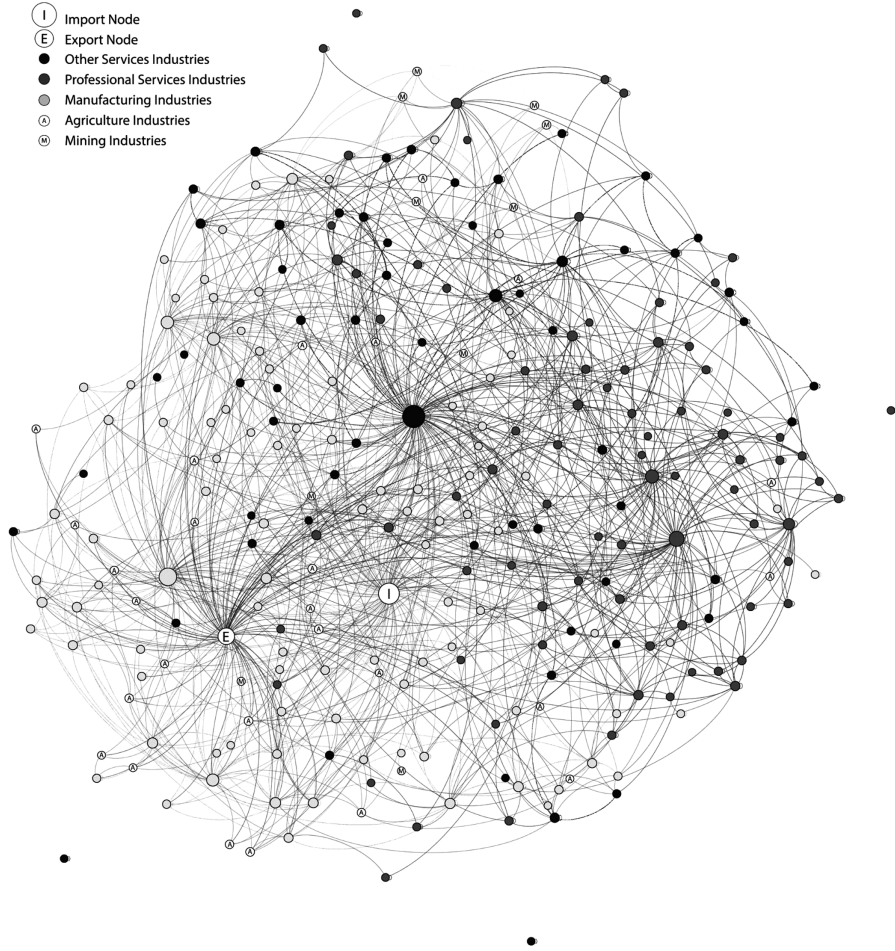


Figure 17.1. Graphical representation of Uganda sectoral input-output matrices for 2009–15

Source: Author’s calculation using tax declaration data from the Ugandan and Rwandan revenue authorities.

trade between industries with substantial interactions. The spatial location of nodes is driven by a force-directed layout known as ForceAtlas2. This layout works like a physical system: nodes repulse each other like charged particles, while edges attract their nodes, like springs. These forces create a movement that converges to a balanced state (Jacomy et al. 2014).

Finally, nodes are differentiated in colour or pattern by sectoral groups (manufacturing, services, agriculture, mining), and scaled by the number of industries which are connected to each node. This helps the reader to observe hub industries. An industry is considered to import (the import node is

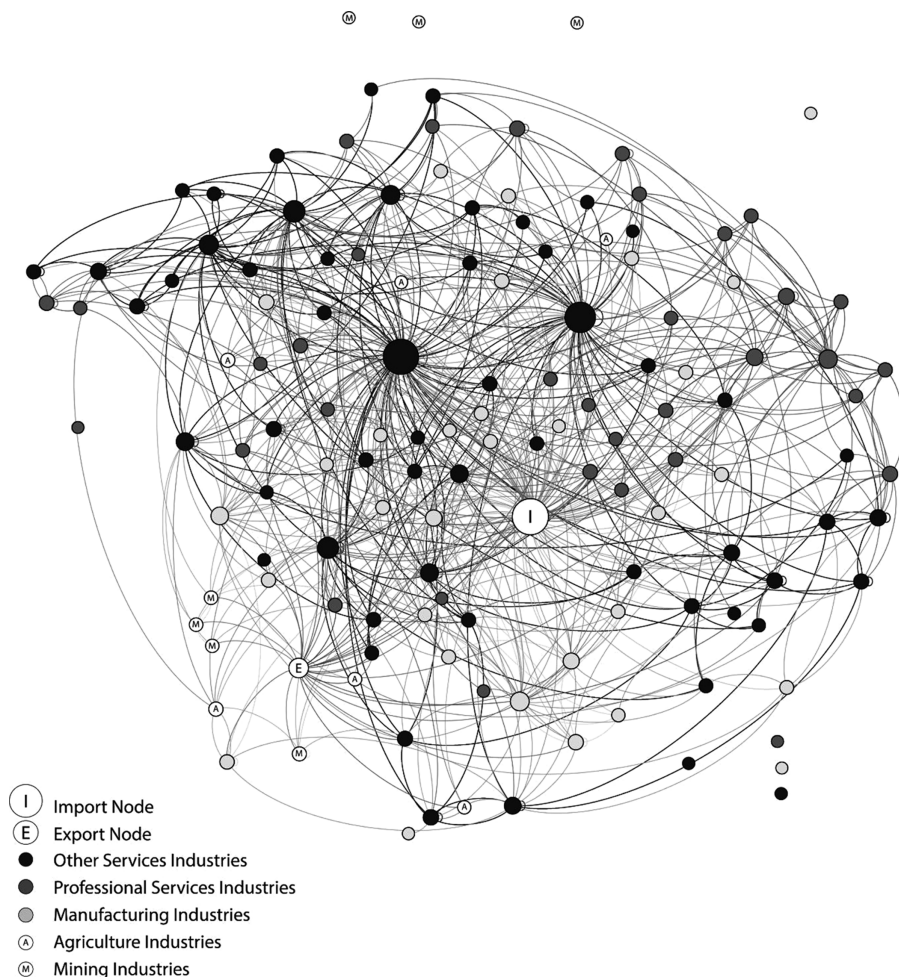


Figure 17.2. Graphical representation of Rwandan sectoral input-output matrices for 2013 and 2014

Source: Author's calculation using tax declaration data from the Ugandan and Rwandan revenue authorities.

indicated with an 'I') if more than 5 per cent of its inputs are imported. An industry is considered to export (the export node is indicated with an 'E') if more than 5 per cent of its sales are exported.¹¹

These graphs reveal some immediate and salient points about the Ugandan and Rwandan economies. First, notice that in both Uganda and Rwanda some industries are far more interconnected to the rest of the economy than

¹¹ For firm-level graphs and considering the role of firm exporters, see Spray (2017).

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others. The average number of connections for each industry is just 3.8 in Uganda and 5.3 in Rwanda, suggesting most industries are relatively specialized with few linkages across the economy. However, as is clear in the graph, the top ten inter-connected industries have far more linkages across the economy. These industries can be classified as hubs which either provide inputs or serve as buyers to numerous other industries. This phenomenon is often referred to as the small world property of networks: despite most sectors being unconnected it only takes a few moves along the directed network to get from any one node to another. Indeed, the maximum distance in this network is just eleven steps in Uganda and nine in Rwanda. This is important when we consider questions of output and productivity spillovers, and highlights the importance of hub sectors for spreading knowledge, output, and productivity shocks.

Second, in both countries imports and exports play a crucial role in the functioning of the economy. This can be observed in the large size and high centrality of these nodes.

The top ten most interconnected industries are shown in Table 17.2. The constellations in Uganda and Rwanda are remarkably similar. Immediately obvious is the presence of six service industries in the top ten in Uganda, and eight in Rwanda. This includes construction services, telecommunication services, accounting services, and cargo handling services. These are essential inputs to all other sectors, without which other sectors could not function. This supports the notion of service industries serving as essential inputs into

Table 17.2. Sectors with most connections

Rank	Uganda	Rwanda
1	Construction of buildings	Other service activities
2	Manufacture of plastics products	Retail sale in non-specialized stores
3	Real estate activities with own or leased property	Wholesale of food, beverages, and tobacco
4	Wired telecommunication activities	Other retail sale of new goods in specialized stores
5	Manufacture of other fabricated metal products	Manufacture of other chemical products
6	Cargo handling	Non-life insurance
7	Manufacture of corrugated paper and paperboard and of containers	Construction of buildings
8	Manufacture of basic iron and steel	Wholesale of construction materials, hardware, plumbing and heating equipment, and supplies
9	Accounting, bookkeeping, and auditing activities	Manufacture of beverages
10	Short term accommodation activities	Telecommunications

Source: Authors' calculations.

the production process. For instance, we know that employing a cargo handling service is a necessary requirement for exporting. Consequently, we might expect a larger impact from a productivity increase in cargo handling, than from other more specialized industries.

The remaining most interconnected industries are from the manufacturing sector. This is consistent with manufacturing industries purchasing inputs from numerous other sectors of the economy. Together, this confirms the opening hypothesis that the manufacturing and service sectors are distinct in their interconnectivity to the rest of the economy.

Much smaller in size are the mining and agricultural sectors which are also relatively unconnected to the rest of the economy. Firms in the mining sector primarily trade with other mining firms or with general service support firms such as transport and logistics. This is consistent with the specialized nature of the mining sector and supports a long-held belief that mining companies work in silos. In the agricultural sector, linkages are often with the manufacturing sector. This is consistent with the manufacturing sectors' purchase of agricultural produce such as maize converted into flour.

4.2. *Co-movement of output and productivity*

We now turn to the question of co-movement of output and productivity across sectors. So far, we have observed that some industries are more interconnected than others, and that this varies by the type of sector. We add to this the observation that industries which are connected are likely to be highly correlated in terms of output and productivity. This is due to (a) covariate shocks across similar sectors and (b) idiosyncratic shocks which propagate through the supply-network (Acemoglu et al. 2012). Industries which are more isolated or further apart should have a smaller correlation. Indeed, we would expect this effect to decay with network distance.

To test this hypothesis, following Carvalho (2014), we calculate average output growth in all 275 ISIC 4-digit industries between 2009 and 2015. We then calculate the pairwise correlation in output growth between each of the 275 industries. Finally, we take an average of these correlations across different network distances and disaggregate the results by sectoral groups. Results are shown in Figure 17.3. The vertical axis displays the average pairwise correlation in output while the horizontal axis displays the network distance between the industries. The average correlation between industries which are distance one apart (i.e. sectors that are directly trading) is 0.38. However, as network distance decreases, so does the correlation in output growth. This is consistent with results in Carvalho (2014) for the USA. We can interpret this result as saying that (a) the network structure of the economy matters for

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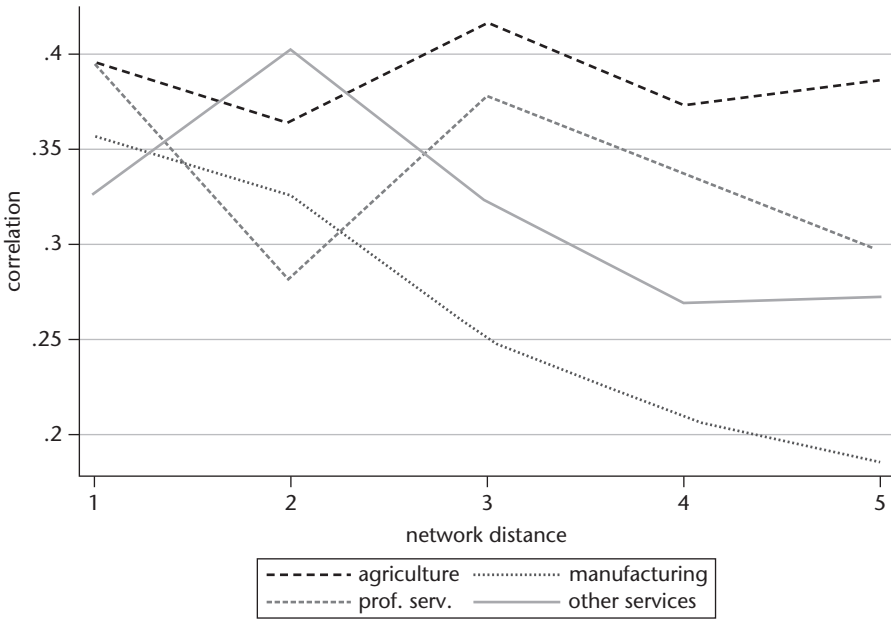


Figure 17.3. Correlation of output and network distance, disaggregated by sector
Source: Author’s calculation using tax declaration data from the Ugandan and Rwandan revenue authorities.

economic growth and (b) that more connected industries are likely to influence economic growth more than isolated industries.

Some industries see a faster decay in correlation to others. This is evident in the agriculture sector group which decays very quickly with network distance, whereas the correlation in the manufacturing sector group decays much less quickly. This is consistent with Figures 17.1 and 17.2 which showed that the agriculture sector was relatively unconnected.

Finally, we look at the contribution of hub industries to output growth in the rest of the economy. As shown in Figures 17.1 and 17.2, some industries are more connected to the rest of the economy than others and serve as hubs. If we believe that these hubs have a disproportionate impact on aggregate output we would expect changes in their output and productivity to explain a large proportion of aggregate output.

In Figure 17.4, we present the quarterly change in output growth in the top ten most interconnected industries alongside the quarterly change in output growth in the whole economy. The graph indicates the strong relationship between the two series indicating that hub industries are disproportionately influential in shaping economic growth. The correlation coefficient between

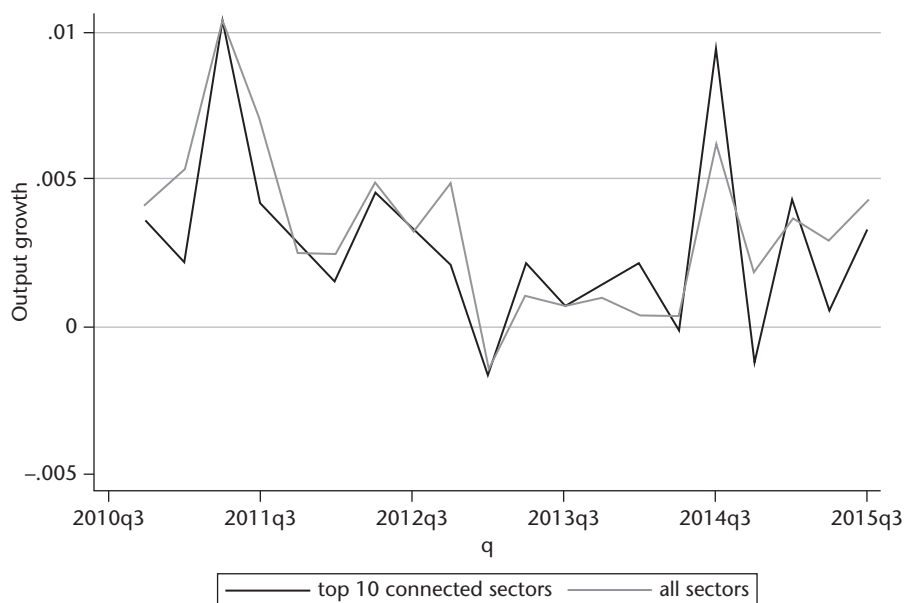


Figure 17.4. Output Growth top ten most interconnected sectors and all sectors
Source: Author’s calculation using tax declaration data from the Ugandan and Rwandan revenue authorities.

the two series is 0.83. By contrast, the equivalent correlation coefficients for the 10 industries in the middle of the interconnectedness distribution is just 0.51.

In Figure 17.5, we present the trajectory of labour productivity growth¹² in the top ten most interconnected industries next to the output growth of the whole economy. Clearly, there is a positive correlation between the two series although less strong than the correlation in output shown in Figure 17.4. The correlation coefficient in top ten sectors (0.49) again exceeds the correlation score in the average ten sectors (0.29).

One concern one might have with these graphs is that we are double counting: the top ten most interconnected industries are also the largest. To address this, we do two things. First, we select the larger sectors in the middle of the interconnectedness distribution such that the overall volume of transactions in the top ten sectors and average ten sectors is equal. Second, we re-estimate the correlation coefficients with the influence of the top ten sectors removed. When we net these sectors out, we find similar correlation coefficients.¹³

¹² Here productivity is simply output per worker.

¹³ For output correlation we find 0.76 and for productivity correlations we find 0.49.

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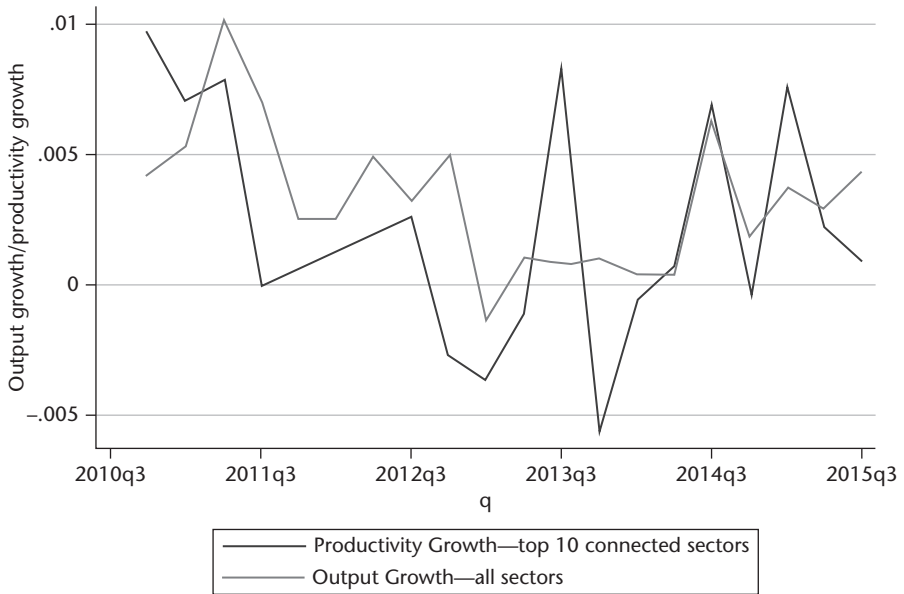


Figure 17.5. Output Growth and productivity growth in top ten connected sectors
Source: Author's calculation using tax declaration data from the Ugandan and Rwandan revenue authorities.

Interpreting these results causally would be a mistake, given the simultaneity bias between the series being discussed. However, they do provide suggestive evidence that some of the sectors identified as high growth industries without smokestacks are also crucial to driving growth in the rest of the economy and provide government with a list of the most important interconnecting sectors of the economy.

5. Conclusion

In this paper we utilized transaction level tax-administration data to study firm networks with a specific focus on industries without smokestacks in Uganda and Rwanda. We first turned to the characteristics of firms in the most productive industries in the two economies to conclude what type of firms and industries can be engines for within-sector growth. Using data on labour productivity we ranked the 275 ISIC industries and compared the top thirty across sectors. Industries without smokestacks feature prominently among the top thirty, numbering twenty-one in Rwanda and seventeen in

Uganda. We then studied their firm characteristics. Firstly, we found that scale matters not only in the manufacturing sector, but also in industries without smokestacks, such as select service sector and agri-business industries. This is true for utility services providers or air transport providers that rely on large capital investments, but it also holds for retailers and wholesalers, who need to build up logistics chains and systems to exploit savings that come with scale. Secondly, the data shows that firms need not be first-hand actors in the external sector in order to benefit from the competitive pressures and learning that this can provide, but that nonetheless it is common among highly productive firms to have at least second-degree connections to the external sector. Service sector firms that act as intermediaries between the domestic and external economy are a strong case in point to exploit this property. Thirdly, the industries we study highlight that cheap imports are crucial for productivity, as imports make up large fractions of high-productivity firms' input use. This points to the importance of a liberal import regime, but also opens the window of opportunities for domestic companies that can aspire to substitute these inputs.

After studying firms that have the potential to lead to sector-level growth, we turn to consider whether industries without smokestacks also have the potential for spillover effects across firms and industries. First we show that some services industries play an absolutely crucial role as hubs of the economy, and that the average number of connections with other firms in the economy is highest in the services sector, followed by the manufacturing sector. We then show that growth in output and productivity in these industries is a strong indicator of overall economic growth, which indicates that these industries do have substantial spillover or pull-effect on the remaining economy.

Annexe

Table A17.1. Ranking of top 30 Ugandan industries by labour productivity, at ISIC level

Rank	ISIC	Industry	# of Comp.	Av. Wage	# of Workers	Av. Output	% is exp.	% EAC exp.	% OECD exp.	% supply exp.	Export/Import
1		Marine aquaculture	3	64	103	1,570,713	0.67	0.33	0.67	0.00	10.93
2		Manufacture of cement, lime, and plaster	4	49	80	7,129,316	0.50	0.50	0.50	0.75	0.01
3		Manufacture of fertilizers and nitrogen	1	334	12	487,294	1.00	0.00	0.00	1.00	0.01
4		Other telecommunications activities	13	315	6	52,651	0.00	0.00	0.00	0.00	.
5		Wholesale of solid, liquid, and gaseous fuels	106	252	23	565,767	0.08	0.05	0.03	0.31	0.01
6		Post-harvest crop activities	15	133	22	130,088	0.60	0.60	0.53	0.40	6.01
7		Activities of holding companies	2	284	2	79,134	0.00	0.00	0.00	0.00	.
8		Marine fishing	15	172	24	451,096	0.27	0.20	0.20	0.00	35.60
9		Manufacture of malt liquors and malt	12	73	52	2,223,659	0.42	0.25	0.17	0.17	0.14
10		Wholesale on a fee or contract basis	67	118	29	233,772	0.09	0.04	0.01	0.19	0.45
11		Wholesale of waste and scrap etc	54	213	12	84,916	0.13	0.09	0.02	0.35	0.37
12		Retail sale of beverages	44	158	21	154,863	0.05	0.00	0.02	0.25	1.18
13		Medical and dental practice activities	81	83	19	218,558	0.04	0.04	0.00	0.05	0.39
14		Retail sale of automotive fuel	158	108	22	277,667	0.05	0.03	0.02	0.21	0.02
15		Manufacture of tanks, reservoirs, etc	3	143	13	246,699	0.67	0.67	0.00	0.67	0.03
16		Retail sale of hardware, paints, and glass	531	172	5	30,909	0.07	0.02	0.01	0.17	0.63
17		Manufacture of pharmaceuticals	10	100	65	558,610	0.60	0.50	0.00	0.50	0.09
18		Passenger air transport	21	228	19	388,441	0.33	0.14	0.19	0.24	0.16
19		Manufacture of veg and animal oils and fats	25	103	60	1150981	0.32	0.32	0.16	0.24	0.18
20		Manufacture of refined petrol products	8	193	29	281,205	0.38	0.38	0.00	0.50	0.04
21		Extraction of natural gas	7	265	50	155,324	0.29	0.14	0.29	0.43	0.03
22		Electric power generation, transm., and dist.	147	219	23	253,193	0.09	0.03	0.04	0.24	0.09
23		Tanning and dressing of leather and fur	9	119	39	473,625	0.67	0.44	0.56	0.56	3.73
24		Manufacture of pumps, compressors, etc	1	608	1	22,678	0.00	0.00	0.00	1.00	.
25		Wholesale of construction materials	448	176	10	62,497	0.11	0.05	0.00	0.31	1.04
26		Wireless telecommunications activities	8	183	48	559,512	0.13	0.13	0.00	0.38	0.76
27		Wholesale of food, beverages, and tobacco	493	137	15	67,611	0.09	0.03	0.03	0.14	5.06
28		Retail sale of second-hand goods	137	159	5	59,815	0.06	0.01	0.00	0.02	0.34
29		Other specialized construction activities	45	316	26	25,004	0.02	0.02	0.00	0.18	0.00
30		Sale of motor vehicles	827	201	7	36,947	0.03	0.01	0.00	0.05	0.55
		Mean across all ISIC industries	88	182	17	34,813	0.04	0.02	0.01	0.05	3.89

Source: Authors' calculations.

Table A17.2. Ranking of top 30 Rwandan industries by labour productivity, at ISIC level

Rank	ISIC	Industry	# of Comp.	Av. Wage	# of Workers	Av. Output	% is exp.	% EAC exp.	% OECD exp.	% supply exp.	Export/Import
1	Retail sale of second-hand goods	Services	17	128	3	34,627	0.12	0.06	0.00	0.24	0.12
2	Mining of metal ores	Mining	1	906	12	778,460	1.00	0.00	1.00	0.00	419.24
3	Inland water transport	Services	4	1,185	8	232,508	0.25	0.00	0.00	0.00	0.11
4	Other mining and quarrying	Mining	124	201	52	206,323	0.16	0.03	0.07	0.04	17.39
5	Manufacture of tobacco products	Manufacturing	2	1,047	78	371,149	0.50	0.50	0.50	0.00	0.24
6	Activities of households as employers	Services	2	831	1	16,582	0.00	0.00	0.00	0.00	.
7	Other specialized wholesale	Services	1,689	294	7	39,709	0.13	0.05	0.01	0.17	0.55
8	Leasing of personal and household goods	Services	7	717	1	21,495	0.00	0.00	0.00	0.14	.
9	Wholesale of metals and metal ores	Services	44	878	6	18,117	0.11	0.02	0.07	0.20	29.54
10	Other reservation service and related act.	Services	15	2,454	4	21,975	0.00	0.00	0.00	0.07	.
11	Retail sale of food, beverages, and tobacco	Services	818	191	10	36,672	0.11	0.03	0.01	0.09	0.67
12	Retail sale of automotive fuel	Services	57	180	16	168,470	0.16	0.05	0.02	0.26	0.05
13	Telecommunications	Services	91	648	22	80,457	0.13	0.09	0.05	0.23	0.27
14	Manufacturing	Manufacturing	29	240	12	93,699	0.21	0.14	0.03	0.10	1.77
15	Animal production	Agriculture	70	168	16	24,983	0.13	0.06	0.06	0.04	5.44
16	Wholesale of household goods	Services	79	135	8	18,731	0.16	0.04	0.00	0.15	0.04
17	Public administration and defence	Other	4	2,595	12	17,102	0.00	0.00	0.00	0.00	.
18	Retail sale of textiles, clothes	Services	2,157	189	5	13,751	0.08	0.02	0.00	0.10	0.68
19	Retail sale in non-specialized stores	Services	9	842	6	31,992	0.00	0.00	0.00	0.11	.
20	News agency activities	Services	175	115	4	12,552	0.13	0.01	0.00	0.15	0.13
21	Other retail sale of new goods	Services	916	214	4	17,288	0.08	0.02	0.01	0.14	0.46
22	Wholesale of fuels	Services	110	184	8	30,518	0.21	0.05	0.01	0.17	0.15
23	Wholesale of textiles, cloth., etc	Services	28	225	43	252,275	0.18	0.11	0.04	0.18	0.01
24	Extraction of crude petrol. and nat. gas	Mining	5	6,040	2	27,605	0.20	0.00	0.00	0.00	9.41
25	Wholesale of food, beverages, and tobacco	Services	53	165	22	104,851	0.25	0.13	0.19	0.02	12.88
26	Travel agency and tour operator activities	Services	71	354	11	26,651	0.06	0.03	0.00	0.10	0.10
27	Manufacture of comm. equipment	Manufacturing	144	234	6	14,407	0.03	0.01	0.00	0.08	0.04
28	Building completion and finishing	Services	52	539	27	44,622	0.15	0.08	0.08	0.13	0.06
29	Manufacture of refined petrol. products	Manufacturing	147	221	5	22,204	0.12	0.05	0.01	0.23	0.35
30	Wholesale of construction materials etc	Services	7	305	30	182,762	0.14	0.00	0.00	0.14	0.27
	Mean across all ISIC industries		235	366	12	22,396	0.05	0.02	0.01	0.05	2.58

Source: Authors' calculations.

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18

Regional Opportunities in East Africa

Stephen Karingi, Ottavia Pesce, and Lily Sommer

1. Introduction

This chapter assesses how a well-integrated economic bloc, the East African Community (EAC), has supported industrialization, in particular through smokestack-free industries.¹

The key objectives are to assess the impact of the EAC Customs Union (CU) and regional integration efforts more broadly on the:

- volume and type of intra-EAC trade;
- development of regional value chains (RVCs), particularly in smokestack-free industries; and
- development of competitive smokestack-free industries.

After looking at how regional integration has contributed to trade, RVCs, and industrial performance in the region, the chapter describes some examples of smokestack-free industries that have recently emerged in the EAC. It then delves into a case study of the dairy industry in Uganda, which expanded significantly over the last decade, partially thanks to tariff protection and export opportunities within the EAC.

¹ The authors wish to sincerely thank representatives of the Dairy Development Authority, the Ministry of Agriculture, Animal Industry, and Fisheries, Jesa Farm Dairy Limited, and Brookside Limited, who participated in the field visit meetings in Uganda. The information and experiences shared during this exercise provided very valuable input into the case study on the Ugandan dairy industry presented in Section 5.

The views expressed in this chapter are the authors' own and may not necessarily reflect the position of the United Nations Economic Commission for Africa and the United Nations Economic and Social Commission for Western Asia. Any mistakes or omissions are the sole responsibility of the authors.

The chapter focuses on the CU as an instrument as it has been in full operation for over five years, whereas implementation of the Common Market (CM) Protocol has been slow and the EAC Monetary Union is yet to be established. Analysis is centred on the five ‘established’ EAC partner states. Smokestack-free industries are taken as industries that display firm characteristics similar to traditional manufacturing industries, but are more modern and do not have the drawbacks associated with heavy polluting industries. Examples include agro-processing and tradeable services.

2. Overview of the EAC

The EAC came into force on 7 July 2000, following ratification by the original three founding partner states—Kenya, Tanzania, and Uganda. Rwanda and Burundi entered seven years later, on 1 July 2007; on 2 March 2016 South Sudan was admitted as the sixth member of the regional bloc. The EAC objective is to deepen economic, political, and social cooperation among members.

The EAC CU became operational in 2005 and initially covered Kenya, Tanzania, and Uganda. Rwanda and Burundi joined in 2008 and started to apply its instruments in 2009. It intends to liberalize intra-EAC trade and promote efficiency in production through facilitating the free movement of goods within the community. The EAC CM entered into force in 2010 following ratification by all five partner states. The CM aims to achieve the free movement of services, labour and capital, in addition to the free movement of goods. The key aspects of the CU are:

1. a common external tariff (CET) on imports from third countries;
2. duty-free trade between partner states; and
3. common customs procedures.

Significant progress has been made in the implementation of the CU. Trade between members is now free from import duties.² Members adopt the three-band CET shown in Table 18.1. The maximum tariff under the CET is 25 per cent, although the EAC allows higher tariffs for a list of sensitive products, which are analysed in Section 3.2.

Based on its linear progress towards full economic union, the EAC is often considered the most advanced and ambitious regional economic community in Africa. Quantitative exercises by the International Growth Centre find significant trade promotion and security gains from the EAC (Mayer and Thoenig 2016). However, the EAC, and indeed Africa as a whole, trades less

² With the exception of a few instances in which disagreements between partner states have arisen.

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Table 18.1. Structure of EAC CET band rates

	EAC most-favoured nation (MFN) tariff rates applied (%)	No. tariff lines	Tariff lines (%)
Raw materials, capital goods, agricultural inputs, certain medicines, and certain medical equipment, etc.	0	2,003	37.1
Intermediate goods and other essential industrial inputs	10	1,152	21.4
Finished products	25	2,176	40.3
EAC sensitive items	35–100	64	1.2

Source: World Bank et al. (2014).

as a share of gross domestic product (GDP) than other developing regions such as East Asia and Latin America—this holds for both world trade and intraregional trade.

A reason for this is the high prevalence of non-tariff barriers (NTBs) in the region, which create considerable obstacles to trade. This is reflected in the extremely high average costs in *ad valorem* equivalent for EAC countries to trade within the region, which were 118.8 per cent in 2013.³ Prominent NTBs include high transport costs, bureaucracy, corruption, and expensive settlement of payments (Karingi, Pesce and Sommer 2017).

3. EAC Performance

3.1. Growth and Investment

During the past decade, economic growth in the five established EAC partners was consistently strong and above that of previous decades. In 2015, East Africa was the continent's fastest-growing region, growing at 6.5 per cent compared to 3.7 per cent for Africa as a whole. Although the region still produces and exports predominantly low-value primary products such as coffee and tea, the level of economic diversity and the number of smokestack-free industries in the EAC is increasing. Success stories cover sectors as diverse as cut flowers, dairy, textiles, financial services, information technology, and tourism.

The EAC CU presents opportunities for firms to locate within the large EAC market and benefit from the single market. Annual FDI inflows to the region increased from US\$680 million in 2004 prior to the CU to US\$4,577 million in 2014. Intra-EAC FDI exists in smokestack-free industries such as financial

³ Authors' calculation based on the ESCAP-World Bank Trade Cost Database.

services, tourism, and manufacturing (ILEAP 2012), and also in cement production, which is a crucial input to some smokestack-free industries.

3.2. Trade in Goods

Intra-EAC exports registered a considerable upward trend following the implementation of the CU in 2005, increasing from US\$911 million in 2004 to US\$2,491 million in 2014. Kenya exports the most value to the EAC (US\$1,326 million), followed by Uganda (US\$605 million) and Tanzania (US\$425 million). Rwanda and Burundi have seen exports to EAC partner states increase, but this has been from a much lower base—the two countries exported US\$112 million and US\$22 million to the EAC respectively in 2014.

The value of total intra-EAC imports is also on an upward trend, having increased from US\$1,223 million in 2005 to US\$2,875 million in 2014. Imports are, however, less integrated within the EAC than exports. In 2014 intra-EAC exports as a share of total EAC exports were 18 per cent, whereas intra-EAC imports as a share of total EAC imports were just 7 per cent. This is less than the figure of 10 per cent for 2005, reflecting EAC partner states’ growing reliance on imports from the rest of the world to meet their structural transformation agendas. Uganda, Rwanda, and Tanzania import the most from within the EAC, while Kenya, the group’s most advanced economy, relies more on imports from the rest of the world.

On average, intra-EAC exports as a share of total EAC exports remained largely unchanged following implementation of the CU (see Figure 18.1).

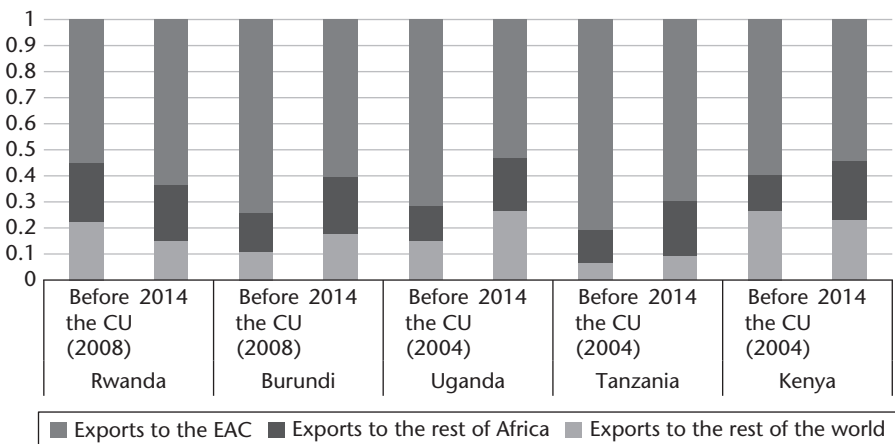


Figure 18.1. Exports shares before and after accession to the CU, by partner state, %
Source: Authors’ calculations based on UNCTAD statistics.

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Kenya reduced its exports to the EAC as a share of total exports after joining the CU. This reflects the significant expansion of Kenya's trade with other African countries outside the EAC. On the other hand, Uganda is the country that expanded its EAC share of total exports the most after joining the CU.

Increased regional integration has helped EAC partner states to diversify and structurally transform their economies. In 2014, EAC exports to the rest of the world were largely food items (48 per cent) and other non-manufactured goods—fuels, pearls, precious stones and non-monetary gold, agricultural raw materials, and ores and metals (32 per cent). Intra-EAC exports are much more diversified than EAC's global exports, with a larger share of manufactured goods (55 per cent compared to 19 per cent). For example, in 2015 US\$73 million worth of lime, cement, and other construction materials were exported from Uganda to Rwanda. Coffee, tea, and spices contribute 20 per cent of EAC's exports to the rest of the world, but only 5 per cent to internal exports.

In 2014, 65 per cent of EAC's imports from the rest of the world were manufactured goods compared to 62 per cent for intra-EAC imports. The two percentages are very close, suggesting that EAC partner states have competitive import opportunities for manufactured goods within the region, despite still importing the majority of manufactures from outside.

3.2. Free Trade Area and CET Structure

The introduction of the three-band CET tariff structure differentially impacted EAC partner states. At the onset of the CU, Kenya adopted a ten-band tariff structure ranging from 0 to 100 per cent; Tanzania adopted a five-band tariff structure ranging from 0 to 25 per cent; and Uganda adopted a four-band tariff structure ranging from 0 to 30 per cent.

Table 18.2 shows the estimated effects on the three EAC partner states of implementing the CU 0–10–25 three-band CET structure. The CET resulted in a large reduction in Kenya's protection vis-à-vis the rest of the world, which helps to explain the growth and reorientation of Kenya's trade with countries outside of the EAC, as shown in Section 3.1. The majority of tariff lines were raised in Uganda. This increased the country's average costs from importing

Table 18.2. Estimated effects of CET tariff changes on EAC partner states

	Kenya	Tanzania	Uganda
Number of tariffs lowered	3,216	2,364	1,353
Number of tariffs increased	1,144	1,224	3,066
Number unchanged	753	1,525	694

Source: McIntyre (2005).

Table 18.3. Evolution of intra-EAC tariff regimes, %

	2003	2007	2010
<i>Burundi</i>			
Weighted average	5.9	2.0	0.0
Maximum rate	40.0	30.0	0.0
<i>Kenya</i>			
Weighted average	16.7	0.0	0.0
Maximum rate	60.0	0.0	0.0
<i>Rwanda</i>			
Weighted average	2.1	2.4	0.0
Maximum rate	60.0	30.0	0.0
<i>Tanzania</i>			
Weighted average	1.8	1.6	0.0
Maximum rate	25.0	50.0	0.0
<i>Uganda</i>			
Weighted average	3.3	1.1	0.0
Maximum rate	7.0	9.0	0.0

Source: Authors' calculations based on World Integrated Trade Solution (WITS) data.

outside the EAC and helps to explain why Uganda imports the most from within the region.

Over time, EAC partner states progressively reduced internal tariffs. Table 18.3 shows that in 2003 Kenya imposed much higher tariff rates on imports from EAC partner states than did Tanzania and Uganda. The introduction of free trade between the three countries in 2005 therefore required the largest tariff reductions in Kenya, which already had relatively easy access to other EAC markets. The CU took into consideration the differing levels of development among partner states: it permitted Tanzania and Uganda to eliminate tariffs on all imports excluding an agreed list of commodities, for which tariffs on Kenyan imports would be gradually reduced to zero over a five-year period. This temporary protection mechanism was designed to allow Tanzanian and Ugandan producers sufficient time to restructure operations in the face of increased competition from Kenyan imports. The asymmetrical opening up to EAC imports—with significant opening up of the previously relatively closed Kenyan market—helps to explain why the share of Ugandan and Tanzanian exports to the EAC increased following the introduction of the CU, while the share of Kenyan exports to the EAC declined. Burundi and Rwanda only joined the CU in 2009. As the two smallest economies in the region, this significantly opened up export opportunities to the larger EAC markets.

The overall decline in tariffs in the EAC was strongest for capital goods, where the weighted average tariff dropped from almost 9 per cent in 2003 to about 4 per cent in 2014. Apart from those listed as sensitive items, capital goods imports are not protected. This encourages industrial production by reducing the costs of machinery and other capital inputs for producers.

Intermediate goods imported into the EAC still face a tariff rate of 10 per cent, however, which affects firms that rely on imported inputs. Due to limited local availability, the majority of intermediates are imported into the EAC—in 2014 only 6 per cent (US\$1,594) of the EAC's imported intermediates were sourced from within the EAC, compared to 14 per cent for consumption goods.⁴ This indicates that RVCs are only emerging slowly. Imports of intermediates within the EAC are particularly weak in fuels and lubricants and in parts and accessories of capital goods and transport equipment.⁵

In 2014, 57 per cent of EAC's imported intermediates from outside were industrial-related (industrial supplies, parts and accessories of capital goods, transport equipment, and other industrial), indicating limited value chains of industrial inputs. Some exceptions exist. For example, 34 per cent of primary industrial supply products such as cement are sourced within the EAC. As expected, the least developed EAC partner states, Burundi and Rwanda, import larger shares of intermediate inputs from within the region and export fewer intermediates to the EAC. Kenya is the leading exporter of intermediates within the EAC (44 per cent) followed by Uganda (22 per cent) and Tanzania (21 per cent).

The protection imposed by EAC partner states on imported intermediate goods currently limits their use in production processes and possibilities for the export of transformed products. This constrains the development of smokestack-free industries such as agro-processing and textiles, which rely heavily on imported machinery and other inputs. A review of the CET structure is needed to ensure consistency with industrial frameworks and promote competitiveness based on comparative advantage. Frazer recently estimated that a 5 percentage point tariff reduction on inputs used by Rwandan exporters would result in a 5–10 per cent increase in their exports (Frazer 2012).

EAC partner states have in fact recently resolved to review existing CET rates and the basket of sensitive goods. Each partner state appointed an expert team to participate in negotiations from July 2016 to inform the finalization of a comprehensive CET review by December 2016 for implementation from July 2017 (*East African* 2016). This provides an opportunity to reduce the tariffs on imported intermediates. Conversely, tariffs on intermediates for which regional production already exists could be increased (e.g. steel and iron products), possibly through updating the sensitive items list. This would increase the protection provided for local producers, help to prevent premature de-industrialization and encourage intra-EAC trade in intermediates and the development of new RVCs.

⁴ Authors' calculations using 2013 data for Kenya.

⁵ With the exception of Burundi importing 100 per cent of its primary fuels and lubricants from the EAC.

The classification of products under the three-band CET structure has caused concern among producers within the EAC, who argue that some items that are imported as finished products are actually used as inputs in industrial production. This reduces the competitiveness of manufacturers who are required to pay duty rates of 25 per cent as opposed to 0 or 10 per cent. For example, palm oil is imported as a finished product under the CET regime, but is used as a raw material in the manufacture of soap. Similarly, clinker is imported as a finished product but used as an intermediate input in the manufacture of cement. The CET review should therefore also consider updating the classification of products under the three-band structure to reflect the primary use of imports (*EastAfrican* 2016).

3.3. Sensitive Items

The EAC allows a list of sensitive items to have higher tariff lines than the maximum CET rate of 25 per cent. Reaching agreement on the classification of the 1.2 per cent of tariff lines defined as sensitive items was not easy. EAC partner states indicated that they wanted to protect subsidized exports (mainly agricultural products from industrial countries) and second-hand items from import competition (McIntyre 2005).

Fifty-nine tariff lines are designated as EAC sensitive products, of which 31 are agricultural lines (at HS8 level). Table 18.4 shows the goods categorized as sensitive. The names of product categories are simplified for ease of reading. Fully detailed product names can be found in the link provided in the table source. Sugar is the most highly protected, with a tariff rate of 100 per cent for some types of sugar products. Rice is also heavily protected, with a 75 per cent tariff rate, followed by wheat, meslin flour, and dairy products at 60 per cent.

Data show that the EAC does not have the supply capacity needed to fulfil demand for the majority of sensitive items (see Table 18.5). In 2012, over 90 per cent of EAC demand was met by imports from the rest of the world for 65 per cent of the sensitive tariff headings. These include important consumer and industrial products such as woven fabrics of cotton and synthetic staple fibres, wheat and meslin, sugar, linens, and primary cells and batteries. The high CET rates attached to these products negatively impact consumer welfare and raise the costs of industrial development. EAC partner states imported about US\$217 million worth of sugar from outside the region in 2012, at tariff rates as high as 100 per cent. This seems to show that such high tariffs, while protecting nascent local industries, may be excessive. Taking the example of sugar, high tariffs increase costs for consumers, but also constrain the development of agro-processing smokestack-free industries that rely on sugar as a key production input (e.g., soft drinks, biscuits, and candy).

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Table 18.4. List of EAC tariffs for sensitive items

Items	Rate
Cane or beet sugar and chemically pure sucrose, in solid form	35% for jaggery; 100% or US\$200/metric ton (MT) for other, whichever is higher for industrial sugar and other types
Rice	75% or US\$200/MT, whichever is higher
Wheat and meslin flour	60%
Milk, cream, buttermilk, yoghurt, and most other dairy products	60%
Maize (corn)	50%
Cement	55%
Matches	50%
Various types of woven fabrics of cotton or synthetic staple fibres	50%
Tracksuits, ski-suits, and swimwear; other garments	50%
Bed linen, Table 18.linens, toilet linen, and kitchen linen	50%
Sacks and bags of a kind used for the packing of goods	From 35% or US\$0.20/kg, whichever is higher, to 45% or 45¢ per bag, whichever is higher
Stoppers, caps, and lids; capsules for bottles, bungs, seals, and other packing accessories	40%
Primary cells and batteries	35%
Tobacco products	35%
Wheat and meslin	35%

Source: EAC sensitive items list (http://tradehelpdesk.eac.int/documents/Sensitive_List.pdf).

Intra-EAC trade in sensitive items is relatively high for a limited number of products. These include dairy products, maize, cigars and cigarettes, cement, sacks and bags, and packaging accessories. Although these industries were already relatively strong before the CET, the high sensitive item tariff rates have supported their expansion. For example, 85 per cent of the EAC's imports of cigars and cigarettes originated from the region (largely Kenya) in 2012, compared with 30 per cent in 2005.

Some industries, such as steel and iron, have been competitive without sensitive item status, both in the EAC and internationally. The EAC exported about US\$73 million of coated iron and non-alloy steel flat-rolled products within the region in 2014, and about US\$59 million to the rest of the world—protection of these products ranges from 0 to only 25 per cent. The boom in construction in the region is driving the steel and iron industry. In Uganda and Kenya, where ore deposits have been discovered, governments are encouraging investments in iron ore (*Construction Review* 2013). The EAC Secretariat has banned exports of scrap metal, which has led to more accessible and cheaper inputs for steel processors in the region. This highlights that competitive industries can be achieved through other means than protective tariffs, and points to the need for supportive industrial policies and interventions to address supply-side constraints (*African Review* 2012).

Table 18.5. Intra-EAC import share of total EAC imports of sensitive items by tariff heading, %

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Milk and cream, not concentrated	51.2	4.8	52.9	41.2	38.6	54.9	77.4	84.8	70.5	95.6
Milk and cream, concentrated	11.3	3.6	4.5	34.9	42.7	37.2	28.5	41.4	13.6	36.1
Other milk products	23.1	34.4	47.0	54.9	34.9	56.2	46.9	50.9	19.8	45.5
Wheat and meslin	2.1	2.0	2.2	0.4	0.4	0.1	0.3	0.3	0.4	0.3
Maize (corn)	27.2	4.4	19.1	9.8	87.1	9.5	3.1	18.1	29.0	41.3
Wheat or meslin flour	60.2	0.2	71.4	79.6	5.0	10.9	9.4	7.6	2.8	0.7
Sugar	1.2	0.0	5.6	3.4	4.1	2.1	4.1	2.7	6.4	3.9
Cigars, cheroots, cigarillos, and cigarettes	74.0	37.5	29.6	60.3	76.7	83.8	84.9	77.3	92.5	85.5
Other manufactured tobacco	46.0	1.3	55.9	31.7	0.2	0.3	2.7	0.0	0.1	0.0
Cement	52.3	46.6	54.9	47.7	31.1	35.0	47.7	32.1	61.8	35.5
Matches	2.4	0.0	0.1	2.8	0.2	0.3	6.7	4.1	4.1	4.2
Woven fabrics 5208	0.1	6.6	1.3	3.4	1.8	1.0	1.2	1.2	1.3	1.1
Woven fabrics 5209	7.0	0.7	0.0	0.5	0.7	0.9	2.6	3.4	34.5	0.1
Woven fabrics 5211	0.0	1.0	1.9	0.6	9.6	11.7	11.6	6.7	17.6	0.1
Woven fabrics 5212	0.4	0.0	1.4	1.1	0.4	0.2	0.3	0.5	4.2	1.8
Woven fabrics 5513	4.8	7.5	2.4	1.9	2.6	2.4	2.1	2.7	12.0	0.6
Woven fabrics 5514	2.0	2.6	2.7	1.4	1.1	2.4	4.2	3.5	7.5	4.2
Garments	1.8	3.2	14.0	2.5	4.4	2.7	2.6	4.0	4.7	3.7
Linens	1.1	3.2	3.3	2.2	1.8	3.6	2.4	1.2	17.2	1.8
Sacks and bags	45.7	21.0	18.4	24.5	29.8	25.5	17.9	20.0	26.5	23.2
Worn clothing	0.5	1.7	1.5	1.7	0.5	0.7	0.9	1.1	1.2	0.4
Packaging accessories	40.3	30.6	25.4	29.3	21.2	36.9	40.4	40.1	78.6	43.8
Primary cells and batteries	2.8	2.0	2.4	3.5	5.2	2.3	3.0	1.7	2.2	0.4

Note: for details on the breakdown of woven fabrics, see the sensitive items list at: http://tradehelpdesk.eac.int/documents/Sensitive_List.pdf.

Source: Authors' calculations based on WITS data.

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Tobacco, maize, and sugar are the most widely exported sensitive products in the region, with total EAC exports at US\$500 million, US\$140 million, and US\$130 million, respectively. The dairy industry, on which the chapter's case study focuses, has benefited from sensitive item tariff protection—EAC exports of milk, cream, buttermilk, yoghurt, and most other dairy products totalled US\$41 million in 2014. Uganda and Tanzania export the highest number and greatest value of sensitive products. The sensitive product share in the value of exports is 12 per cent for Tanzania, 11 per cent for Uganda, 6 per cent for Rwanda and Burundi, and only 2 per cent for Kenya. A breakdown of EAC exports of sensitive products by partner state is provided for in Karingi, Pesce and Sommer (2017).

The benefits of high protection of sensitive items are unequally distributed among partner states. 30 per cent and 23 per cent of intra-EAC exports from Tanzania and Uganda respectively are of sensitive products. Sensitive products account for 30 per cent and 23 per cent of intra-EAC exports from Tanzania and Uganda respectively, and only 11 per cent, 4 per cent and 3 per cent from Kenya, Rwanda, and Burundi's intra-EAC exports respectively. This unequal distribution, which penalizes Burundi and Rwanda, reflects their delayed entry into the CU, by which time the sensitive items list had already been drawn up.

Table 18.6 provides export shares for sensitive products that appear within the top five exports of EAC partner states. These items represent a large share of the goods traded within the region, most notably cement, maize, textiles,

Table 18.6. Trade in sensitive products within the EAC considering only the top five exports for each trading partner (share of a partner states exports to the trading partner), 2014

Sensitive product	Rwanda	Kenya	Uganda	Tanzania	Burundi
Rice	Tanzania (2%)			Uganda (13%) Burundi (6%)	
Construction materials including cement	Burundi (7%)	Uganda (12%)	Rwanda (29%) Burundi (12%)	Rwanda (11%) Burundi (24%)	
Sugar			Rwanda (3%)		
Maize			Tanzania (8%)	Kenya (21%)	
Tobacco (manufactured)		Rwanda (2%) Uganda (2%)			Tanzania (14%)
Milk, cream, and milk products			Kenya (7%)		
Textiles				Kenya (21%) Uganda (14%) Burundi (8%)	Kenya (1%)

Source: ECA analysis of UNCTAD data. Classification of products available at: <http://unstats.un.org/unsd/cr/registry/regcs.asp?Cl=14&Lg=1&Co=658>.

rice, and dairy. For example, in 2014 rice contributed 13 per cent of Tanzania's exports to Uganda and construction materials including cement contributed 12 per cent of Kenya's exports to Uganda. Other sensitive items are, however, much less widely traded within the region due to inadequate supply. The EAC also relies significantly on imports from the rest of the world for some of the sensitive items that are widely traded within the region. For example, imports of sugar into the EAC more than doubled between 2005 and 2012, even with a 100 per cent tariff.

The total value of sensitive products imported from the rest of the world grew from approximately US\$700 million in 2005 to US\$1 billion in 2012. The products that recorded the highest level of imports from outside the EAC were wheat and meslin (US\$221 million), sugar (US\$217 million), cement (US\$113 million), and used clothing (US\$161 million). Given the large tariff costs this imposes on importers, the proposed review of the CET structure and sensitive items list is very much needed to ensure that the CU remains consistent with EAC consumption and industrial demands, as well as with the region's productive capabilities. CET revenues from sensitive products account for only 4.6 per cent of total CET revenue for all partner states (Government of Uganda n.d.)—reducing tariffs on certain sensitive tariff lines therefore should not hit CET revenue significantly, but would instead likely bolster other taxes linked to the size of the economic base. An updated sensitive items list would also ensure a more balanced list reflective of the priorities of all EAC partner states, including Burundi and Rwanda, the late joiners to the CU.

Since 2005, EAC partner states have continually made amendments to the CET and the 2004 Customs Management Act, including general exemptions on various tariff headings, tariff rates, stay of application of the CET, and duty remission. Such discretionary action erodes the CET (Kitenga 2012). The June 2016 *EAC Gazette* published a 46-page new round of stay of applications and duty remissions (*EAC Gazette* 2016).⁶ This long list suggests that the economic and welfare impacts of the CET were not fully considered when designing the schedule of sensitive item tariff lines. The productive capacity of partner states to supply the majority of sensitive items was inadequate when the CU started. High tariff rates have therefore reduced the competitiveness of EAC firms that rely on imported inputs, and have raised consumers' costs.

The continual granting of ad-hoc annual remissions should not serve as a substitute for a comprehensive CET review—remissions create unpredictability, distort the value chain planning of producers within the region, and create

⁶ This included Rwanda's stay of application of the CET on wheat and application of a duty rate of 0 per cent instead of 35 per cent for one year, and duty remission for Kenya on raw sugar for manufacture of sugar for industrial use at a duty rate of 0 per cent for one year, among many others.

uncertainties for third parties with trade and investment interests in the EAC. In order to be effective, the proposed EAC CET review must be informed by evidence-based studies that consider partner states' industrial development needs and existing supply capacities. In particular, the review should consider which sensitive goods local industries need to import as inputs for production. The CET structure could be reviewed every five years—this would still provide a relatively predictable regime that can also reflect changing development needs and emerging regional production capabilities.

Tariff rates should be reduced for key industrial inputs (e.g. sugar and woven fabric) and basic necessity consumption goods (e.g. wheat) with limited regional availability. High sensitive item tariff rates on dairy, maize, cement, cigars and cigarettes, sacks and bags, and packing accessories should be maintained—EAC production in these areas is significant and current rates can support further growth and intra-EAC trade in these products.

3.4. *Beyond the CU*

Although the CU has helped to increase the value of intra-EAC trade, the share of intra-EAC trade in total EAC trade remains low. One of the main reasons is the high level of border barriers in the region, including significant transport costs for landlocked EAC partner states and high *ad valorem* equivalents for NTBs. High costs of trading services also constrain trade in goods within the region as services are key inputs into the production and distribution of goods for export. For further discussion on this, readers can refer to Karingi, Pesce, and Sommer (2017).

4. Structural Transformation in the EAC

4.1. *Sectoral Analysis of Structural Change*

The composition of output in the EAC changed markedly over the last two decades. The region registered a significant decline in the GDP shares of agriculture, hunting, forestry, and fishing from an unweighted average of 38.9 per cent in 1995 to 32.7 per cent in 2014. The majority of the EAC's decline in agriculture's share of GDP, however, took place in the 10 years prior to the introduction of the CU in 2005. Rwanda was the only country that saw a significant reduction in the share of agriculture, hunting, forestry, and fishing following the CU, from 41.3 per cent in 2005 to 35.0 per cent in 2014. Manufacturing shares remained fairly constant across the EAC following 2005. At the same time, all countries saw growing shares for construction driven by large public investment programmes. Services' contribution to GDP increased marginally after the CU (Karingi, Pesce, and Sommer 2017).

The minimal change in GDP compositions following 2005 indicates limited structural change at the sectoral level over the last decade. Structural change is, however, a long-term process that requires fundamental changes to the supply side of the economy. The significant growth of the construction sector in the EAC, from an unweighted average of 5.4 per cent in 2005 to 7.9 per cent in 2014, reflects an expansion of public investment and infrastructure programmes to enhance connectivity and productive capacity. This should provide an impetus to positive structural change in the medium term. Moreover, implementation of the CU has been gradual, with supportive interventions such as implementation of the CM and trade facilitation measures moving at a slower pace. Fast-tracking such complementary regional integration efforts would maximize positive impacts of the EAC free trade area on production structures. The significant structural change that had already taken place across partner states has also left less scope for additional immediate restructuring following the CU.

Overall, industrial activity in the EAC remains lacking. Manufacturing in the region still faces massive obstacles such as large overheads, expensive borrowing, high costs for imported inputs, skill deficiencies, and infrastructure gaps such as energy and transport. Regional cooperation should be strengthened to ensure effective policy coordination towards eliminating the binding constraints to firm upgrading and the creation of new productive industries.

4.2. Industry Analysis of Structural Change

Over the last decade, EAC partner states have seen a number of new industries grow and emerge—most notably agro-processing, tourism, cement production, pharmaceuticals, and textiles. Many of these industries are smokestack-free and are increasingly associated with greater value addition, processing, and innovation. Below, we provide some examples of important smokestack-free industries in the region.

AGRO-PROCESSING

Given the importance of agriculture to output and employment in the EAC, it makes sense to add value to the region's agricultural produce. Smokestack-free agro-processing is indeed the lead manufacturing industry in the EAC. Table 18.7 highlights important agro-processed products that have recorded significant growth in Kenya, Uganda, Rwanda, and Tanzania in recent years.

TEXTILES

Although the EAC still largely sources its textiles from outside the region, the production of textiles in Kenya, Tanzania, Uganda, and Rwanda has increased

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Table 18.7. Important agro-processed products produced in EAC partner states

	Agro-processed products
Uganda	Edible oils and fats production, dairy production, grain milling, bakery production, sugar processing and coffee processing, fruit and vegetable juices, beer production (UBOS 2015)
Kenya	Vegetable and animal oils and fats, dairy products, starches and starch products, prepared animal feeds, sugar, cocoa, chocolate and confectionary sugar, tobacco, cut flowers (KNBS 2015)
Rwanda	Milk production, beer production, fish and honey production, bakery products, manufacture of sugar, processing of meats, fruit and vegetables (NISR 2015)
Tanzania	Biscuits, bottled beer, tobacco products, instant coffee, sugar, milk products (NBS 2014)

Source: Statistical abstracts of respective partner state (sources noted in the table).

in recent years. All EAC countries, excluding Burundi, which lost its access to the African Growth and Opportunity Act (AGOA) on 1 January 2016, qualify to export textile products free of duty to the United States (US). This has helped to attract investors into the industry.

Tanzania's textile industry has performed particularly well. It is the second largest employer in Tanzania's manufacturing industry. In 2014, 16,692 persons were employed in the manufacture of textiles at establishments with ten or more workers—this is almost 13 per cent of the total number of people engaged in manufacturing establishments. The gross output of these textiles manufacturing establishments increased from TZS235,782 in 2011 to TZS272,947 in 2014 (NBS 2014). Tanzania is the second largest exporter of textiles in the EAC after Kenya. The country has around 22 textile factories. In 2014, textiles represented 16 per cent, 6 per cent, and 3 per cent of Tanzania's exports to the EAC, the rest of Africa, and the rest of the world, respectively.⁷ Tanzania's exports of textiles reached approximately US\$283 million in 2013 compared to only US\$51 million in 2000.

The government of Tanzania has actively supported the textile industry and highlighted the performance of the industry as crucial to achieving middle-income status by 2025. Tanzania aims to upgrade textile production to higher value-added cotton products for export, build the right supporting institutions, and improve the policy and business environment to tackle constraints in the industry.

TOURISM

Tourism is emerging as an important sector in Kenya, Tanzania, Uganda, and Rwanda. For example, Kenya received 1,143,722 holiday and business visitors in 2014 and parks and game reserves had 2,164,625 visitors (KNBS 2015). International arrivals to Uganda increased from about 1.3 million in 2010 to

⁷ These figures were computed by the authors using UNCTAD data.

1.7 million in 2014, whereas arrivals from the EAC increased from 550,000 to 807,000 (UBOS 2015). The sector is expected to receive an additional boost from the recently introduced Single EAC Tourist Visa.

Given the obstacles to developing competitive manufacturing in Rwanda, the government is targeting services subsectors for growth, including tourism. The tourism sector has been the main foreign exchange earner since 2007. In 2013, exports of travel were 77 per cent of commercial services exports and the Rwandan Tourism Board reported that the country had received 1,137,000 visitors, generating US\$294 million, up from just US\$62 million in 2000.⁸ Tourism receipts were 29 per cent of total exports in 2013,⁹ and are expected to grow at a compound annual rate of 25 per cent until 2017.¹⁰

Although gorilla tourism remains one of Rwanda's main tourism marketing points, the government is now also trying to diversify the tourism products on offer. Thanks in part to improved infrastructure and telecommunication services, Rwanda is becoming increasingly attractive for Conference Tourism. In 2014 the country hosted both the African Development Bank meetings and the World Export Development Forum, among other events. The development of a competitive aviation sector is part of the government's strategy to develop the tourism sector (Republic of Rwanda 2013).

5. Smokestack-Free Case Study: The Dairy Industry in Uganda

5.1. Background

The dairy industry in Uganda provides an interesting case study of how existing productive knowledge in agriculture can be used to produce more sophisticated and higher value-added products to serve the domestic and regional markets.¹¹

Dairy is an important economic activity across East Africa, which is now the leading milk-producing region in Africa, representing 68 per cent of the continent's milk output (Bingi and Tondel 2015). The large EAC market and the existing high levels of dairy production in the region have also attracted

⁸ The figures were sourced from www.rwandatourism.com/index.php/destinations-and-activities/nyungwe-national-park/96-media-centre/press-releases.

⁹ This figure is computed from World Bank data.

¹⁰ This projection is from Rwanda Economic Development and Poverty Reduction Strategy 2013 targets.

¹¹ This case study is informed by the authors' findings from a field visit to Uganda to meet with key players in the dairy sector in July 2016. The meetings were geared towards hearing views on the factors contributing to the success of the dairy industry in Uganda and East Africa; the role integration within the EAC has played in promoting this success; and the opportunities and challenges faced in the Ugandan dairy sector. Authors met with the Dairy Development Authority, the Ministry of Agriculture, Animal Industry and Fisheries, Jesa Farm Dairy Limited, and Brookside Limited.

the attention of private international players in the industry, many of which are facing weak growth in Europe and China—for example, Nestlé and Danone Dairy investments in Kenya.

EAC exports of dairy products (milk, cream, and milk products) to both the region and the world increased significantly following the establishment of the CU in 2005. The value of intra-EAC exports of dairy products jumped from US\$281,445 in 2005 to US\$18.3 million in 2014, a 6,402 per cent increase. The share of intra-EAC exports in total EAC exports of dairy products increased from only 5 per cent to 39 per cent over the same period.

Less than 10 years ago, the Ugandan dairy industry was still in its infancy. Uganda was a huge importer of dairy products (mainly from Kenya), despite the abundance of milk in the country. Today, Uganda is one of the major dairy-producing countries in Africa and the lead exporter of dairy products in the EAC. In 2014 Uganda contributed 48 per cent and 60 per cent to total EAC dairy product exports and total intra-EAC exports of dairy products, respectively. In 2010 the country became a net exporter of dairy products. Uganda's exports of dairy products totalled approximately US\$22.4 million in 2014, compared to only US\$288,730 in 2005. Uganda's dairy processing capacity increased from 330,000 litres per day in 2004 to 1,454,480 litres today (Bingi and Tondel 2015). The major players in milk processing are Brookside Limited (formerly Sameer Agriculture and Livestock Limited), Amos Dairies, Pearl Dairy, and Jesa Farm Dairy Limited.

Uganda actively participates in dairy RVCs in the EAC. This includes formal cross-border trade of processed milk products; informal cross-border trade of Uganda's exports of raw milk to Kenya for conversion into powder, pasteurized milk, and cream; imported inputs from Kenya such as packaging materials and spare parts; and cross-border mergers of East African dairy companies. In 2015, Kenya's Brookside Dairy Limited acquired Ugandan dairy company Sameer Agriculture and Livestock Limited. Kenyan processors previously largely imported powdered milk from European countries. However, with the introduction of the CU it is now cheaper to source milk locally from Uganda, process it into powder, and export it regionally (*Daily Nation* 2016).

Uganda also exports dairy products to markets beyond the EAC, including the US, India, and the Middle East. The country's farming systems are predominantly organic, which means that its dairy exports can pass stringent safety requirements in the US.

5.2. *The Role of Domestic Policy*

Uganda's agro-ecological conditions and large number of cattle favour dairy production in most parts of the country and throughout the year. The country

is also well-placed within the region to tap into the growing demand for dairy products associated with higher incomes. The government of Uganda has actively supported dairy production to take advantage of this potential.

The success story first started in 1993 when the government of Uganda, with assistance from the Danish International Development Agency, developed a Master Plan for the Dairy Sector. The plan delivered three key recommendations:

1. milk marketing should be liberalized
2. a dairy board should be created to oversee the liberalized industry
3. the dairy corporation of Uganda that was established in 1967 should be privatized.

All of these recommendations were successfully implemented. The 1998 Dairy Industry Act created the National Dairy Development Authority (DDA), which is responsible for the development and regulatory functions of the dairy industry. The Dairy Corporation of Uganda was privatized in 2006 and taken over by Sameer Agriculture and Livestock Limited, now Brookside Limited. The liberalization of the dairy industry brought the monopoly of the Dairy Corporation to an end and opened up opportunities for private investment in the industry.

Since liberalization, the state has continued to promote the dairy sector through a number of programmes and policies. The Agriculture Sector Development Strategy and Investment Plan 2010/11–2014/15 identifies dairy cattle as a commodity to be promoted to support the development of value chains. The operations of the DDA are funded by the government of Uganda. Government financing is also channelled to the dairy sector through the National Agricultural Advisory Services (NAADS), which was created in 2001 to address the constraints of lack of access to agricultural information, knowledge, and improved technology among rural farmers. NAADS provides dairy farmers with extension services and supports the sector's shift from the use of rudimentary tools to modern tools.

The National Agricultural Research Organisation was established in 2005 to guide and coordinate agricultural research activities in Uganda. The organization has supported the development of the dairy sector through spearheading the commercial production of fodder. At a more micro level, the Entebbe Dairy Training School builds productive capacities through providing free practical training on how to meet standards and pass quality-assurance tests.

Domestic policy has also focused on reducing the costs of engaging in dairy production. The provision of milk coolers and collection facilities has helped to enhance the safety of milk production and ensure that more milk reaches the final market. Public investment in rural infrastructure development such as rural feeder roads and the Rural Electrification Programme has contributed

to improvements in milk quality through facilitating the quick delivery of farmers' milk to cooling centres. Costs to dairy investors have been reduced through the provision of free land (e.g. Amos Dairies) and tax holidays.

5.3. *The Role of Regional Integration*

Regional policies and increased integration with the EAC have provided Uganda with opportunities to upscale production and serve the EAC dairy market.

Although the EAC does not have a specific regional policy for the dairy industry, partner states, in collaboration with the dairy regulatory authorities, have made significant progress in identifying areas and opportunities for cooperation and growth in the sector. The East Africa Dairy Regulatory Authorities Council (EADRAC) was established in 2006 under the framework of the EAC CU Protocol as a platform to facilitate the harmonization of dairy product regulations and standards in the region. The EADRAC comprises all EAC dairy regulatory authorities. Key areas of successful collaboration include trade in dairy products and conflict resolution, regional dairy industry sanitary standards, and regional dairy industry product standards. The harmonized standards are currently undergoing review to assess whether they are achieving the intended results.

Dairy products receive one of the highest levels of protection under the EAC CU sensitive items list, with a tariff rate of 60 per cent. This has helped to shelter the Ugandan dairy industry from excessive competition from trading partners outside the EAC, supported the expansion of dairy production in the country, and encouraged intra-EAC trade in dairy products. 82 per cent of Uganda's dairy exports were destined for trading partners within the EAC in 2014.

Cross-border collaboration to improve regional infrastructure also played a crucial role in supporting trade and investment in the dairy sector, particularly for dairy products with a short shelf-life. Efforts to improve trade facilitation have also been an important support. The Electronic Single Windows in the EAC have significantly reduced the time and documentation requirements of cross-border trade. EAC members provide trade facilitation laboratory space at borders to test whether products meet the required standards.

5.4. *Challenges*

Despite the significant transformation of the Ugandan dairy industry over the last decade, continued success is not without challenges. The hygiene and handling practices at farm level in Uganda are generally poor, and despite a

significant expansion in processing capacity, the majority of the country's milk still goes unprocessed. This reflects the still infant status and structure of the industry, but also offers significant scope for growth and upgrading (*New Vision* 2013).

Milk processing plants are currently underutilized due to the uneven distribution of plants, which are concentrated in Mbarara and Central Uganda. The country is investing heavily in processing plants to extend shelf-life and produce at higher levels of the value chain. This should help to rectify the uneven distribution of plants and boost the production of processed dairy products.

The DDA is supporting the drive for increased processing. The authority encourages smallholder farmers without access to pasteurizers to contact dairy processing companies to pasteurize their milk at a cost of US\$25 per tonne, before delivery to coolers. However, this fee is considered too high to allow profit, particularly when some businesses and individuals still do not understand the health risks of raw milk and so prefer it over pasteurized products. There exists a significant price differential for local producers selling raw milk to the local market collection points (about UGX700 per litre) and selling to pasteurizers (only about UGX400 per litre), which further reduces incentives for pasteurizing. The authorities are planning to enhance the user-friendliness of negotiations between traders and processors to make processing options more accessible and cheaper for smallholder farmers. To avoid negative welfare impacts, it is crucial for this to be done before the government of Uganda bans the sale of raw milk, a provision that has been in the pipeline for years.

Elements of the domestic and external tax structures are holding back efforts to transform the dairy sector. In FY2014–15, the government of Uganda introduced a value added tax (VAT) of 18 per cent on processed milk, which was previously zero-rated. This has increased the price of processed milk and reduced incentives to produce and consume processed milk products. Raw milk sales are increasing, particularly in low-income households in urban areas. Dairy industry stakeholders organized by the Drink Milk Campaign have requested that the government remove VAT on processed milk on the grounds that milk belongs to a category of essential food and nutrition items that should not be taxed. The government of Uganda, however, remains in strong support of this use of VAT, arguing that the tax contributes significantly to revenues while only resulting in marginal price increases for locally packed and fresh milk; there is unlikely to be a reversal in policy. This places the Ugandan dairy industry at a disadvantage compared to Kenya, which has backtracked on plans to implement VAT on dairy products.

Although the EAC CET of 60 per cent on dairy products helps to protect Ugandan dairy producers, the high costs of importing key inputs into the

dairy industry reduces the competitiveness of the sector. Uganda relies on imports of key inputs such as packaging materials, spare parts, and generators, the prices of which are increased by high taxes and high transport costs from the ports of Mombasa and Dar Es Salam.

6. Conclusion

Over the last decade a number of smokestack-free industries have emerged as important sources of export revenues and growth in the EAC. These include non-traditional manufactured products such as dairy products, pharmaceuticals, cigars and cigarettes, beverages, textiles, and horticulture, but also modern tradeable services such as tourism, financial services, and information and communications technology.

Integration within the EAC has helped to provide a supportive environment for the development of these industries. The CET provides for capital goods to be imported duty free, and the sensitive items list has helped to provide protection for regional producers of, for example, dairy products and cement, helping these industries grow over time. Regional bodies, policies, and projects have also supported the harmonization of practices in the region and helped to promote the EAC as an attractive destination for business and investment activity. Intra-EAC trade expanded significantly following the establishment of the CU. This trade is more diversified and embodies more manufactured products than the EAC's trade with the rest of the world.

That said, significant opportunities in smokestack-free industries still exist within the region that have not been fully exploited. The EAC regional integration project should be used to take advantage of these opportunities and position the region as a competitive economic bloc in the global trading system. The current CET structure means that some crucial intermediate inputs face very high tariff rates even though they are not sufficiently available locally. The CET structure needs to be reviewed to ensure that essential inputs can be sourced at rates that allow regional producers to operate competitively. Implementation of the CM Protocol should be fast-tracked. Although the free trade in goods within the region has contributed to the development of new RVCs, intra-EAC trade is still significantly hindered by NTBs and the slow liberalization of trade in services and capital markets. The Ugandan dairy industry highlights the importance of supportive domestic policies in order to harness potential comparative advantages and opportunities provided by increased regional integration.

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Integration Along the Abuja Road Map

A Progress Report

Jaime de Melo, Mariem Nouar, and Jean-Marc Solleder

1. Background: A Diversity of Integration Agreements

Regional Integration Arrangements (RIAs) in Africa (but particularly in sub-Saharan Africa (SSA)) have their roots in the political forces determined by the colonial legacy, which resulted in a configuration of highly heterogeneous states along multiple dimensions (ethno-linguistic, religious, biological) and artificial boundaries (splitting tribes, disregarding natural boundaries like rivers or mountains)—a great challenge for countries wishing to integrate.¹ These heterogeneities, documented in the chapter, indicate the extent of the challenge and point to an implementation conundrum. On the one hand, because of these diversities—e.g. landlocked and coastal countries—potential gains from closer economic integration are large. On the other hand, realizing these gains requires policy coordination and the scarce financial resources necessary for compensation among countries with large differences in expected gains from closer integration. The establishment of supranational entities to carry out this integration requires a delegation of authority which in turn requires trust and implementation capabilities. Trust is difficult to build under any circumstance but particularly so in Africa's landscape of great diversity. This progress report documents these obstacles and recognizes that African RIAs take place in an

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environment of weak implementation capabilities and over-stretched scarce human resources.

The proposed approach towards pan-African unity and continental industrialization was to be by the division of the continent into Regional Economic Communities (RECs) that would, through closer economic and political ties, constitute a united economy—the African Economic Community (AEC). In Africa as a whole, but in SSA in particular, the RECs were to be the ‘building blocs’ of the hoped-for African Union (AU) in the immediate post-colonial era and now they are central to implementing the New Partnership for Africa’s Development. In short, the RECs were to be, and continue to be, the glue that will cement African unity. For this reason, we examine progress towards integration at the REC level even though there is widespread overlap across RECs (the eight RECs are indicated in bold in Table 19.1). On average, each country belongs to two RECs with several countries belonging to three RECs and Kenya belonging to four. Moreover, integration has not always taken place at the REC level (i.e. members of the francophone West African Economic and Monetary Union (WAEMU) and Economic and Monetary Community of Central African States (CEMAC) monetary unions are members of RECs but are not considered as RECs by the United Nations Economic Commission for Africa (UNECA) so they are not included here).

In some cases, RIAs have focused on promoting regional cooperation (security, humanitarian issues, agricultural research, and other issues) rather than on an exchange of preferences (see the earlier working paper for a list). By and large, however, RECs were built around a reciprocal reduction of tariffs and non-tariff barriers (NTBs), so the terms preferential trade agreements (PTAs), free trade areas (FTAs), regional trade agreements (RTAs), and RECs are used interchangeably to describe the exchange of preferences, and the term RIA covers all aspects of integration agreements.

Here we review the ambitious objectives and the slow progress of integration by comparing the eight African RECs with three other South-South RIAs (ANDEAN, Association of Southeast Asian Nations (ASEAN), and MERCOSUR) to assess whether conditions and progress have differed across the RECs (see the working paper version for the departure from other reviews). Throughout, the focus is on manufactures since industrialization is the overarching challenge facing Africa. The chapter emphasizes two dimensions of regional integration that have been largely neglected: the role of services and the related issue of breadth (large membership) versus depth (deeper integration among a smaller membership).

The chapter proceeds as follows. Section 2 reviews the two phases of integration across the RECs set up by the Organization for African Unity (OAU). Section 3 contrasts economic, cultural, and institutional indicators that have been shown to be important in the outcomes of RIAs and explores the

Table 19.1. Characteristics of Africa's regional integration agreements

Col (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(RECs in bold) Type of agreement [year originated, year signed]	(Total) [LL] {LDC}	Indicators: Economic, biological, culture, institutions							
		Natural Capital ^a	TCI ^b	GDP ^a	GDP per capita	Gen. Dist.	ELF	POL	WGI ^d
		Fuels ^c	TCI	Cur. US\$ bil.	Cur. US\$	Fs ^w	ELF	POL	
(AMU) , FTA [1988, 1989]	(5) [0] {1}	51.4 (0.82)	15	377.5 (0.78)	4,930 (0.83)	0.03	0.27	0.44	-0.69
(COMESA) , CU [1965, 1993]	(19) [8] {11}	22.1 (1.05)	17	542.3 (1.77)	2,485 (1.45)	0.08	0.55	0.51	-0.64
(EAC) , CU [1999, 1999]	(5) [3] {4}	17.3 (1.12)	19	93.6 (0.70)	630 (0.51)	0.01	0.56	0.15	-0.59
(ECOWAS) , CU [1965, 1975/1993]	(15) [3] {11}	35.5 (0.97)	22	486.6 (2.88)	961 (0.88)	0.03	0.77	0.46	-0.62
(SADC) , FTA [1980, 1986]	(15) [6] {2}	32.2 (0.72)	17	607.2 (2.34)	3,393 (1.00)	0.07	0.63	0.47	-0.34
(CEN-SAD) , FTA [n.a., 1998]	(29) [6] {20}	31.0 (0.95)	20	1,037.7 (2.04)	1,574 (1.46)	0.07	0.67	0.50	-0.84
(ECCAS) , CU [1983, 1985]	(11) [3] {7}	44.9 (0.70)	16	184.15 (1.29)	4,268 (1.62)	0.02	0.72	0.333	-1.14
(IGAD) , EPEU [1986, 1996]	(7) [1] {5}	4.0 (0.62)	16	159 (0.92)	862 (0.53)	0.05	0.68	0.51	-1.01
Andean Com., CU [n.a., 1987]	(5) [1] {0}	74.0 (0.21)	18	917.5 (0.84)	6,298 (0.69)	0.10	0.28	0.39	-1.00
ASEAN, FTA [n.a., 1992]	(10) [1] {3}	25.6 (1.22)	25	1,984.6 (1.15)	10,508 (1.55)	0.04	0.60	0.53	-0.11
MERCOSUR CU [1985, 1991]	(4) [2] {0}	39.0 (1.02)	21	2,695.1 (1.54)	9,154.3 (0.43)	0.08	0.23	0.34	-0.69

Notes: See the list of acronyms and abbreviations of regional agreements. LL= Landlocked; FTA (Free Trade Area), CU (Customs Union), CMU (Customs and Monetary Union), CPU (Customs and Political Union), EPEU (Environmental, Political and Economic Union). a/All averages are simple averages. Coefficient of variation in parenthesis, GDP at market prices, current USD billion (2010); b/Trade Complementarity Index. TCI_{max}=100 indicates ideal partners. Low score indicates countries export similar products. TCI of the EU= 41.7 in 1962. c/Fuels, ores, and metals. d/Rule of law from the WGI indicators (2012).

Variables and sources: Genetic distance (Fs): Spolaore and Wacziarg (2016). A higher value means further distance. Ethno-linguistic fractionalization (ELF); Polarization (POL). For both indices, a higher value indicates greater cleavages (Desmet et al. 2009). Fuel, ores, and metals (share of merchandise exports in 2013 GDP (in billion) and GDP per capita in current US\$. Rules of law (WGI column) are from the WDI. Values are assumed to be normally distributed, centred at zero with standard deviation of 1.

correlations of trade patterns with these indicators. The remaining sections report on evaluation. Section 4 reports on the evolution of trade patterns and trade costs. Section 5 discusses design: the trade-off between ‘breadth’ (large membership) and ‘depth’ (small membership with deeper integration). Section 6 concludes.

2. Progress at Integration: A First Look at Overly Ambitious RECs

An early phase of integration started during the first decades of independence under the Lagos Plan of Action, an initiative of the OAU (the AU since 2002) adopted in 1980. This early phase of integration largely failed as the leaders of these young independent states, still establishing independence from their former colonial masters, were reluctant to encourage the erosion of national sovereignty. As reviewed by Melo and Tsikata (2015: Table 19.1), with the exception of integration in the franc zone, implementation never reached FTA status, let alone deeper integration. Absence of compensation funds at the regional level was a major reason for this lack of implementation (see Foroutan 1992).

2.1. Objectives under the Abuja Treaty

Regional cooperation began in earnest with the Abuja Treaty (operational in 1994), which created the AEC. This was to culminate in an AU through variable geometry whereby the RECs would integrate at different speeds following a ‘Minimum Integration Program’ along six stages for the eight RECs listed in Table 19.1.² All RECs have ambitious and wide-ranging objectives that reflect the desire to accommodate the heterogeneity of interests across members. The working paper version gives examples of the wide range of objectives across these 8 RECs. The Tripartite FTA (TFTA) involving twenty-six countries in the East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), and Southern African Development Community (SADC), which is supposed to culminate in a Continental FTA by 2017 completes the tour of initiatives at integration across the continent. Its objectives are: (i) removing tariffs and NTBs, and implementing trade facilitation measures to include a harmonization of Rules of Origin (RoO);³

² The six successive stages (number of years in parenthesis) set up at the Abuja Treaty are: (i) strengthen the RECs (5); (ii) eliminate tariffs and NTBs (8); (iii) FTA and customs union (CU) in each REC (10); (iv) continental CU (2); (v) continental common market (4); (vi) continental economic and monetary union (5), with stage (iv) to be reached in 2017.

³ RoO are necessary to prevent ‘trade deflection’ in FTAs—i.e. importing from the low-tariff partner and selling in the high-tariff partner. Everywhere, RoO have been unnecessarily complex

(ii) applying the subsidiarity principle to infrastructure to improve the transport network; and (iii) fostering industrial development. However, to keep momentum going and to accommodate the diversity of interests among partners, negotiations to set up a 'single undertaking' to establish a proper FTA veered towards a 'variable geometry' to allow the co-existence of different trading arrangements. Initiated in 2008, the TFTA was signed in 2015 and was to be launched in July 2016 after a twelve-month period to complete the negotiations, during which period agreement was to be reached on the removal of duties on between 65 per cent and 85 per cent of the tariff lines.

The parties failed to reach an agreement in their negotiations in June 2016. Although the blocs reached a common position on the proportion of tariff lines to be liberalized, they failed to agree on the common external tariff (CET) to be applied on sensitive products (e.g., maize, wheat, sugar, textiles, and cement) that were all viewed as essential for the development of domestic industries. Under the 'variable geometry' approach, the EAC has agreed to liberalize 37 per cent of its 5,600 tariff lines and the SADC CU is to liberalize 60 per cent of its 7,000 tariff lines. COMESA has 5,000 tariff lines, but, since it is not really a CU, those members that are not part of the EAC or SADC have been allowed to negotiate individually. Among the sticking points at the negotiations was South Africa's reluctance to open its markets to the Southern African Customs Union (SACU) members for a number of products (maize, wheat, electronics). In the end, the negotiators differed on the treatment to be given on a 'sensitive list' of products for protection (maize, cement, sugar, second-hand clothes, spirits, plastics, electronic equipment, etc.).

2.2. *Implementation Difficulties*

This 'big development' agenda across RECs, recalls the European Union (EU) integration model. This linear integration model is in fact imported from the European model of integration where the bet was that creating similar institutional bodies focusing on consensus decision-making would lead to a reduction in 'heterogeneity costs' across the different European populations (Spolaore 2015). This integration process over a fifty-year period involved the creation of thirteen institutions (and an institution regrouping four inter-institutional bodies). This building of institutions rested on a high implementation capability.

and to the benefit of the strong lobbies in the inefficient industries in the strongest partner in the FTA. (Erasmus et al. (2006) show how the RoO in SADC were largely imposed by South African protectionist lobbies).

African RIAs have copied the European model, setting up a large number of institutions at early stages of integration. The Economic Community of West African States (ECOWAS) has six institutions, ten specialized agencies, and two private sector organizations. COMESA has eleven institutions and EAC has eight institutions. This attempt at accelerated integration via transplanted best practices appears symptomatic of a ‘capability trap’ ‘where [systems] adopt organizational forms that are successful elsewhere to hide their dysfunction’ (Pritchett et al. 2013: 2).

Two examples illustrate implementation difficulties. When adopting Supplementary Protection Measures (SPM) (C/REG.1/09/13) to allow for temporary duty (up to five years) above the corresponding five-band CET rate adopted by the ECOWAS CU in 2015, the directive specified that SPMs were for (most favoured nation) MFN tariffs that were above the CET rate. The directive did not envisage that SPMs could also apply to MFN tariffs below the CET rate. As shown by Melo and Laski (2014), in addition to this omission in an official directive (even assuming this was an omission), for a country like Liberia where three-quarters of tariffs outside the CET band are on the low side, applying the conditions in the directive would force a substantial increase in applied tariffs during the transition period for key intermediates (e.g. zinc) and consumer goods (e.g. rice).

A second example of an implementation capability trap is provided by the conclusions of the report of the 2014 meeting of the Council of Ministers of the nineteen COMESA members that took stock of progress in implementing the CU adopted in 2009 (COMESA 2014). Taking a tally of the 217 decisions reported in the Common Market gazette from 2009 to 2012, the report notes that 13 per cent of decisions were not addressed to any party. Regarding the signing and ratification of COMESA instruments that were to be carried out from 2009 to 2012, 75 per cent (of the twelve instruments) had been signed by the majority but only five instruments had been ratified, and only nine of nineteen members had signed the COMESA Treaty (COMESA 2014: Tables 1 and 2). Likewise, the report notes little progress in enacting the key Common Market legislation (Common Tariff Nomenclature, Common External Tariff and Common Market Customs Management Regulations). As an example of implementation difficulties, Malawi reported that adopting the CET would result in a large loss of tax revenue (trade taxes account for 35 per cent of tax revenue) while other states with more than 50 per cent of tariff lines at zero rate, some of which are bound at that level at the World Trade Organization (WTO), were concerned about the possibility of eventual negotiations at the WTO for adopting the envisaged CET.

It is hard to escape the conclusion that the RECs have been overly ambitious in relation to implementation capabilities. The next section gives indicators of the difficulties in realizing this integration agenda.

3. The Landscape: Economic, Cultural, and Institutional Indicators

African RECs display much diversity across economic, cultural, and institutional dimensions. Indicators of this diversity are summarized in Table 19.1. As a benchmark, the bottom rows of the table also report these indicators for three other South-South RTAs: MERCOSUR, a CU that could be compared to the EAC; ASEAN, an FTA with large membership that might serve as a comparator for COMESA or ECOWAS; and ANDEAN also a CU with a smaller membership that could also serve as a benchmark for the EAC.

Table 19.1, column 1 gives the name, type of agreement, year of initiation of negotiations, and year of signature (the year of signature is used as the break point for the before–after comparisons reported in section 4). Column 2 gives membership broken down along coastal (C), landlocked (LL), and least developed countries (LDC) and non-LDC membership. These three indicators capture difficulties at implementation. A large membership requires more coordination for implementation. Diversity of membership involving coastal and landlocked countries indicates conflicts of interest. Venables (2011) shows that an FTA between an LL and a C country can give rise to trade creation for LL and to trade diversion for C if both are price-takers on world markets and LL does not have access to the world market. In this set-up, the wage is lower in LL because of diminishing returns that are absent in C which has access to world markets. The FTA gives LL access to C so its terms-of-trade improve. With labour mobility under deep integration, labour would migrate from LL to C, closing the wage gap. Mixed LDC and non-LDC membership is another type of diversity that results in conflicting interests in negotiations for reciprocal FTAs. During the Economic Partnership Agreements (EPAs) involving the EU and former colonies, non-LDCs had an interest in maintaining market access while LDCs already had full market access under the everything but arms (EBA) scheme; see Melo and Régolo (2014).

The remaining columns give average values at the RIA level (coefficient of variation in parenthesis) for the proxy indicators capturing economic, cultural, and institutional characteristics. Large values for a coefficient of variation for gross domestic product (GDP) are suggestive of gains from scale economies (e.g. Paraguay and Brazil in MERCOSUR) and large values for per capita income are an indicator of the need for compensation (e.g. Laos and Singapore in ASEAN).

3.1. *Economic Indicators*

Table 19.1, columns 3 to 6 display economic indicators used in describing the RIAs. Column 3 gives an indicator of the importance of natural resources in

exports. With the exception of the EAC and ASEAN, on average, fuels, ores, and metals account for between one-third and one-half of merchandise exports in all RIAs, including the comparators. Since minerals are exported outside the region, regional integration would not be expected to elicit a strong supply response unless it is in the form of new products (see evidence in section 4.2). Table 19.1, column 4 shows low scores for the Trade Complementarity Index (TCI) values for all RIAs including those in the comparator group (a low average score in a regional grouping indicates that countries are exporting similar baskets, hence lack complementarity). The scores are low especially when compared with the corresponding value of 41.7 when the EU started to integrate in 1962. With higher values, ASEAN and MERCOSUR appear to have displayed greater complementarity. To sum up, along these dimensions, the RECs have similar characteristics with the comparator groups.

Excluding the large twenty-nine-member Community of Sahel-Saharan States (CEN-SAD) group that includes Egypt, Nigeria, and other resource-rich countries, the RECs stand out by their small economic size (Table 19.1, column 5). GDP is about one-third to one-fifth that of its comparators in spite of a usually large membership. As a benchmark, excluding CEN-SAD, the GDP of ANDEAN (US\$917.5 billion) is only 50 per cent larger than SADC, the largest REC. High coefficient-of-variation values for GDP are observed for ECOWAS, SADC, COMESA and MERCOSUR compared with the other groups. This suggests that deep integration would likely be accompanied by strong agglomeration effects towards the larger members. Size dispersion also suggests that the interests of small countries will not carry the day in formulating external trade policy when integration moves beyond FTA status, with external trade policy becoming more protectionist as was the case when ECOWAS became a CU.

Relative to the comparators, African RECs stand out as a result of their lower average per capita income (Table 19.1, column 6)—in most cases around one-third or less than that of the comparator group. ASEAN stands out with a high per capita income but also large dispersion. Together with the dispersion in economic size, these large dispersions in per capita income suggest that any deep integration will necessitate large within-REC transfers. Barring budgetary means to do so, countries will naturally try to find ways to avoid deep integration.

High dispersion in indicators of geography and economic size combined with a low average per capita income across most RECs suggest limited implementation capability.

3.2. *Indicators of Trust and Institutions*

Recent contributions have established that trust and institutions are two other important characteristics in explaining trade patterns. Proxies for these characteristics are summarized in Table 19.1, columns 7 to 10. Starting with trust,

the literature on the roots of development, reviewed by Spolaore and Wacziarg (2016), gives support to the importance of the inheritance transmission mechanisms via biological factors (genetic distance) and cultural factors (sharing a language, a religious faith) in explaining current performance (i.e. GDP) and hence indirectly trade, which is co-determined with GDP. They also report suggestive evidence that these characteristics matter more than location (geography) as determinants of current levels of development.

Table 19.1, column 7 reports the population weighted average genetic distance, F_s^W , between country pairs within each PTA. The measure captures the length of time since two populations became separated from each other.⁴ Genetic distance is negatively correlated with trust which, in turn, is positively correlated with bilateral trade.⁵ The F_s^W values are low for EAC, ASEAN, and ECOWAS but high for COMESA, CEN-SAD (where conflicts are widespread), and MERCOSUR. Ethno-linguistic fractionalization (ELF) in column 8 and polarization (POL) in column 9 also serve as proxies for trust. ELF is maximized when each individual belongs to a different group while POL measures political cleavages by comparing the relative size of different groups. POL takes a maximum value when groups are of the same size. In general, with the exception of the Arab Maghreb Union (AMU), the African RECs have higher average ELF values than comparators, suggesting less trust. High average values are also observed for the POL indicator across most RECs.

These proxy indicators of trust are very rough. Values within and across RIAs generally do not reveal clear patterns suggestive of the importance of trust for the success of regional integration. As mentioned above, Spolaore (2015) notes that the European project of integration was built on the expectation that different European populations and policy makers, by learning to interact and cooperate on economic and institutional matters, would generally converge in values, norms, and preferences leading to an 'endogenous' reduction in 'heterogeneity costs' to facilitate further integration in more sensitive political areas. This was certainly among the objectives of African RECs, sometimes explicitly in the objectives of the agreement. For example, ECOWAS has brought together Francophone WAEMU with two Lusophone and five Anglophone countries in a common REC. This involved three different

⁴ The greatest genetic distance in the Spolaore and Wacziarg (2016) sample is 0.4573, between Mbuti Pygmies and Papua New Guineans, while the smallest is between Danish and English (0.0021). Genetic distance provides no effect of genes on productivity (i.e. a 'genetic effect'). Rather, it is a measure of the importance of inter-generationally transmitted traits including traits that are transmitted culturally across generations; see Spolaore and Wacziarg (2016: 18).

⁵ Guiso et al. (2009) show that somatic distance (height, cephalic index, and hair colour) is negatively correlated with bilateral trust which, in turn, is positively correlated with bilateral trade. Felbermayr and Toubal (2010) separate the preference channel from the trade cost channel on European bilateral trade and find that one-third of the trade cost effect is due to the preference (affinity) effect.

legal and linguistic colonial traditions, which, according to some have fomented what Metzger (2008: 25, cited in Engel and Jouenjeau 2015) has described as ‘the well-known antagonism between the English-speaking and French-speaking West Africa’. Whether or not the antagonisms were reduced by integration, according to the indicator values in columns 8 to 9, ECOWAS has below-average trust, and difficulties in making progress at integration are amply documented (see e.g. Engel and Jouenjeau 2015).

Domestic institutions also matter for comparative advantage. Traditional indicators of comparative advantage used in evaluating RTAs (e.g. the TCI in Table 19.1, column 4) implicitly assume that the gains from trade (and integration) are reflected in comparative advantage measures captured by technology, innovation, and capital accumulation in the tradition of Ricardo and Heckscher-Ohlin. Evidence is now accumulating that current-day trade, at least for sophisticated manufactures (and some agricultural products), is now considered to be largely co-determined by the quality of contracting institutions and technology and factor endowments. Countries with better domestic institutions (as captured by the rule of law) have a revealed comparative advantage in ‘institutionally dependent’ goods (e.g., surgical appliances, packaging machinery).⁶

Finally, Table 19.1, column 10 reports average values for the rule of law component in the Worldwide Governance Indicators (WGI). The index, an average of indicators, summarizes people’s perceptions about the ensemble of variables capturing the quality of contract enforcement, property rights, and the courts, all of which are generally viewed as important for countries wishing to integrate. Taken as another indicator of implementation capability, African (and other South-South (S-S)) RIAs would have below-average implementation capability. With a score of -0.11 , close to the mean for all countries within the agreement, ASEAN stands out as the grouping with the highest implementation capability.

3.3. *Correlates of Bilateral Trade in Manufactures*

A key feature of trade data is that bilateral exports [imports] rise approximately proportionately to the economic size of the importing [exporting] country, especially so for middle- and high-income countries. Economic size (usually

⁶ Summarizing the literature, Nunn and Trefler (2014) conclude that countries with good governance indicators have revealed comparative advantage in contract-intensive manufactures. They also note that trade patterns have an impact on the long-run development of institutions. During the three-corner Atlantic trade from the seventeenth to nineteenth centuries, Africa was exchanging slaves for manufactures, a pattern of trade that led to a deterioration of domestic institutions and property rights. Repeated interactions and kin- and ethnic-based networks can only be poor substitutes for more formal institutions needed for contract-intensive manufactures.

captured by GDP) is a proxy for the ‘capabilities’ of exporting countries to all destinations and import ‘characteristics’ of the destination market from all sources (Head and Mayer 2014). When distance is included as a proxy for trade costs along with the traditional gravity variables, cross-section estimates return coefficient estimates for GDPs and distance close to unity (Head and Mayer 2014: Table 19.4) and estimates of the elasticity of trade flows to distance in the range (-0.8, -1.4). Table 19.2 checks the robustness of these estimates for 144 low-income countries by restricting the sample to S-S trade flows.⁷ Estimates are only reported for bilateral trade in manufactures where trust and the quality of institutions are likely to matter most.⁸

Estimates in equation (1) include fixed effects (FEs) for origin (β_o) and destination (β_d) countries. These FEs control for all country-specific omitted variables (e.g. island, landlocked, or the quality of physical infrastructure and logistics, or one country is a WTO member). The FEs also control for the variables in Table 19.1 that are not dyadic (e.g. ELF, POL, and WGI indicators). Genetic distance, F_s , serving as a proxy for trust is included along with two trade policy variables (both countries in the same RTA and members of the WTO). The sample is for manufactures only, since this is the main focus of the chapter and, unless mentioned, results are for S-S trade only. Estimates are carried out under ordinary least squares (OLS) and with the Eaton-Kortum Tobit (Eaton and Kortum 2001) which includes zero value observations that are omitted under OLS.

$$\ln X_{o,d} = \alpha + \beta_o + \beta_d + \sum_4^{j=1} GRAV_j + \beta_1 RTA_{o,d} + \beta_2 WTO_{o,d} + \beta_3 \ln F_{s,o,d} + \epsilon_{o,d} \quad (1)$$

Results are reported in Table 19.2. Coefficients of interest are the coefficient on distance which serves as a proxy for all trade costs and on the trade policy variables. As a benchmark, column 1 reports coefficients from the ‘naïve’ gravity model. Coefficient signs and significance levels are as expected, with the GDP coefficient estimates close to unity. These estimates do not control for the multilateral resistance terms that belong in the theory-based gravity equation. Starting with column 2, all estimates include country FEs. The column 2 estimate for distance is higher as would be expected if the multilateral resistance terms are the only source of bias (see the Monte Carlo experiments in Head and Mayer (2014)). Column 3 introduces weighted bilateral genetic distance, F_s , the proxy measure for trust. The coefficient is significant

⁷ The S-S sample uses the same definition as in WTO (2011) i.e. a ‘South’ country is a country with lower, lower-middle or upper-middle income, as defined by the World Bank.

⁸ This amounts to imposing unitary income elasticities restrictions which have no effect on the estimated RTA coefficient (Baier and Bergstrand 2007: Table 5). Results similar to those reported in Table 2 obtain when estimations are carried out for all trade.

Table 19.2. Correlates of bilateral trade 2012 (manufactures, south-south)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	
VARIABLES	OLS with GDP	OLS with FE	OLS with FE	EK Tobit with FE	OLS with FE	OLS with FE	EK Tobit with FE
Ln(distance)	-1.390*** (0.0450)	-1.743*** (0.0424)	-1.620*** (0.0476)	-2.897*** (0.0834)	-1.619*** (0.0477)	-1.471*** (0.0509)	-2.828*** (0.0881)
Common language	1.349*** (0.0847)	1.472*** (0.0815)	1.406*** (0.0852)	2.096*** (0.145)	1.405*** (0.0853)	1.352*** (0.0846)	2.082*** (0.144)
Common border	1.681*** (0.172)	1.338*** (0.178)	1.256*** (0.184)	0.290 (0.378)	1.255*** (0.184)	1.083*** (0.182)	0.103 (0.379)
Ln(GDP exp.)	1.251*** (0.0143)						
Ln(GDP imp.)	0.868*** (0.0144)						
Ln(Genetic dist.)			-0.258*** (0.0359)	-0.357*** (0.0611)	-0.258*** (0.0359)	-0.238*** (0.0357)	-0.347*** (0.0607)
WTO					0.0983 (0.269)	0.0409 (0.273)	-0.657 (0.400)
PTA						0.780*** (0.0945)	0.552*** (0.170)
Constant	-26.60*** (0.684)			28.56*** (1.060)			28.42*** (1.184)
Observations	10,798	11,328	10,176	16,277	10,176	10,046	16,022
R-squared	0.528	0.672	0.679		0.679	0.687	
Fixed Effects (FE) importer	no	yes	yes	yes	yes	yes	yes
exporter	no	yes	yes	yes	yes	yes	yes

Note: Robust standard errors in parentheses, clustered at country-pair level. *** p<0.01, ** p<0.05, * p<0.1. EK Tobit: Eaton-Kortum Tobit.

Source: Authors' estimates.

with the expected negative sign and its inclusion reduces the coefficient value of the distance coefficient since F_s is correlated with distance ($\rho = 0.40$). Column 5 adds the WTO dummy which is insignificant. And in column 6, partnership in an RTA is associated with a significantly higher volume of bilateral trade, a result that holds when estimation is on panel of 8 five-year periods which also controls for omitted time-invariant bilateral variables (see table 19.4 in the working paper). In conclusion, the trust proxy estimate is stable and remains significant across these cross-section estimates.

Before interpreting the distance coefficient estimates as a rough guide to trade costs, one must deal with the importance of zero observations (43 per cent of observations are omitted under OLS) and the possibility of heteroskedasticity. To deal with zero flows, Table 19.2, columns 4 and 7 report estimates with the Eaton-Kortum Tobit estimator (Eaton and Kortum 2001) which includes zero trade flows. Both columns return much larger estimates for the distance coefficient. These estimates capture the observation that far-away partners do not trade. Other coefficients retain their sign and significance levels, except for the common border. When we use the Poisson-Pseudo Maximum Likelihood estimator proposed by Santos Silva and Tenreyro (2006) which also corrects for heteroskedasticity, similar patterns are obtained across the North-North (N-N) and S-S samples.⁹

It is instructive to contrast these results with the corresponding one for N-N trade (full results not reported here to save space). In spite of a sample a quarter in size, the overall fit is tighter and, while the PTA coefficient is of similar size and significance, genetic distance is not significant and the distance coefficient estimate is stable and in the range $(-1.3, -1.5)$ a much lower estimate than for the S-S sample in Table 19.2 $(-1.4, -2.8)$. Thus a doubling of trade costs (as proxied by the distance coefficient estimate) would reduce bilateral trade to 35 per cent [14 per cent] of its value at the mean distance for (N-N) [S-S].¹⁰ These high estimates probably capture omitted unobservables, including the gains from the reduction in uncertainty provided by an agreement (see Limaõ (2016)) and the importance of depth of agreements (see Table 19.5), but these very rough estimates capture the observation that the low volume of bilateral trade for S-S countries reflects significantly higher trade costs in S-S trade PTAs.

To sum up so far, the discussion around the indicators in Table 19.1 and the correlation results in Table 19.2 give support to the importance of indicators of

⁹ Results are similar with the same pattern of signs and significance levels, but coefficient values are lower than those obtained with the Eaton-Kortum Tobit estimator reported in Table 19.2.

¹⁰ The formula is $\left(\frac{T_1}{T_0}\right) = \left(\frac{D_1}{D_0}\right)^\theta$ where θ is the estimated coefficient elasticity of distance at the mean (7009) [8389]. So doubling distance reduces trade to (35 per cent) [14 per cent] for (N-N) [S-S] sample.

culture, trust, and institutions in bilateral trade as well as economic indicators as co-determinants of bilateral trade. These have been overlooked in progress reports on integration in low-income countries.

4. Detecting the Effects of RECs on Trade Costs and Trade

We now check for evidence of changes in the intensity of bilateral trade among the RECs following implementation with comparisons for five-year and ten-year periods after the signature of the agreement relative to an average of two years before the agreement to take into account the fact that it takes time for a reduction in barriers to intra-regional trade to show up in the data. A look at intra and extra regional trade patterns (these are reported in figure 1 of the working chapter) reveal several patterns. First, ASEAN stands out as the most open bloc with an average openness to trade of over 50 per cent of GDP. The share of intra-regional trade grows after integration but the extra-bloc share also increases—an indication of open regionalism. By contrast, the share of intra-bloc imports remains very low throughout for all RECs in spite of increases for SADC and ECOWAS. For all African RECs, ten years on, intra-bloc imports hover in the 2 to 4 per cent range, a pattern also observed for ANDEAN and MERCOSUR. Globally, the data indicate an increase in overall openness, a reflection that, worldwide, the elasticity of trade to GDP rose from around 2 in 1960 to 3 until the financial crisis of 2008/9, but it gives no evidence that this rise was driven by rising intra-bloc trade.

4.1. Trade Cost Estimates

Another way of apprehending progress is to compare observed trade flows with those predicted by a frictionless gravity world in which each good would have the same price everywhere. Comparing the value of the average distance ratio (ADR) among RTA members, ADR^{RTA} , before and after integration is a first proxy measure of changes in trade costs induced by the ensemble of integration measures. The ADR is the ratio of the observed average distance of trade, $ADOT^{RTA}$ to the potential ADR, $ADR^{RTA,P}$ given by the ratio of the product of the partners' GDPs to the world GDP:

$$ADR^{RTA} \equiv \frac{ADOT^{RTA}}{ADOT^{RTA,P}} < 1 \quad (2)$$

If trade costs among partners are falling more rapidly than trade costs with non-partners, then RTA partners entering a trade agreement would trade more with each other after integration so one would expect $ADOT^{RTA}$ to fall after integration while potential trade would not be expected to change much.

In that case if (0) [1] indicates (before) [after] the RTA comes into effect, one would observe:

$$ADR_0^{RTA} > ADR_1^{RTA} \tag{3}$$

Figure 19.1 reports the values of these ratios for the intensive margin of trade (i.e. across partners) with positive bilateral trade around the time of the agreement and ten years after signature (similar results not reported here obtain for five years after signature). As in Figure 19.2, to iron out fluctuations, each point is a two-year average, two years before the signature of the agreement, and a two-year average, ten years after the signature of the agreement.¹¹ Since the ADRs prior to integration are on the horizontal axis, if (3) holds, then points would be below the 45° line.

Figures 19.1a and 19.1b reveal several patterns. First, confirming the estimates in Table 19.2, trade costs are important as shown by the departure of the

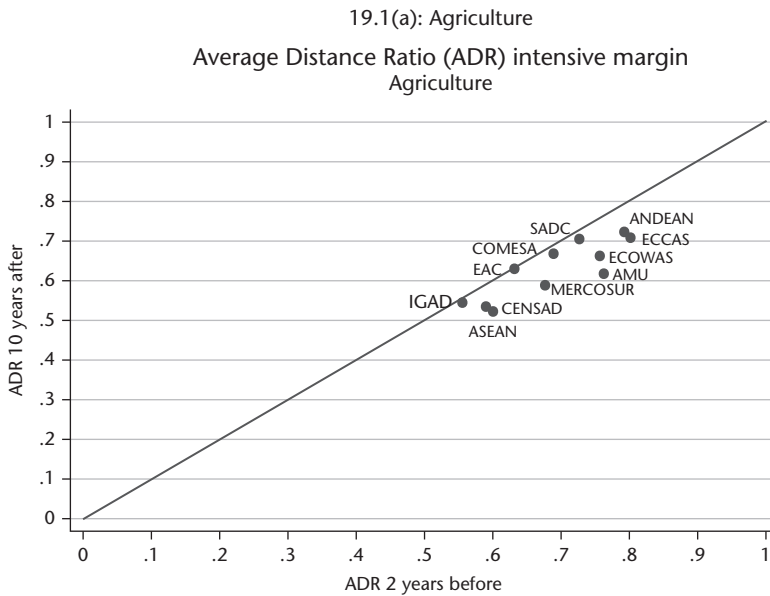


Figure 19.1a. Average distance of trade by RTA before and ten years after integration: Agriculture

Note: ADR is the ratio of the average observed distance for existing trade flows before integration to the average distance predicted under frictionless trade. Maximum ADR value is 1. Observations below (above) the 45° line, represent a shift towards geographically closer (further away) partners after integration.

Source: Authors' estimates.

¹¹ When there is expansion in membership during the period (e.g. Burundi and Rwanda joined the EAC in 2008), calculations are restricted to the original members in the group.

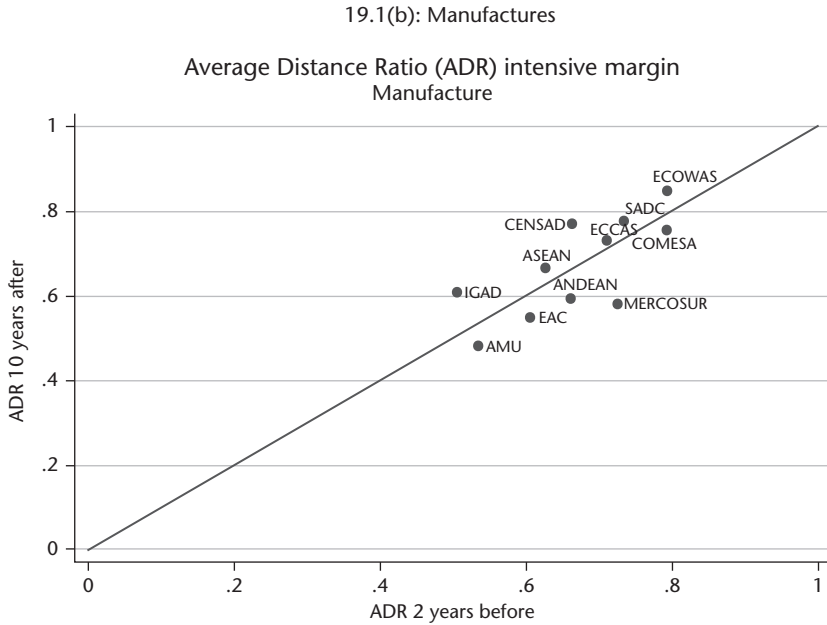


Figure 19.1b. Average distance of trade by RTA before and ten years after integration: Manufactures

Note: As for 19.1(a).

Source: As for 19.1(a).

ADRs from unity (which would correspond to a frictionless world according to the gravity model). The ADR across RIAs is in the (0.5–0.8) range for agriculture and for manufactures. Second, rather surprisingly at first (because reduction in barriers to trade in agriculture are often left off the agenda of reduction in trade barriers), all the ratios are below the diagonal for agriculture but are scattered around the 45° line for manufactures suggesting that trade costs among RTA partners fell more for agriculture than for manufactures. However, this pattern could reflect the slow progress of trade liberalization for agricultural products multilaterally during the Uruguay round, where there was no reduction in trade barriers in agriculture especially for high-income countries, leaving room for progress on a preferential basis for low-income countries. Third, the patterns for manufactures are generally plausible. For example, MERCOSUR and the EAC are below the 45° line signifying—according to the gravity model—that the distance of trade among RIA partners is falling after integration. This would be the case if, under cost-minimizing trade, trade costs among partners are falling more rapidly than trade costs with non-members.

4.2. Destination of Trade in New Products

Table 19.3 carries out a similar before–after ‘event analysis’ for newly exported manufactures at the (harmonized system) HS-4 level (new products exported for at least three years over the 2000–8 period relative to manufactures exported throughout 1995–9). Table 19.3 shows that the average number of traded goods in the RECs is about half that in the three comparator groups. The data also show that RIAs comprising countries with higher per capita income are, on average, more diversified.¹² Table 19.3 shows some catching up as the percentage increase in new goods is over twice as large as the three comparators. The data also show that all new manufactures are shipped to closer destinations than the traditional goods, a confirmation of the observed pattern of regionalization of trade among developing countries. This might reflect characteristics of the products, knowledge of demand, trust, or similar institutions, all of which could translate into lower trade costs. This small increase in number of products is consistent with the very low levels of intra-industry trade in African PTAs reported by Brühlhart (2009).¹³

Table 19.3. New goods traded by RIA over 2000–8

Country	Averages by REC and Year over the 2000–8 Period		
	Number new	Number traded	% new goods
ECOWAS	21.6	347.9	6.2%
EAC	24.3	491	4.9%
SADC	21.6	381.3	5.6%
COMESA	15.6	355.6	5.1%
IGAD	19.29	339.8	5.6%
AMU	21	471.6	4.4%
CEN-SAD	18.8	360.2	5.2%
ECCAS	14.2	187.2	7.6%
ANDEAN	21.8	740.2	2.9%
ASEAN	15.6	720.1	2.1%
MERCOSUR	15.5	705.2	2.2%

Notes: Authors’ calculations from HS-4 level (1,084 products) using COMTRADE data (mirrored). At this level of aggregation, high-income countries exported an average of around 1,000 (out of a possible 1,052 products) during the period. Averages by REC over the 2000–8 period.

Source: Authors’ estimates.

¹² The correlation coefficient GDP-number of products is 0.71 and the correlation GDP p.c. and number of products exported is 0.74.

¹³ Intra-industry trade shares (internal, external) as a share of trade: EU-15(46.6;24.5); CEMAC (1.2;0.1) WAEMU (0.9;0.4); EAC (0.3;0.4); SACU (0.3;9.0).

5. Building the RECs: Breadth versus Depth

If RTAs have an important function by increasing the opportunity cost of conflicts (Martin et al. 2008, 2012) from an economic standpoint, serious integration agreements are attempts between sovereign states to reciprocally renounce on some states' rights while confronting lobbying activities. As emphasized by Melo and Tsikata (2015, p. 231), common decision-making internalizes cross-border spillovers but at the cost of moving the common policy away from its preferred national policy (i.e. a loss of national sovereignty). In Africa, spillovers are important as transport and communications infrastructure are under-provided, but the ethno-linguistic diversity across 'artificial' borders documented in Table 19.1 suggests strong differences in policy preferences. This heterogeneity hinders the supply of public goods through the adoption of common regional policies. How have the RECs opted between emphasis on the 'depth' of integration (deeper provisions) and 'breadth' (larger membership)? Opting for more breadth requires more compromises because of heterogeneity of membership. Greater depth is conducive to the provision of public goods while expanded membership (greater 'breadth' through expanded membership) tackles the tyranny of small markets that has always faced African countries.¹⁴

5.1. *How Deep Are African RTAs?*

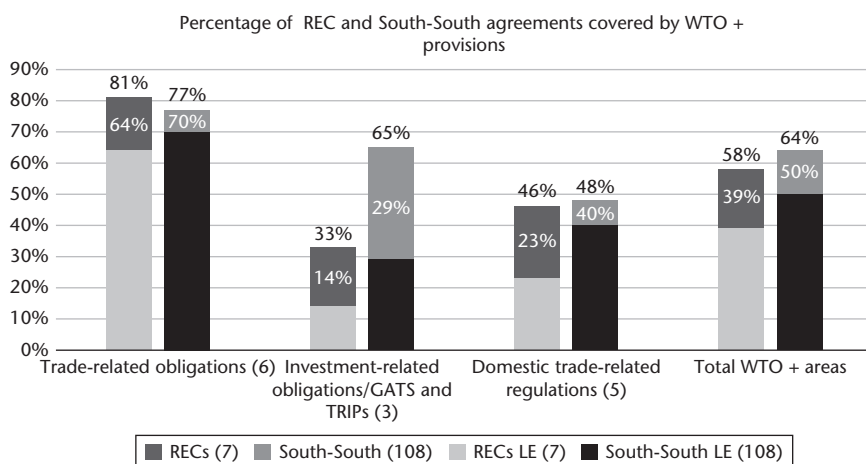
From 2000 to 2015, 194 PTAs notified to the WTO have come into force, of which 64 per cent also include provisions on services trade, whereas 90 per cent of the eighty-one PTAs in force prior to 2000 featured provisions dealing exclusively with trade in goods (Egger and Shingal 2016). This extension of coverage to services reflects the increasing importance of services as complementary inputs into production and of the slow progress at trade liberalization in services at the multilateral level. Here we compare the depth of integration measures in SSA RTAs relative to other S-S RTAs following the tally in Horn et al. (2010) who classify coverage into two broad categories: those that are covered by the WTO negotiations, for which the issue is how much further does the RTA go beyond WTO negotiations (the WTO+ category); and those that are not covered in the WTO negotiations (the WTO-X category). For each category, when the provision is covered (denoted AC for area covered), the

¹⁴ At purchasing power parity prices, the combined GDP of SSA countries (including South Africa), is about 85 per cent of Germany's GDP. Reviewing case studies of regional power markets, Oseni and Politt (2016) conclude that regional power markets should start with few members. The discussion paper contrasts the experience of 'deep integration' in the EAC with 'shallow integration' in ECOWAS comparing the plight of small countries in these RTAs (Rwanda and Liberia).

provisions are further categorized according to their degree of legal enforceability based on the wording in the provision (e.g. ‘parties shall cooperate’ is deemed not legally enforceable while ‘neither party may expropriate or nationalize a covered investment . . .’ is deemed legally enforceable (i.e. indicated by LE in Figure 19.2). This approach has been extended by Hoffman et al. (2017) to include 279 RTAs over the 1985–2015 period.

Figure 19.2 summarizes a tally of the provisions for the 117 S-S RTAs, focusing on comparisons between 7 SSA (of which 5 are RECs) and other

19.2(a) Average coverage of WTO + provisions by category of obligations



19.2(b) Average coverage of WTO-X provisions by category of obligations

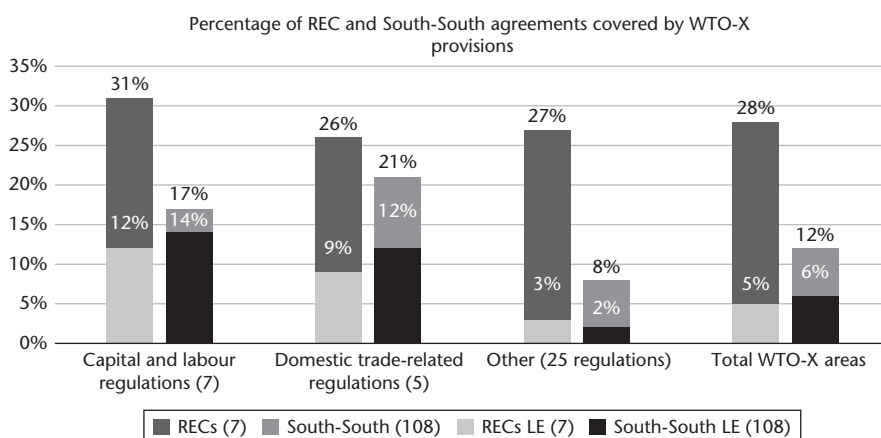


Figure 19.2. A comparison of coverage of provisions across South-South RTAs: African RTAs vs. other South-South RTAs

(108) S-S RTAs. Not surprisingly, legal enforceability is much higher for WTO+ than for the WTO-X provisions that are not covered in the WTO. Lumping all the WTO+ provisions, the aggregate coverage ratio (across all categories) is only slightly lower (58 per cent vs. 64 per cent) in SSA RTAs than in other S-S RTAs, but the legal enforceability is significantly lower. As to the WTO-X provisions (not covered by WTO negotiations), coverage is more than twice as high in African RTAs, but, at 5 per cent, the legal enforceability is as low as in other S-S RTAs. Interestingly, on average, legal enforceability is always lower for African RTAs than for other S-S RTAs. The high coverage ratio of WTO-X provisions in SSA RTAs could reflect a combination of three factors: (i) high coverage inspired by coverage in EU agreements where RIAs are the main diplomatic arm of the EU which does not have a foreign policy so to speak;¹⁵ (ii) a way to build trust by including the preferences of all participants; and (iii) a sign of diplomacy among countries with large differences in preferences. This is akin to the ‘universalism’ problem in the politics of rent-sharing in RTAs where every government wants a share of the spoils when voting on protection so that all countries vote for measures that are not in their interest in exchange for getting the support of other members for measures they benefit from (Schiff and Winters 2003: 87).

Producer services (transportation, accounting, information and communication technologies (ICT), consulting, financial) are all complementary inputs in the production function and hence necessary to expand the production of intermediate and final goods. Many are specialized inputs. Access is needed to a wide range of varieties from domestic and foreign suppliers. In Figure 19.2, regulations fall under the following categories: investment-related obligations, domestic trade-related regulations, and capital and labour regulations. For all these categories, on average, the African RTAs have lower enforceability than in other S-S agreements. This is particularly so for the investment-related obligations (General Agreement on Trade in Services (GATS), Agreement on Trade-Related Investment Measures (TRIMs), Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs)) which have lower coverage and lower enforceability.

As a check of the potential importance of depth of integration for participation in supply chain trade, Table 19.4 reports panel regressions of bilateral trade in parts and components that are exchanged in supply chains for our sample of S-S RIAs over the 1980–2014 period. To control for omitted variables, the full set of FEs is included in all regressions with three measures of depth: all provisions, core provisions (WTO+ provisions plus competition and movement of capital),

¹⁵ In their comparison of WTO-X areas in EU and US FTAs, Horn et al. (2010) note that 75 per cent (of 310 provisions) in EU agreements are non-enforceable while 85 per cent (of 82 provisions) are enforceable in US agreements.

Table 19.4. Depth of integration and trade in components and parts: panel 1982–2012^a

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	EK Tobit	EK Tobit	EK Tobit
PTA	0.832*** (0.0446)	0.827*** (0.0460)	0.832*** (0.0446)	1.182*** (0.0867)	1.103*** (0.0919)	1.182*** (0.0867)
WTO	0.398*** (0.0695)	0.399*** (0.0694)	0.398*** (0.0695)	1.393*** (0.0442)	1.391*** (0.0442)	1.393*** (0.0442)
Ln(distance)				-1.920*** (0.0366)	-1.920*** (0.0367)	-1.920*** (0.0366)
Com. border				-0.376* (0.218)	-0.382* (0.218)	-0.376* (0.218)
Com. language				2.056*** (0.0662)	2.058*** (0.0661)	2.056*** (0.0662)
Ln(GDP exp.)				2.273*** (0.00953)	2.272*** (0.00952)	2.273*** (0.00953)
Ln(GDP imp)				1.372*** (0.00980)	1.371*** (0.00979)	1.372*** (0.00980)
WTO+ and WTO-X provisions (sum)	0.0106*** (0.00145)			0.00821** (0.00397)		
WTO+ provisions (sum)		0.0238*** (0.00376)			0.0317*** (0.0104)	
Nb. of prov./Max. nb. of provisions			0.552*** (0.0753)			0.427** (0.207)
Constant				-62.80*** (0.496)	-62.76*** (0.496)	-62.80*** (0.496)
Observations	149,469	149,469	149,469	323,777	323,777	323,777
R-squared	0.842	0.842	0.842			
Fixed Effects (FE)						
importer*year	yes	yes	yes	no	no	no
exporter*year	yes	yes	yes	no	no	no
bilateral	yes	yes	yes	no	no	no

Notes: Robust standard errors in parentheses, clustered at country-pair level. *** p<0.01, ** p<0.05, * p<0.1. EK Tobit: Eaton-Kortum Tobit

^a Three-year panel. Components and parts defined as sections 42 (parts and components of capital goods) and 43 (part and accessories of transport equipment) of the BEC and code 65 of the SITC (textiles).

Source: Authors' estimates.

and the percentage of provisions covered. The estimates in columns 1 to 3 indicate that all three measures are significant along with the WTO and PTA dummies. The results are robust to the inclusion of zero observations with the Eaton-Kortum Tobit estimator reported in columns 4 to 6. While the inclusion of dummies controls for omitted variable bias, the results could also reflect that it is participation in supply chain trade that has pushed countries to integrate more deeply. In any case, the results suggest that deep integration, including WTO membership, is important for supply chain trade.

6. Conclusions

The RECs have been the driving force of integration across the African continent where small fragmented and isolated economies with a very unequal distribution of economic resources and geographic characteristics make a compelling case for integration on a regional basis to exploit scale economies, reap efficiency gains, and reduce the thickness of borders. This review started by documenting the obstacles to progress resulting from the large heterogeneity across the continent. We looked for signs of integration in producer services which are complementary for manufacturing and key for the prospects of industrialization without ‘smokestacks’ emphasized in the project.

The review suggests three takeaways. First, progress has been slow towards meeting overly ambitious objectives suggestive of an implementation capability trap. Second, since their inception, reorganization in the pattern of trade in manufactures towards REC partners has been small, suggesting that regional trade costs have not fallen, at least relative to non-regional trade costs. This persistence of high trade costs has been accompanied by few new manufactures destined to geographically close markets. Third, compared with other South-South RIAs, the RECs have moved towards deeper integration by including a high number of provisions not covered in WTO negotiations. However, these provisions have low legal enforceability. Reasons for this slow progress are explored in the chapter.

From a broader perspective, this progress report questions Africa’s ‘old regionalism’ approach where the building of RECs still continues to be built around an exchange of market access seeking to build vertically integrated production chains on a regional basis rather than participating in the growth of trade in tasks where integration takes place on a horizontal basis. The worldwide reduction in trade costs and the subsequent horizontal fragmentation of production has meant that logistics and services activities have become necessary for participation in the rapidly expanding exchange of intermediate goods (i.e. trade in tasks). Participation in ‘value chains’ requires not only access to imported intermediates at world prices, but also

access to the services (transportation, accounting, ICT, consulting, financial) that are essential in the production of intermediate and final goods. Econometric estimates indicate that participation in the RECs has contributed to intensifying bilateral trade in manufactures; deep integration covering services contributes to intensifying the trade in parts and components that are part of the worldwide delocalization of tasks. Tackling the removal of barriers to trade in goods and trade in services remains a challenge for successful integration in the RECs.

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Widening the Options

Implications for Public Policy

Richard S. Newfarmer, John Page, and Finn Tarp

1. Introduction

While structural change is taking place in Africa, it is at a pace and with a pattern that is distinct from both the historical experience of today's industrialized countries and from more recent transformations in East Asia. These differences reflect the impact of technological change and a changing global marketplace interacting with policy, a rapidly growing labour force, and natural endowments. Some African countries—perhaps those favoured by coastal locations—will be able to transform their economic structures through manufacturing. The essays in this book also suggest quite strongly, however, that it would be surprising if the successful African economy of the future closely followed the export-oriented manufacturing-led path that has characterized East Asia's structural transformation. Africa's growing economies are likely to have economic structures that contain high value added agriculture, agro-industry, and tradable services in addition to a more robust manufacturing base. New global realities will force Africa's economic policy makers to think of ways to promote structural transformation into activities beyond manufacturing.

To transform their economies, African governments need to attract new firms able to compete in regional and global markets in services, tourism, and agro-industry in addition to other manufactures. At the same time they must boost the competitiveness of existing firms in these same sectors. While much of the effort to transform the region's economies will need to come from African governments themselves, the essays in Parts I and III of this book point to the crucial changes needed in global economic policy and in Africa's

regional economic communities (RECs). This chapter sets out new directions for public policy—at global, national, and regional levels—to widen the options for structural transformation.

2. Global Policy Reforms

The US retreat from leadership on multilateral issues, apparent since early 2017, has created a vacuum that, left unfilled, could impede progress on multilateral initiatives that would otherwise promote structural change in Africa. The WTO negotiations on trade in agricultural products, manufactures, and e-commerce in the Doha round were already moribund, foundering from complexity and multi-polar divisiveness. The new US administration immediately withdrew from negotiations on the Trans Pacific Partnership, a grouping of some twelve Pacific Rim countries. Meanwhile, across the Atlantic, the British vote to leave the European Union in June 2016 constituted another earthquake threatening a former pillar of multilateralism. For Africa, clearly, the first order of business is resisting the rising tide of protectionism.

2.1. *Collective Action on Goods and Services Trade*

The international community can assist African governments to defend the global trading system by more forthrightly addressing the uneven distribution of gains and losses through trade. A joint publication of the World Bank, IMF, and WTO undertaken for the G20 Sherpas meeting in March 2017 wrote: ‘... recent experience shows that too many individuals and communities, notably also in the advanced economies, have been left behind by trade: there are legitimate reasons for discontent’.¹ The thrust of that report was a recommendation to strengthen the multilateral rules keeping markets open and to undertake serious country-based programs to mitigate trade adjustment costs. Of particular importance is portable access to health care, retirement programmes and education. It remains to be seen whether politicians and their societies in the OECD will adopt this view.

The current headwinds notwithstanding, several other global initiatives can support trade-led structural transformation. Reducing trade costs has an immediate and powerful effect on trade, and so one priority for multilateral collective action is to implement the Trade Facilitation Agreement (TFA) fully. Ministers were able to rescue the TFA at the Bali Ministerial in 2013, and it took effect in February 2017, when two-thirds of the WTO membership completed

¹ See IMF, World Bank, and World Trade Organization (2017).

their individual ratification of the arrangement. The TFA includes largely voluntary provisions to expedite the movement, release, and clearance of goods, and protection of goods in transit. It also outlines ways for customs and other appropriate authorities to cooperate on trade facilitation and customs compliance, along with modalities for technical assistance and capacity building.

By reducing both the variable and fixed costs of exporting, trade facilitation increases the exports of those firms already involved in international trade, while enabling new firms to export for the first time. The WTO (2015) estimates that full implementation of the TFA could reduce trade costs by an average of 14.3 per cent, and that African countries may benefit from reductions in trade costs in excess of 16 per cent. Full implementation of the TFA can reduce time to import by over a day and a half (a 47 per cent reduction over the current average) and time to export by almost two days (a 91 per cent reduction over the current average). While these estimates are necessarily sensitive to assumptions and model structures, they do convey the importance of agreements to reduce trade costs.

Greater market access can also boost Africa's exports. Trade policy in Africa's main trading partners—especially those in Asia—has an important role to play in easing the entry of non-traditional African exports. Although Asia's tariffs on African exports are gradually declining, the trend is weak, especially for Africa's least developed countries. As Fukase and Martin argue in Chapter 5, an essential step is to reduce escalating tariffs directed at higher stage processing of commodity exports. These discourage the development of agro-industrial value chains. China could play a leading role here by shifting its preferential trading agreements with Africa from country by country bilateral deals to a single well publicized Africa-wide initiative. This might push its Asian trading partners to offer similar tariff reductions.

Unilateral preferential trade programmes such as the US Africa Growth and Opportunity Act (AGOA) and the EU's 'Everything But Arms' (EBA) programmes have contributed to an expansion of manufacturing and other exports from Africa. AGOA now covers forty countries, and nearly all of Africa's exports to the US. Launched in 2000, it was renewed in 2015 and now extends to 2025. The EBA also grants duty-free, quota-free access to the EU market. As a result, as Fukase and Martin point out, tariffs on Africa's exports to these major markets on average are less than 1 per cent, substantially less than in other markets. The only pall of uncertainty is the withdrawal of the UK from the EU—and with it prospectively the 17 per cent of the European market that it represents.

The Trade in Services Agreement (TISA), launched in 2012, may eventually have consequences for Africa. Negotiations are on-going and involve twenty-three negotiating parties, including the EU and US as well as a handful of developing countries (mainly from Latin America) and one African country,

Mauritius. The agreement would provide access to foreign services suppliers on the same terms as domestic suppliers in areas such as transport, health, and finance. Its short-run fate, however, may be similar to other multilateral accords. Domestic politics in the US and Europe appears to have stalled progress.

Support for open world trade may be shifting, but not solely toward protection. While the US did withdraw from the Trans-Pacific Partnership Agreement in early 2017, a year later in January 2018, the eleven remaining countries announced broad agreement on a new trade pact, christened the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. Meanwhile, China, India, and Brazil have begun recently to play much more prominent roles in world trade talks, moving from participants in blocking coalitions, to new proponents of change. Perhaps reflecting its position as a capital exporting country, China has recently advocated a new 'investment facilitation agreement' that would cover foreign direct investment, and is pressing its ideas in the G20. India, a major exporter of services, tabled a paper on 'services facilitation' at the WTO in February 2017. While it is too soon to draw definitive conclusions, these actions may constitute the first steps toward a new multilateralism.

2.2. Development Assistance and Infrastructure Finance

In the past, Official Development Assistance (ODA) was a key element promoting structural transformation in Africa. Infrastructure, particularly electric power, roads, and railways, is essential to trade-led structural transformation, and financing from external sources has enabled much investment of this type. After a slow start, the aid-for-trade initiative of the WTO has contributed to mobilizing additional resources for trade-related infrastructure and trade-related economic activities (see Lammerson and Roberts 2015). These funds have mainly gone to countries that are trading less than key indicators would predict and have contributed to positive results in trade creation (Gamberoni and Newfarmer 2014).

In recent years, as finance through the concessional windows of the World Bank (the International Development Association, IDA) and other MDBs has become constrained, governments in Africa have mobilized new sources of finance, including private borrowing. Countries from Angola to Zambia have issued sovereign bonds. Borrowing on private markets has grown rapidly. Steady global market conditions and the potential for higher returns for investors have helped pave the way for more access to international markets, where the average return for these bonds is about 6.6 per cent, with an average maturity of ten years. Sovereign bonds and borrowings from commercial banks now amount to more than 40 per cent of outstanding public debt for Ghana, Senegal, and Zambia (Velloso 2016).

Because sovereign borrowing can involve high costs and short maturities, a better alternative would be for the international community to allow credit-worthy countries to borrow from the non-concessional windows of the World Bank and other multilateral development banks. Terms are far less onerous—typically less than 1 per cent over Libor compared to 5–7 per cent in private debt markets with longer grace and repayment periods, up to 15–17 years. Moreover, using blend financing—concessional and non-concessional loan packages—as well as guarantees of private lending to finance infrastructure would yield a higher social benefit-cost ratio than recourse to private markets alone (E15 2016). Greater cooperation and coordination between DAC donors and non-traditional donors, perhaps through the international financial institutions to which they both belong, could also improve the focus and efficiency of resource use.

3. Country-Level Strategy for Structural Transformation

The literature on industrialization in developing countries suggests that three factors have largely shaped the global distribution of smokestack industry by attracting new investment and raising the productivity of existing firms (UNIDO 2009; Newman et al. 2016). The first is conventionally termed the ‘investment climate’—the policy, institutional, and physical environment within which firms operate (Stern 2001, 2002). The second factor is exports. A third factor is agglomeration—manufacturing and services firms tend to concentrate geographically.

These determinants of locational choice are mutually reinforcing. Investments in infrastructure and skills raise the potential productivity of all firms, making some of them more likely to succeed in external markets. Industrial exports help to build firm capabilities which are then transferred through agglomeration. Agglomerations raise firm-level productivity. In poorer countries they also generate competitive pressures that reduce the incentives to cluster, unless the clusters are export-oriented. Thus, a strategy that encompasses each of these factors is critical to the success of any industrialization drive.

Because they share many firm characteristics with smokestack industries, the industries without smokestacks analysed in this book respond largely to the same drivers of locational choice. This makes it possible to sketch out a strategy for structural transformation that is broadly applicable to manufacturing, tradable services, agro-industry and horticulture. It is important to keep in mind, though, that each activity has unique characteristics. Generic, ‘one size fits all’ policy-making will be ineffective. Complementary sector specific public actions are also required.

3.1. *The Investment Climate*

The investment climate has come to be broadly and somewhat vaguely defined.² Here we focus on three areas that emerge from the essays in this volume as particularly relevant to industries without smokestacks—infrastructure, skills and competition. Reliable electrical power, lower costs of transport and workers better able to perform their jobs make countries more attractive to investors (IMF 2014). Promoting competition by reforming trade policy and domestic regulations can boost competitiveness.

INFRASTRUCTURE

The productivity penalty that African firms pay as a result of poor infrastructure and skills has been extensively documented.³ Sub-Saharan Africa lags at least 20 percentage points behind the average for low income countries on almost all major infrastructure measures. In addition, the quality of service is low, supplies are unreliable, and disruptions are frequent and unpredictable (Newman et. al 2016). By one estimate, the current infrastructure deficiencies in Africa contribute to a loss of about 2 percentage points per year in GDP growth.⁴ Reliable electrical power may be the greatest single issue. The quality of electricity service is ranked as a major problem by more than half of the firms in more than half of the African countries in the World Bank's *Investment Climate Assessments*. Transport comes a close second to power across the region. Road infrastructure has received little attention, as until recently have the region's ports.

Not surprisingly, ICT-based services may be the most sensitive to infrastructure constraints. As Frishtak notes in Chapter 3, backbone infrastructure is essential to exploit opportunities in what he characterizes as first generation IT-enabled services. The cases of Kenya, Rwanda, and Senegal show that high speed data transmission is critical to exporting a wide range of services and especially to IT-intensive exports. Success depends on the ability to attract providers of cable and other links. Most African countries lack adequate backbone services because they went straight to mobile networks, without investing in connectivity first. Rwanda may be the exception; the government laid an internal backbone fibre optic cable throughout the country to connect virtually all regions.

A necessary condition for fully leveraging the tourism potential is to have adequate tourist-related infrastructure and high-quality services. Daly and Gereffi (see Chapter 4) point to the constraints to tourist development associated with air travel and road quality. Connectivity to the internet and communication infrastructure is also an important consideration for travellers

² See Newman et al. (2016) for a discussion.

³ See for example Escribano, Guasch, and Pena (2010).

⁴ See NEPAD, AU, and AfDB (2011).

to Africa. Such logistical challenges restrict end-market upgrading opportunities. The country studies indicate that quality of infrastructure constrains Tanzania's and Uganda's ability to access luxury customers. In Rwanda, on the other hand, a drive from Kigali, to see the mountain gorillas in the Volcanoes National Park takes less than three hours on well-maintained highways. A recent spate of airport building, serves as a reminder that it is important to be rigorous in the evaluation of public investments targeted at the tourism sector. While terminal space can run out as traffic grows, and many countries aspire to develop passenger or logistics hubs, neither is a rationale for building a new airport. Bowfinger argues in Chapter 6 that there is no shortage of runways in Africa, given the current traffic levels. A properly run existing airport will often serve the business and tourism industry, and terminals can be developed with private sector participation.

Investments to improve trade logistics are essential to export success in agro-processing and horticulture. Fukuse and Martin note that the unbundling of global value chains is much more demanding of logistics than traditional approaches to the processing of agricultural commodities. Costs associated with customs clearance and domestic transport may make it uneconomic for firms to process agricultural goods. Vulnerability to excess costs is particularly acute for processing activities because these frequently operate on small margins relative to production of traditional exports such as coffee, which frequently embody a large share of rents. Horticultural exports are perishable and particularly vulnerable to delays in shipping. As Bofinger points out, the underlying infrastructure in getting cut flowers to the airport is critical to success. He notes that Kenya's flower-growing region is well connected by road to Kenya's international airport, whereas Ethiopia's flower-growing region in the past has had poor road connectivity to Bole International Airport in Addis Ababa, resulting in a 40 per cent spoilage rate.

SKILLS

Although Africans have more schooling today than in any previous generation, nearly 60 per cent of 15–24-year-olds have only completed primary school and only 19 per cent have gone beyond lower-secondary (Filmer and Fox 2014). Educational quality is an issue at all levels. Learning assessments in Africa show that most primary students lack basic proficiency in reading at the end of second or third grade. Employer surveys report that African tertiary graduates are weak in problem solving, business understanding, computer use, and communication skills.⁵ Increasing access and improving the quality of education at all levels remain high priorities.

⁵ See World Bank (2007) and Filmer and Fox (2014).

The IT-enabled services industry is potentially constrained by its very source of competitive advantage. Both the Kenya and Senegal country studies identify the ability to hire university graduates at a fraction of the cost in Europe or the Arab Gulf as the initial impetus for IT-enabled startups. In Kenya attempts to expand the industry have rapidly encountered manpower constraints. Muchai and Kimuyu note in Chapter 11, for example, that an evaluation of IT skills in Kenya showed that there remains a substantial supply-demand gap in the high-end talent pool in the IT workforce. There is, in particular, a lack of software development and project management skills. They argue that this gap is particularly binding in mobile money, where collaboration between the private sector and institutions of learning is key to ensure the skills of graduates match the skills required to operate mobile money transfer services.

English notes in Chapter 13 that Senegal ranks among the top fifty potential suppliers of outsourcing services according to the AT Kearney Global Services Location Index. However, it lies near the bottom—in forty-fifth place—and has fallen significantly in the last five years. The greatest weakness appears to be in the quality and quantity of human resources. English illustrates this in a case study of Senegal's Premium Contact Centre International (PCCI), a major call centre operator. In its early days, the company faced a severe skills shortage and labour turnover was high due to stiff competition for skilled workers. Today, the entry of the large French company, Atos, into Senegal is increasing the competition for IT engineers.

Hoekman argues in Chapter 8 that a workforce that has the skills needed to interact with tourists and to provide the many 'back office' services that are inputs into the production of high-quality tourism is essential to further development of the industry. Lack of skills consistently emerges from the country studies as a constraint to higher quality tourism. Daly and Gereffi note in Chapter 4 that management, organization, communication, and computer skills are critical for tourism distribution intermediaries and service providers seeking to upgrade their position in the tourism value chain. While there are international programmes designed to teach these skills, Africa only has two schools that have earned certification from the UN World Tourism Organization's Tedqual Programme.

COMPETITION

Chapters 15 and 17 by Ellis, McMillan, and Silver, and Spray and Wolf, respectively, document large differences in productivity across firms in services and agro-industry.⁶ Similarly, Ggombe and Newfarmer calculate that many services sectors have productivity levels several multiples of agriculture—and often

⁶ These differences in labour productivity surely reflect major differences in products produced and capital intensity in addition to efficiency in production across firms.

higher than manufacturing. Because productivity in services has an important impact on productivity levels across the economy, encouraging an environment where firms are compelled to search out productivity improvements is essential. This is where competition becomes important. It affects productivity through the exit of less efficient firms and the entry or expansion of their more efficient counterparts (Syverson 2011).

Lack of competition in transportation markets, emphasized by de Melo et al. in Chapter 19 and Karingi et al. in Chapter 18, represents a significant barrier to integrating markets within countries and in regional groupings. Atkin and Donaldson (2015) show that within countries the farther a product travels from its source, the higher the price. This is partly because of transport costs and partly because of regional monopolies in distribution. Raballand et al. show in Chapter 7 how lack of competition is associated with higher trucking costs and undermines competitiveness in the EAC. Boefinger argues in Chapter 6 that the great majority of air transport routes in Africa are near monopolies. In East Africa, many services markets, notably telecommunications and finance, are tight oligopolies dominated by a handful of firms.

Daly and Gereffi point in Chapter 4 to an important anti-competitive aspect of the structure of Africa's tourism industry. The 'Package Booking' distribution channel is particularly prominent in Africa, with foreign visitors often accessing safari, eco-tourism, and surf and sand products through entrenched networks of actors that have strong ties to one another. Lead firms assemble and package individual services into cohesive travel experiences. Low domestic demand for African tourism strengthens the position of these global lead firms because the entry of local tour operators is constrained by low levels of domestic demand for tourism. Notably, the country studies reveal that few governments have strategies designed to promote tourism at either the regional or national level.

These issues underscore the importance of competition policy in several dimensions. First, import competition—including from within regional economic communities—is extremely important to discipline local manufacturers and service providers in their pricing, investment and technology decisions. Second, removing barriers to foreign entry can increase competition, reduce costs and extend access to a broader range of differentiated services. Hoekman argues in Chapter 8 that FDI is a particularly important channel for the transfer of know-how and technology, as foreign firms introduce new types of services that may be better suited to the needs of clients. Boefinger notes that reducing barriers to airline entry by adopting 'Fifth freedom rights' can pave the way for eventual competition. Third, although African countries have experienced an increase in competition for the provision of telecom services, efficient regulation remains important where a single dominant firm—as in the telecoms sector in Ethiopia or Senegal—effectively

controls the price level. Finally, because it is likely that many companies in Africa will enjoy a degree of market power for some time, it is imperative that tax and investment policies encourage private investment so that any monopoly rents are reinvested in expanded production.

3.2. *Tilting Towards Exports*

For most countries in Africa, the regional and global export market represents the best option for rapid growth of horticulture, agro-industry, and tradable services. Exports permit firms to realize economies of scale and in low-income countries the act of exporting raises firm productivity through learning (Harrison and Rodriguez-Clare 2010). Because individual firms face high fixed costs of entering export markets, there is a risk that countries will export too little unless public policies are put in place to offset the costs to first movers. To deal with these externalities, African governments need to develop a consistent package of trade and exchange rate policies, public investments, regulatory reforms, and institutional changes to increase the share of non-traditional exports in GDP.

The structure of protection and the exchange rate have an important role to play in ensuring that exporting is as attractive as producing for the local market. For this reason, proper measurement of these incentives is essential. Tariffs may steer investment toward production for the domestic market, and tariffs on intermediates and capital goods can place exporters at a disadvantage relative to global competitors. Fukase and Martin even suggest that high tariffs and other charges on intermediate inputs result in negative value added at market prices in some agro-processing activities, giving one possible explanation for the region's lagging performance in this sector. One option to address any anti-export bias, is to create an effective 'free trade regime for exporters' through various mechanisms to eliminate or rebate tariffs on intermediate and capital inputs used in export production. While duty drawback, tariff exemption and VAT reimbursement schemes exist in many African countries, they are often complex and poorly administered, resulting in substantial delays. Export procedures—including certificates of origin, quality and sanitary certification and permits—can be burdensome.⁷ One approach that has succeeded elsewhere is to streamline the trade regime first in special economic zones.

The exchange rate is arguably the most important price in the economy. It influences the relative attractiveness of producing for the domestic or foreign market. A competitive real exchange rate has underpinned most prolonged

⁷ See Clarke (2005); Yoshino (2008); Farole (2011).

episodes of rapid export growth, whether in Chile or China (Hausmann et al. 2004), and Rodrik (2008a), among others, has argued for countries at early stages of structural transformation to attempt to undervalue the exchange rate over the medium to long term. Maintaining an undervalued exchange rate is difficult (and costly) in countries with small bond markets and large capital inflows, including aid. At a minimum, macroeconomic policy should strive to avoid overvaluations that stifle non-traditional exports over time.⁸

Trade in tasks has greatly increased the importance of trade logistics. According to WTO estimates, trade costs in developing countries are equivalent to applying a 219 per cent ad valorem tariff on international trade (WTO 2015). For this reason, investments in infrastructure and institutional reforms to improve trade logistics are essential to export success. Limao and Venables (2001), for example, find that an improvement in communication and transport infrastructure from the median score on the World Bank trade logistics index survey to the highest 25th percentile is associated with a decrease in transport costs of 12 per cent and an increase in trade volumes of 28 per cent. One study of port efficiency in APEC found that bringing below-average countries up to the APEC average level of port efficiency would produce US\$117 billion in additional trade within APEC alone (Wilson, Mann, and Otsuki 2005).

Market structure and inappropriate regulations can also impede exports. Senegal provides an example of the costs to IT-based services providers of a monopoly controlling the price and quality of access to the backbone infrastructure. The high cost and limited flexibility of air transport constrains both horticulture and tourism. The aviation industry is heavily protected, with a plethora of small and uneconomic national airlines. As Bofinger points out, Africa is under-served by major airlines. Senegal has relied on scheduled flights for tourism, and with limited airline competition in its main French market, costs have been high. High costs of air transportation have prevented Mozambique and Tanzania from competing in the regional tourism market. While adopting an open skies policy might endanger some national airlines, it would introduce greater competition and reduce the cost of air freight through the development of competing, specialized, charter airfreight companies.

3.3. *Spatial Policies*

The studies of agro-processing, horticulture, and ICT-based services in this volume offer evidence that, like manufacturing, they benefit from agglomeration,

⁸ See Eichengreen (2008).

including thick labour markets, information and knowledge spill overs, and the ability to share overhead expenses and services. Geography also plays an obvious role in tourism: tourist facilities tend to cluster close to the tourism resource. Agglomerations pose a collective action problem: if a new location can attract a critical mass of firms, each firm will realize productivity gains from clustering. Yet, until the location reaches critical mass, there is no incentive for individual firms to move.

Governments can foster agglomerations by concentrating investments in high-quality institutions, social services, and infrastructure in a limited area, such as a special economic zone (SEZ) or an industrial park (UNIDO 2009; Farole 2011). While most first-generation SEZs have been focused on manufacturing, they are relevant to services and agro-based industries as well. Services export companies look for customized facilities such as IT parks with modern office space, high-speed broadband links, reliable power supply and ancillary infrastructure. The Software Technology Parks of India Initiative (STPI), launched by the Indian government to attract potential IT investors, proved essential to the growth of the software industry (Dongier and Sudan 2009). In agro-industry and horticulture, Indonesia and the Philippines have established agro-industrial SEZs, near growing areas to promote processed agricultural exports.

Most African countries are relative latecomers to the promotion of SEZs. Many SEZ programmes began only in the late 1990s or early 2000s. Globally, SEZs rarely experience rapid growth in their first 5–10 years of operation, and it may be too early to judge their success in Africa. In any case, evidence suggests that, in many countries—such as Malawi, Mali, Nigeria, Senegal, and Tanzania—zones are struggling (Newman and Page 2017). One reason for the lack of dynamism is that most African SEZs have failed to reach the levels of infrastructure and institutional performance needed to attract global investors.

A number of countries such as Ethiopia, Ghana, Nigeria, and Tanzania are giving SEZs another go. Most of these countries have zones that include agriculture-related sectors such as agri-business, agro-processing, livestock, and dairy products. Zones focused on high-end service sectors are less common. Some examples include the East London IDZ in South Africa and ITC and Biotechnology focused zones in Benin and Cote d'Ivoire (Newman and Page 2017). A critical challenge will be to bring the physical, institutional and management quality of these zones up to a level that is sufficiently attractive to investors with global alternatives. In Rwanda, for example, Steenbergen and Javorcik (2017) have shown that firms in the SEZ in Kigali are substantially more productive, in part because the government offered business facilitating services, including more efficient import procedures.

Spatial policies can be used to encourage the formation of value chain relationships. Daly and Gereffi note in Chapter 4 that underdeveloped

linkages between tourism and sectors such as agriculture and construction can inhibit industry development and limit the economic benefits associated with tourism. Where foreign tour operators, hotel companies, and investors control supply chain decisions and procurement opportunities, linkages between tourism and domestic supporting industries often remain underdeveloped. In Senegal, English reports that a 2003 study estimated the import content of tourism spending at 30 per cent. The Tanzania country study suggests that almost 30 per cent of tourist spending leaks into foreign markets, through consumption of imported goods or services.

South Africa is attempting to use spatial policies to increase local participation in the tourism value chain. Its Department of Environmental Affairs and Tourism sets guidelines for responsible sourcing—purchases that are made from businesses within 50 kilometres. Daly and Gereffi argue that while adherence to the targets has been uneven, the initiative provides a basis to address the poor communication and mistrust that sometimes characterize food-supply value chain relationships. They also suggest that national or regional investment departments can create databases of qualified construction contractors, sub-contractors, and suppliers that investors can access before projects commence.

3.4. *The Role of Industrial Policy*

Many of the conventional public actions outlined above—the structure of protection, exchange rate policies, investments in trade facilitation, and reform of regulations—fall under the rubric of industrial policy. That is, policies designed to promote selected industries or activities. Perhaps no other term in economics has generated more heat with less light. Fortunately, industrial policy is finally moving away from the fruitless debates on ‘picking winners’ versus ‘levelling the playing field’ towards the policy mainstream. There is broader agreement that information, learning, and geography combine to make a strong case for industrial policy (Stiglitz 1996, 2001; Rodrik 2008b). Arkebe Oqubay in a sophisticated discussion of Ethiopia’s industrial policy argues that ‘the state in Africa must play an activist and developmental role beyond being merely a “facilitating actor”’; that is, being little more than a servant of comparative advantage’.⁹ The lesson he derives is that policy has to be strategically driven and consistent, a proposition reflected in the strategy set out above.

⁹ Oqubay (2015: Chapter 1).

Today many countries are integrating industrial development strategies that use various policy instruments into major development efforts.¹⁰ Rodrik (2004) lays out ten principles of an industrial policy for the twenty-first century. These include: (a) target only new activities, not sectors, and only those with clear potential for spillovers; (b) build in sunset clauses and feedback loops so mistakes can get corrected; (c) establish clear benchmarks of success; and (d) ensure that implementing agencies are competent and can be held accountable. It is important to note that few governments actually adhere to these principles.¹¹

For this reason, while a strategy is essential, governments could raise the probability of successful results by adopting five best practices. The first is to avoid adopting policies that protect incumbents and restrict competition. In the EAC, for example, several governments are considering adopting performance requirements, market reservations and preferences for domestic firms in government procurement, among other policies, including export and import bans. Competition from imports is an important driver of productivity growth (Newfarmer and Sztajerowska 2012); competition from new entry in services markets can drive down prices and improve services (Hoekman and Mattoo 2008); intra-industry competition within regions can help create larger firms and, by driving out marginal uncompetitive firms, raise industrial productivity throughout the region. Second, transparency in granting direct and indirect subsidies is essential to ensuring that they can be curtailed if ineffective or phased out when no longer needed. One option, following the New Zealand practice, is to report tax and other incentives as ‘tax expenditures’ or fiscal outlays that could be reviewed annually as part of the budget process. Third, an important, and often overlooked, practice is to ensure that the performance of firms receiving tax breaks in exchange for particular commitments, such as to invest or export certain amounts, is monitored adequately to ensure they actually fulfil their promises. Fourth, programmes designed to promote selected activities should incorporate periodic reviews and be evaluated against projected achievements. Requiring that an incentive expire unless a review recommends that it be extended places the burden on advocates to show why it remains relevant. Finally, at the outset of devising a national strategy, it is helpful to begin by analysing the cumulative effects on resource allocation of existing industrial policies. All governments have industrial policies, so undertaking a comprehensive review can surface activities that may be underserved and ones that perhaps are receiving too much public support.

¹⁰ See, among others, ‘Kenya’s Industrial Transformation Programme’ (July 2015); ‘Made in Rwanda’ (draft January 2017); ‘Buy Uganda, Build Uganda’ (December 2016) and ‘Made in Sierra Leone’ (draft March 2017).

¹¹ See Page and Tarp (2017).

4. The Role of Regional Agreements

The small size of Africa's economies and the fact that many are landlocked make regional approaches to infrastructure, customs administration, and regulation of transport in trade corridors imperative. Moreover, neighbouring markets can provide the needed access and preference margins to jumpstart a wide variety of exports; and in an era of value chains, they offer the opportunity to develop local value chains that could be a spring board to the global market.

4.1. *Uneven Progress Toward Deeper Integration*

Ever since the Abuja Treaty was signed in 1991, African governments have looked to regional economic integration to expand intra-African trade, to harmonize regulations and policies, to establish coordinated monetary policies, and even to achieve political union. As de Melo et al. point out in Chapter 19, these goals have proven elusive. They find that reductions in tariffs and non-tariff barriers have been implemented only slowly, that other aspects of policy and regulatory harmonization have lagged and that efforts to integrate in services trade have by and large been ignored. Growth in regional trade has barely kept up with exports to the rest of the world, and the introduction of new products in the RECs, a key indicator of export dynamism, has only accounted for a small percentage of trade growth.

They argue that one reason for the minimal impact of these agreements is that even when ambitious regulatory reform measures are enacted, they lack enforcement. Trade costs have come down relative to pre-agreement levels, but more for agriculture than for manufactures—and in only a few of the RECs. De Melo and his colleagues suggest that the key to unlocking more vigorous regional trade is to abandon the old approach of negotiating over increasing market access in the context of an effort to build vertically integrated regional value chains and instead focus on reducing trade costs and liberalizing services markets in order to develop horizontally organized production chains.

In Chapter 18, Karingi and others give a somewhat more upbeat interpretation of the effects of integration in the East African Community. They find that the combined share of EAC members' intra-regional exports remained about the same (at 18 per cent) before and after the community was launched. That said, some countries gained market share—notably Uganda and, to a lesser extent, Burundi and Tanzania—and, together with Kenya, have benefitted from substantially more exports to other countries in Africa. In fact, for the EAC as a whole, exports to Africa outside the EAC amount to about the same share of exports as intra-EAC exports.

Karingi et al. argue that the EAC has been a springboard for manufactured-, services-, and agro- exports to other parts of Africa. They note that intra-EAC exports are much more diversified than the community's global exports. Manufactures, for example, comprise 55 per cent of intra-EAC exports and only 19 per cent of exports to the rest of the world. Moreover, exports of EAC countries to other African countries mirror the intra-EAC pattern of greater diversification with over half of the exports in manufactures. The authors showcase the dairy industry as an example where intra-EAC exports from Uganda have flourished—albeit behind a common external tariff of 60 per cent on imports.

4.2. *The Way Forward: Regional Initiatives Promoting Transformation*

Using the regional economic communities to propel trade integration and the development of regional value chains can occur through three main channels: reforming price incentives, strengthening trade facilitation and services regulation, and investing in interconnected physical infrastructure.

REFORMING PRICE INCENTIVES

Price incentives in Africa, despite the complex system of regional preferences, still tend to discourage production for the external market and inhibit the emergence of regional and global value chains. Karingi and his colleagues observe that tariffs facing exports to the rest of Africa from the EAC are substantially higher than to other regions and much higher than to high-income regions. Fukase and Martin suggest that average protection against African exports is 1.7 per cent in the rest of the world compared to 6.1 per cent within Africa itself. Tariff escalation in agriculture is particularly notable within Africa. Processed agricultural products are taxed on entry to other African markets at a rate nearly four times higher than bulk agricultural exports. Progress toward the Africa-wide Continental Free Trade Area, as de Melo and his colleagues note, could help reduce these distortions.

Regional forums and agreements can help curtail the adoption of 'beggar thy neighbour' policies that are emerging in many countries. Fiscal incentives are becoming an increasingly popular export promotion instrument among African governments. According to new data assembled by the World Bank, sub-Saharan Africa enacted more tax incentives to attract firms—typically multinational companies—to invest in export-oriented production than any other region between 2009 and 2015. These included tax holidays and preferential tax rates. Because competition among governments in granting tax incentives is intense, the marginal effect from an aggregate African perspective may be lost tax revenue with little benefit in export expansion (Von Euxkull et al. 2017).

TRADE FACILITATION AND SERVICES REGULATION

As noted above, regional institutions have already made significant progress in reducing trade costs. Although de Melo and others only partially attribute these declines to the regional agreements *per se*, there is little doubt that increased coordination has played a role. Trade costs are falling sharply—and in the EAC the results in terms of expanded firm level exports have been tangible (see Spray 2017; Karingi et al. in Chapter 18). In addition, the regional agreements have facilitated rapid growth in the export of transport services. Within the EAC transport services can amount to a sizable portion of services export earnings. In Uganda for example, transport services have averaged nearly 10 per cent of services exports in the period 2014–15 (Shepherd 2016). In Rwanda, transport earnings were 11 per cent of services exports in 2016 (Ggombe and Newfarmer).

Services regulation is the area where regional institutions have done the least and where the gains are possibly the highest. In the EAC, efforts in telecoms deregulation have integrated markets in long-distance services. The virtual elimination of roaming charges through collective regulatory action by the Northern Corridor countries (Rwanda, Uganda, and Kenya) has lowered prices, expanded consumer volume, and at the same time increased firm profitability.¹² Similarly, introducing a joint visa programme in the Northern Corridor countries has facilitated tourist travel among the three participating countries. Replicating these initiatives in finance, mobile money, education, and professional services, as well as in labour mobility generally would go far toward unleashing the potential for regional integration.

INVESTING IN INTERCONNECTED INFRASTRUCTURE

While interconnection of physical infrastructure is underway it could be accelerated. The Eastern Africa Submarine Cable System has installed some 10,000 kilometres of fibre optic cable that links most of Eastern Africa, including the landlocked countries to the global internet. This effort involved the coordination of various governments and their telecom regulators, and its completion offers new access at low cost for millions of East Africans. As both Frischtak and Murray note in their Chapters, access to low cost, fast internet can be transformative.

The development of IT infrastructure may bode well for interconnecting the power grid, where new installations can lower the cost of power from the current very high rates and improve reliability. The problems associating with power, however, are substantially more complex than for telecommunications. Road interconnections may be easier. In 2012, African ministers of transportation adopted a region-wide plan that included network routes,

¹² See Karingi et al. in Chapter 18.

design standards and harmonization of safety, social, and environmental norms. These should facilitate completion of the gaps in the Trans-African Highway. Similar efforts are underway in rail and air transportation (UNECA 2013). The EAC's Northern Corridor has been coordinating on a standard gauge railway project (US\$13.5 billion) and a single airspace arrangement (*All Africa News* 2015).

5. Conclusions

The research in this book gives some good news for Africa. Structural transformation is taking place. In contrast to traditional historical patterns—and in sharp contrast to East Asia—though, the movement of labour has gone less into manufacturing than into services. In some countries, industries without smokestacks—agro-processing and horticulture, tourism, and business and trading services—have provided a substantial portion of new high-productivity jobs. At the same time, the region's structure of trade is also changing. Although many countries still depend on commodity exports, Africa's export portfolio has become more diversified and less concentrated than it was two decades ago. As a result, the region is less vulnerable to the sharp swings in commodity prices than at any time in its post-colonial history.

The news is not all good, however. Africa faces challenges that differ from other region's historical experiences. One set of challenges is demographic. Rapid population growth interacting with extremely low productivity in traditional agriculture has led to a wave of urbanization at unprecedentedly low levels of average per capita income. This necessarily implies that high productivity jobs will be accompanied by low-productivity jobs, and the dispersion of productivity in cities will be large. It also means that governments have to pay as much attention to increasing within-sector productivity as reallocating labour into new sectors (Jones and Tarp 2017). Another challenge will be the changing global outlook and a possible retreat from multilateralism in rich countries. While recent forecasts point to stronger world economic growth than in most of the post-Great Recession period, political developments portend at least a pause in the trend toward greater openness and in the evolution of the rule-based system that provided a favourable climate for East Asia's rapid development.

We began this chapter by asserting that the successful African economy of the future will have to find its own path forward. It will, however, have transformed from a mainly agricultural economy into one characterized by a range of tradable, high value-added industries—with and without smokestacks. Policy changes at the global, national and regional level will be needed for that transformation to take place. If they can be achieved, Africa will have some new lions.

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