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Eastern Africa's Manufacturing Sector

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REGIONAL SYNTHESIS REPORT



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EASTERN AFRICA'S MANUFACTURING SECTOR

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EASTERN AFRICA'S MANUFACTURING SECTOR: Promoting Technology, Innovation, Productivity and Linkages

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PUBLISHED BY

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ABBREVIATIONS

AEO	Authorized Economic Operators
AfDB	African Development Bank
ASEAN	Association of Southeast Asian Nations
BRIC	Brazil, Russia, India and China
CIP	Competitive Industrial Performance
COMESA	Common Market of Eastern and Southern Africa
DFI	Development Finance Institution
EAC	East African Community
EARC	East Africa Regional Resource Centre
EPA	Economic Partnership Agreement
EPZ	Export Processing Zone
EU	European Union
EUR	Euro
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GVC	Global value chain
HDI	Human Development Index
HS	Harmonized System
ICT	Information and Communication Technologies
IMF	International Monetary Fund
IPR	Intellectual Property Rights
ISI	Import Substitution Industrialisation
ISIC	International Standard Industrial Classification of All Economic Activities
MDGs	Millennium Development Goals
MFN	Most-Favoured Nation
MITI	Ministry of International Trade and Industry
MVA	Manufacturing value added
ODM	Original Design and Manufacture

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OECD	Organisation for Economic Cooperation and Development
OEM	Original Equipment Manufacture
PISA	Programme for International Student Assessment
PPD	Public-Private Dialogue
PRSP	Poverty Reduction Strategy Plan
R&D	Research and Development
RCA	Revealed Comparative Advantage
REC	Regional Economic Community
REER	Real Effective Exchange Rate
SADC	Southern African Development Community
SEZ	Special Economic Zone
SITC	Standard International Trade Classification
SMEs	Small and Medium-sized Enterprises
SWOT	Strengths, Weaknesses, Opportunities and Threats
TEU	Twenty-foot Equivalent Unit
ULC	Unit Labour Cost
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organisation
US	United States
USD	United States Dollar
VAT	Value Added Tax
WDI	World Development Indicators
WEF	World Economic Forum
WTO	World Trade Organization



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Acknowledgements

This document is a synthesis report based on seven country level reports on the manufacturing sector in Eastern Africa covering Burundi, Ethiopia, Kenya, Rwanda, Seychelles, Tanzania and Uganda – commissioned by the African Development Bank (AfDB), East Africa Regional Resource Centre (EARC). The report was task managed by Dr. Tilahun Temesgen, Chief Regional Economist, EARC. Overall guidance was received from Mr. Gabriel Negatu, Director, EARC, Nairobi, and Messrs. Abraham Mwendu and Stefan Muller, Lead Economists, EARC and respective Resident Representatives of the countries covered by the study: Messrs Abou Amadou Ba (Burundi), Lamin Barrow and Josephine Ngure (Ethiopia), Negatu Makonnen (Rwanda), Tonia Kandiero (Tanzania), and Medjomo C. Coulibaly (Uganda). The document was prepared by Derk Bienen and Dan Ciuriak, BKP Development, based on country reports prepared by Prime Nyamoya and Prudence Ndayishimiye (Burundi), Tadele Ferede Agaje (Ethiopia), Mary L. Mbithi (Kenya), John Bosco Kanyangoga and Valentin

Gerold (Rwanda), Emmanuel Baudelet (Seychelles), Prosper Ngowi (Tanzania) and Nichodemus Rudaheranwa (Uganda).

AfDB staff who provided important inputs and peer-review comments included: Cecile Ambert, Richard Walker, Josef Loening, Prosper Charle, Rob Rudy, Sibaye Joel Tokindang, Edward Sennoga, Alexis Rwabizambuga Vera Kintu Oling, Admit Zerihun, Mumina Wa-Kyendo, Susan Mpande, Walter Otero, Shem Simuyemba and John Kofi Baffoe.

This report has also greatly benefitted from discussions with, and comments and suggestions from stakeholders who participated at the various country level validation workshops as well as a regional validation workshop in Arusha co-organized by the EAC Secretariat and the AfDB. The financial contribution from KOAFEC in undertaking the study is acknowledged and greatly appreciated.

EASTERN AFRICA'S MANUFACTURING SECTOR: Promoting Technology, Innovation, Productivity and Linkages

Foreword



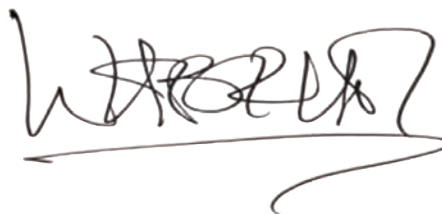
A competitive manufacturing sector is central to socio-economic transformation and poverty reduction in developing countries. However, in Eastern Africa, the sector regrettably plays a rather limited role in promoting GDP growth and job creation compared with other regions. This is due to a number of factors:

Eastern African manufacturers produce a relatively narrow range of products, often suffer from low productivity, and generally employ few people and little capital; to mention just a few. The sector also suffers from a number of structural and policy constraints, including limited access to finance, electricity, transport infrastructure and ICT networks. Having said all this, there is a general consensus that with the right business enabling environment, including improved access to markets, enabling infrastructure, technology and skills development, the sector has tremendous untapped potential to spearhead the Region's sustainable and inclusive growth.

The objective of this report is to assess major opportunities and constraints for the development of the Eastern Africa's manufacturing sector, to look at suitable examples from other regions, and draw lessons to enhance the sector's contribution to the region's economic transformation. To this end, seven country-level assessments, covering Burundi, Ethiopia, Kenya, Rwanda, Seychelles, Tanzania and Uganda, have been undertaken with a view to better

understand country specificities as well as regional trends. The report identifies common binding constraints, opportunities and strengths that can be utilized to develop the manufacturing sector in Eastern Africa. It also proposes several recommendations in the areas of critical infrastructure, business operating conditions, trade logistics and cluster policies, to complement country-specific recommendations and road maps discussed in each country report.

The African Development Bank recently adopted a Ten Year Strategy (2013-2022) and a Private Sector Development Strategy (2013-17) for Africa that sets out the private sector's role in catalyzing the continent's economic transformation and the urgency of private sector development to support the transformation process. This synthesis report, plus the accompanying seven country reports, contribute a rigorous analytic bases for the Bank's promotion of a sustainable and inclusive private sector-led economic growth in Eastern Africa. The proposed recommendations and action plans will assist policy makers and development partners design private sector development programs that contribute to a productive, diversified and competitive Eastern Africa.



Gabriel Negatu,
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The objective of this report is to assess major opportunities and constraints for the development of Eastern Africa's manufacturing sector.

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Executive Summary

It is widely acknowledged that a competitive and private sector-led manufacturing sector plays a key role in socioeconomic transformation and development. The limited role that manufacturing currently plays in Eastern Africa is therefore a potential source of concern for policy makers and their development partners alike. The contribution of manufacturing to GDP and employment is small in the region, diversification is limited, and the level of technological development is low: much of the activity still consists of minimal processing of agricultural and mineral resources.

This regional synthesis study summarizes and builds on individual analytical assessments of the manufacturing sectors in seven Eastern African countries: Burundi, Ethiopia, Kenya, Rwanda, Seychelles, the United Republic of Tanzania, and Uganda. It identifies binding constraints, opportunities and strengths for the development of the sector in the region and provides region-wide recommendations for policy reform and development strategy, complementing the country-specific recommendations and roadmaps proposed in the individual country reports.

Economic performance. The regional economies vary widely in basic measures of economic performance. Five of the seven study countries have per capita incomes in 2013 within the relatively narrow range of USD 1,330 to USD 1,858. Burundi is an outlier on the low side, with a GDP per capita 40% of the average of the middle five, and the Seychelles is an outlier on the high side, with a GDP per capita 16 times the average of the middle five. Other macroeconomic indicators generally suggest fragility and limited scope for aggressive government fiscal measures: inflation rates tend to be high (with Ethiopia being an outlier on the high side), current accounts are all in significant deficit, as are fiscal balances with the exception of the Seychelles which has had a string of surpluses in recent years. Performance in respect of exchange rates has also been highly diverse across the study countries, with some

economies experiencing significant real appreciations, resulting in currency overvaluation and loss of international competitiveness, and others significant real depreciations. From the perspective of using regional integration as a springboard to greater global competitiveness of manufacturing, this divergence of exchange rates poses a problem. Moreover, the divergent trends may well be exacerbated in the future by capital inflows and subsequent revenue flows related to oil and gas exploitation. This will be a particular issue in terms of maintaining real exchange rate stability, an important factor in fostering a manufacturing sector.

Status and competitiveness of manufacturing. Manufacturing broadly defined accounts for a relatively small share of GDP in the study countries (ranging from 3.8% to 11%) compared to the levels of manufacturing typically associated with industrializing countries (which range as high as 30% to 40%). Manufacturing value-added (MVA) per capita is highly disparate across the study countries: The Seychelles has seen MVA per capita decline by almost half in the last ten years – from over USD 1,500 per capita in 2002 to an average of only USD 831 since the global crisis of 2008. Kenya, which ranks second highest in the region in MVA per capita, registered strong growth in this indicator up to 2008, more than doubling from USD 39 in 2002 to USD 85, but then experienced a decline with the crisis, from which it has yet to recover. Several countries in the region (Rwanda, Tanzania and Uganda) have managed to sustain relatively strong growth in this indicator since the mid-2000s, from very low levels, while Burundi and Ethiopia have lagged. Not only are the trends divergent but also the levels are highly disparate, ranging from below USD 20 in Ethiopia to a figure some 75 times higher in the Seychelles. The regional weighted MVA average of the study countries of about USD 36 per capita is substantially smaller than in Vietnam (USD 301) and very far behind BRICS countries like South Africa or China, which are at USD 835 and USD 1,300 respectively.



Based on available data, the level of productivity (MVA per worker) across the study countries is low, productivity growth is slow, and the scale of plants is also generally small.

In terms of sub-sectors, manufacturing in the study countries is dominated by food and beverages, largely basic processing of agricultural output. The percentage varies by economy: for the study countries except Seychelles, cotton-based textiles and clothing, the production of leather (driving off the regional availability of animal hides), and wood-based products (including furniture, paper and printing) also figure prominently in the regional production mix. The Seychelles' manufacturing sector, in contrast, is largely based on tuna. The region also has some capability in the production of more refined consumer products based on agricultural inputs, including soaps, perfumes, cosmetics etc.

There is some nascent industrial development of more advanced products for local or regional consumption. Ethiopia, Kenya and Tanzania have small industries producing more complex products like vehicles, electronics (e.g., cell phone assembly) or machinery and equipment. The same is true for industrial products (chemicals, rubber & plastics, and basic metal products). Based on available statistics, imported components constitute up to 90% of the value of goods in these latter categories; this highlights the absence of well-developed local basic industries.

The study countries – with the exception of the Seychelles which is a special case – have a revealed comparative disadvantage¹ in manufacturing overall, although most countries have particular subsectors in which they do have some degree of comparative advantage – for example, Kenya in food and beverages, leather

¹ The revealed comparative advantage is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows. The manufacturing sector revealed comparative advantage is calculated as the share of the country's manufactured exports in the country's total exports divided by the share of manufactured world exports in total world exports (Balassa 1965). A comparative advantage is "revealed" if this ratio is larger than 1. If it is less than 1, the country is said to have a comparative disadvantage.

products, textiles and clothing, and in non-metallic mineral products including cement and ceramics; Rwanda in processed tea; Tanzania in textiles; and Uganda in cement, clay and ceramics. The Seychelles' processed fish products give it a comparative advantage in that sector and in manufacturing overall.

Inhibiting Factors for Manufacturing. The reasons for the weak showing on manufacturing are readily determined: the study countries generally feature binding constraints in the regulatory environment for firms and in their infrastructure.

As regards the legal and regulatory environment, Rwanda and the Seychelles have forged ahead in terms of creating favourable conditions for doing business. What stands out from a regional perspective is the very low ranking on (a) trading across borders and (b) the cluster of issues relating to starting and closing a company. Given the importance of exporting to attain scale economies as well as to create channels for learning and knowledge spillovers, the poor performance on trading across borders is particularly detrimental to the prospects for achieving rapid industrialization. Given the importance of production networks for manufacturing, the difficulties of establishing formal enterprises also represent a key impediment to filling local supply gaps.

Second, with the notable exception of the Seychelles, economic infrastructure in the study countries is weak by global standards – and even by African standards. Inadequate energy supply is the most significant infrastructural problem in the region: Eastern Africa has the lowest per capita energy generating capacity on the continent and stakeholders identify inconsistent supply (which results in power outages and the requirement for expensive supplementary generation equipment) as a major cost factor. In terms of surface transport, Eastern Africa has serviceable regional trunk road networks, but the conditions are often poor resulting in high transportation costs when the combination of speed and distance covered are jointly taken into account. Very limited availability of rail transport compounds the problems. Finally, logistics probably remains the single biggest inhibitor of industrialization of any of the infrastructure problems. Eastern African ports generally

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underperform when compared to global competitors across a range of indicators. In terms of telecommunications, some Eastern African countries have among the highest costs and lowest penetration rates for fixed telephone lines, mobile phones and especially Internet services in Africa. Penetration rates do vary widely across the region; however, even in the relatively advanced Seychelles, the Internet penetration rate is half the level of the advanced countries.

SWOT analysis of key manufacturing sub-sectors in the study countries. The study identifies seven sectors that are more or less common across the region, focussing on the more general features of the strengths/weaknesses/opportunities/threats that apply region-wide: agro-processing; textiles and clothing; leather and leather products; wood products; niche pharmaceuticals; industrial materials; and assembly of advanced products for regional markets.

Based on the SWOT analysis, the study presents some generalizable horizontal and sectoral policy recommendations. More detailed recommendations and proposed action plans are provided in the individual country reports. In addition, further specific action plans for the implementation of recommendations are prepared separately for discussions with RECs, governments and donors.

Horizontal Policy Recommendations. The analysis underscores the presence of multiple binding constraints in the legal and regulatory operating environment that manufacturing firms face, and in the infrastructure and logistics services on which they depend. This points to the need for a continued push on a horizontal policy agenda. This is admittedly a difficult and costly program, with varying specific implications for the various countries in the region. Accordingly, it will be important to prioritize those horizontal elements that represent the immediate binding constraints on the development of manufacturing for at least some sectors.

In general, the provision of public support for industry should focus on “in kind” support rather than financial incentives which have

generally failed to achieve objectives while creating tax leakage, generating large deadweight administrative costs of monitoring the use of public funds by private corporations, and creating an environment for corruption. Drawing on both the evolving understanding of the economics of development and the specific recommendations flowing from the individual country reports, the study offers the following policy recommendations:

- **Macroeconomic Framework:** As a primary pillar of a manufacturing policy, it is recommended that study countries adopt a policy of maintaining a competitive exchange rate and positive real interest rates to induce the savings required to finance growth. In addition, given the plans to move towards currency union within the EAC, the five study countries which are EAC members should consider an early move to align their exchange rates in line with costs, and to guide the regional exchange rate towards a competitive level for the region as a whole.
- **Infrastructure:** Sustained investment to develop energy, transportation (over and above the main trade corridors) and telecommunications facilities in the study countries is required to enable widespread manufacturing activity to become viable. Regional coordination in transportation and energy infrastructure is essential.
- **Business Operating Conditions:** Business framework conditions generally lag behind best practices in most study countries. Domestic reforms should be accelerated. Recognizing the importance of establishing scalable formal enterprises, reforms that remove barriers for formal start-ups should be prioritised, including protection of property rights and ensuring level playing fields for formal firms by addressing practices such as counterfeiting.
- **Trade Logistics:** While the Seychelles has no particular challenges in terms of trade logistics, the mainland study countries depend heavily on three major ports – Djibouti, Mombasa and Dar es Salaam – and the associated three



major (road) corridors. Shifting freight from road to rail would substantially reduce costs and sidestep the problems of roadblocks and border checks given suitable customs arrangements. Regional transit agreements and modern risk-based customs procedures need to be implemented to eliminate delays and costs in the logistics chain in intra-regional transit.

- **Special Economic Zones and Cluster Policies:** Removing the roadblocks to development posed by inadequate infrastructure and poor business operating conditions for the entire region is an enormous task that will take a decade and perhaps more to achieve. However, oases of suitable conditions can be achieved for industrial parks established as special economic zones which are appropriately serviced and where streamlined rules are applied – with allowance for experimentation to discover what actually works in an Eastern African context.
- **Finance Infrastructure:** Investment capital for start-ups or business expansion is very limited and credit mechanisms based on varied types of collateral need to be developed to address the issues facing particular sectors. While the study makes recommendations for improving different types of financing, in general it recommends that the study countries should apply a focussed and pragmatic approach to determine and address the factors in the financial framework that inhibit capital supply for operations and expansion.

Sectoral Policy Recommendations. The individual country reports provide detailed proposals for the individual sectors in the individual countries; given the inherently specific nature of problems, only a few useful generalizations can be made:

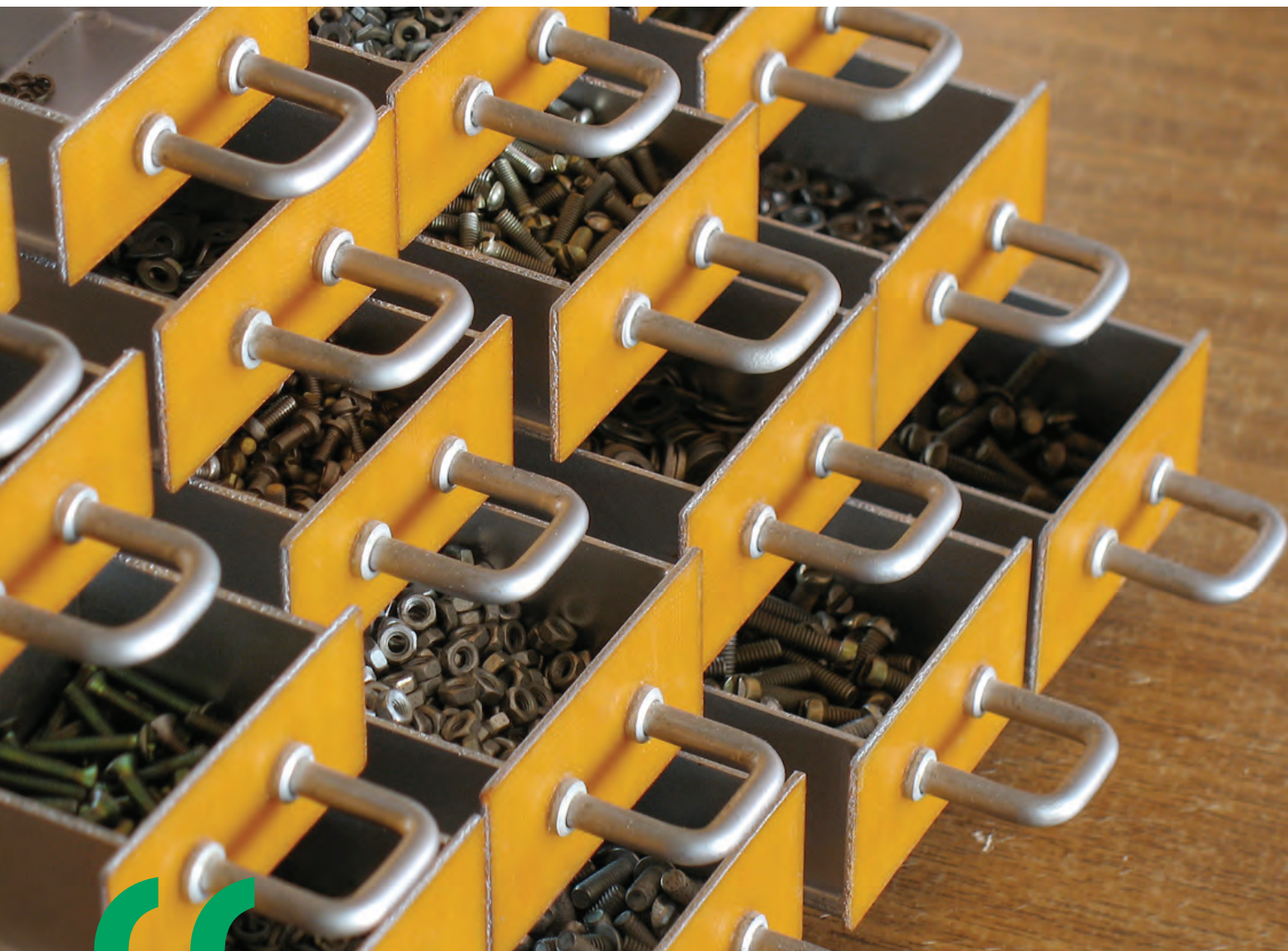
- The example of the rapid development of the cut flower industry in Ethiopia and Kenya serves as a useful role model for sectoral policies in terms of identifying and eliminating binding constraints along the entire chain of production. The region might consider establishing a small trouble-shooting

office, with a multi-disciplinary staff, to work through the problems of specific sectors, starting with roadmaps such as are provided in the present study but which require further elaboration to be applied in the field.

- It is important that the study countries foster the emergence of firms capable of operating at significant scale and exporting. At the same time, state interventions should strike a balance between promoting consolidation of fragmented industries and promoting competition while trying to avoid monopolies.
- In considering interventions to promote specific activities, governments should consider, first, the scope to use government procurement to provide assured demand to competing private sector suppliers (government as “launch customer”) and, second, direct engagement through state-owned corporations that enter niches which the private sector is not serving. There is a considerable history of success of these modes of government intervention which avoid handing out subsidies to firms while stimulating private sector activity in a competitive environment.

A novel – and possibly provocative – suggestion is that governments in the region consider a “buy” alternative to the conventional “build” (in terms of developing home-grown capabilities) or “borrow” (in terms of encouraging inward FDI) approaches for a country to acquire technology. The acquisition of selected firms which have gone bankrupt or are sold because of macroeconomic and policy issues (such as labour costs or currency over-valuation), for re-settlement in industrial parks in Eastern Africa should be considered. This should be complemented with a mentoring role for the firms’ managerial and senior technical staff and partnership agreements with local Eastern African firms in the same industry. Such relocation of firms would introduce advanced techniques, advanced machinery and to some extent supplier and customer connections. At a minimum, the transplanted firms would provide an opportunity for training and learning.

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It is now widely acknowledged that a **competitive and private sector-led manufacturing sector** plays a key role in **socioeconomic transformation and development.**



Introduction

It is now widely acknowledged that a competitive and private sector-led manufacturing sector plays a key role in socioeconomic transformation and development. The limited role that manufacturing currently plays in Eastern Africa is therefore a potential source of concern for policy makers and their development partners alike. The contribution of manufacturing to GDP in the region has remained relatively low, and manufacturing value added (MVA) per capita still is lower than the African average, despite improvements over the past 15 years. Diversification is also limited: the share of low-technology manufacturing (such as textiles, apparel, metal products) and medium/high technology manufacturing (such as chemicals, machinery, telecommunication equipment, motor vehicles) in regional GDP is still low. Moreover, in terms of exports, Eastern Africa is heavily dependent on minimally processed resources and resource-based manufactures. While resource-based exports can contribute to high growth rates, they involve relatively low value addition and also make exporting countries highly vulnerable to external price shocks.

This study and the accompanying country reports aim at analysing and explaining the above-sketched status of Eastern African manufacturing by providing detailed accounts of the manufacturing sectors in seven countries in the region: Burundi, Ethiopia, Kenya, Rwanda, Seychelles, the United Republic of Tanzania, and Uganda (the “study countries”). The study and country reports also develop some policy recommendations for supporting and advancing the manufacturing sector at the country and regional levels. Specifically, the study’s objective is to contribute to the process of analysis and policy formulation in the region by:

- Producing a diagnostic and analytical assessment of the current status of the manufacturing sector in the seven study countries as well as in the Eastern African region as a whole;
- Identifying binding factors, constraints, opportunities and strengths for the development of the sector in Eastern Africa; and
- Providing country-specific and region-wide recommendations (reforms, policies, strategies, etc.) to strengthen the role of manufacturing as a dynamic force of economic development and transformation in each country as well as in the region as a whole.

To the extent possible, the methodology, data sources, report structure, and presentation of the analysis, findings and recommendations have been harmonised across country reports in order to facilitate comparison of countries’ experience and to draw lessons for the region. In line with the heterogeneity of the region, the complete output of the research is presented in eight separate reports, i.e., seven country reports and this regional synthesis study, which draws heavily on the findings of the country reports.

The study’s beneficiaries include policy makers in each of the study countries, development partners, and relevant regional economic communities (RECs). Moreover, the study is aimed at the private sector itself, both to help it assess its competitive edge in manufacturing and to define its positions for public-private dialogue (PPD).

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Eastern Africa: An Emerging but Heterogeneous Region

The Eastern African region can be characterized as a combination of countries emerging from a state of political instability, economic stagnation, and social distress that characterized past decades, with uneven timing and pace across the various countries in the region. Three groups can be discerned among the study countries based on their economic growth performance since the early 1980s (Figure 1): early leaders, catch-up countries, and latecomers.

The early leaders with sustained growth since the late 1980s/early 1990s are the Seychelles and Uganda:

- The Seychelles emerged from the stagnation of the early 1980s first, although its path has been uneven with a major transition from a model characterized by heavy state intervention to market-based economic policies in 2005, a transition that was intensified following the serious debt crisis of 2008.
- Uganda undertook sweeping policy reforms and initiatives in the 1990s. These included stabilisation and structural adjustment programmes aimed at restructuring and transforming the economy through privatisation of state-owned enterprises and liberalisation of the economy.

The catch-up group, which transitioned to higher growth in the early 2000s, roughly a decade behind the leading group, consists of Ethiopia, Rwanda and Tanzania. These economies sustained comparatively rapid growth in the 2000s and have closed the gap with the early leaders in terms of cumulative growth since 1980.

- Ethiopia introduced a more liberalized policy regime along with significant policy and institutional reforms in 1992, and experienced a growth surge starting in 2003.
- Rwanda experienced a social breakdown in the genocide of 1994 and managed to return to sustained growth from around 2000.
- Tanzania has been seeking to find a successful model, shifting from a state-led model in the mid-1980s to a more

market-oriented system; it too managed to achieve sustained growth in the early 2000s but recently reverted to a more interventionist policy based on systematic planning due to dissatisfaction with overall results.

The latecomers, consisting of Burundi and Kenya, also managed to sustain growth in the 2000s but at a much lower pace, and both are still searching for the accelerator pedal. This group is at least a decade behind the catch-up group in transitioning to higher growth.

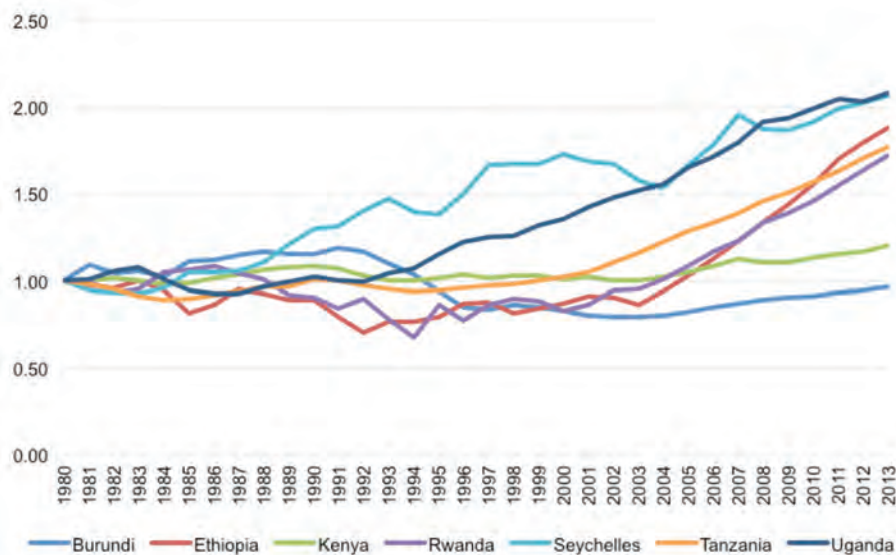
- Burundi emerged from over a decade of civil war with a new constitution adopted in 2005 and is now recovering in economic terms although still searching to establish a viable economic framework. It has yet to recover its 1980 level of real GDP.
- Kenya has struggled with political instability and the 1990s witnessed institutional weaknesses, social and economic distress and repeated bouts of violence; in August 2010, Kenya adopted a new constitution in a national referendum which passed with a 67% vote in favour and has made a pivot to Asia and an infrastructure-based growth program.

The study countries in the region are also generally highly diverse across a wide range of characteristics:

- Population size: the region includes the smallest country in Africa (the Seychelles) and the second largest (Ethiopia).
- Geographic location: four study countries are land-locked, two are coastal and one is an island chain; hence they face very different logistical challenges in international trade integration.
- Topography and climate: the study countries feature a combination of mountain ranges, volcanoes, high plateau, savannah and tropical depressions along the rift valley. The varied terrain raises differing internal infrastructure challenges, but also results in a rich resource potential. Meanwhile the variety of climatic zones results in a varied agricultural production potential but also risks of severe stress due to recurring



Figure 1: Eastern African Emergence: Real GDP Index for the Study Countries, 1980 = 1.00



Source: International Monetary Fund, World Economic Outlook Database, October 2013.

droughts.

- Ethnicity and language: the ethnic and linguistic diversity of most of the study countries raises major issues of internal cohesion and by the same token places a great premium on inclusive growth. The discovery of major oil and gas resources in the region will inevitably (as it already has) raise issues of benefit sharing.
- Legal and governance systems: the region features a varied practice of civil code, common law, customary law, and Islamic law; and differing internal governance structures, including federal as well as unitary state structures and ethnically-based power-sharing arrangements.

Accordingly, the challenges of policy formulation and implementation for a particular sector – manufacturing – vary across the region. At the same time, because manufacturing tends to be highly diverse in terms of capital and skill requirements, it is a

particularly important sector for the region to develop in view of its internal diversity and fractionalized polities.

Structure of the Study

This study is structured as follows: Part 1 provides a more theoretical review of recent international developments related to manufacturing and their implications for the manufacturing sector in Eastern Africa, most notably the emergence of global value chains and “made in the world” production patterns (chapter 2), and the renewed interest in industrial policies and the concept of the developmental state (chapter 3). It also briefly addresses the extent to which Eastern African governments can draw on the Asian model in their striving for development of the manufacturing sector (chapter 4).

Part 2 – which analyses and explains the current situation of the manufacturing sector in the study countries – primarily draws on

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the findings presented in the seven country reports. It describes the economic policy framework and overall economic performance (chapter 5) as well as performance of the manufacturing sector and sub-sectors (chapter 6). It also assesses and explains the competitiveness and comparative advantage of the manufacturing sectors in the study countries (chapters 7 and 8).

Finally, Part 3 of the study is devoted to the challenging task of suggesting policies for the development of the Eastern African manufacturing sector. Given the diversity of study countries and

manufacturing sub-sectors, it should be obvious that policy recommendations at the regional level need to be framed in rather general terms. However, we also attempt to provide guidance on the underlying rationale which should be applied when developing national and sectoral policies. Nevertheless, the seven country reports provide sets of recommendations and roadmaps which are more detailed and should be read in complement to the “agenda” presented in the last part of this regional study.



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**Manufacturing today is,
worldwide, under intense
adaptive pressure**





PART 1: THE CURRENT INTERNATIONAL ECONOMIC ENVIRONMENT AND DEVELOPMENTS

1.0 MANUFACTURING AND MANUFACTURING POLICIES UNDER ADAPTIVE PRESSURE

Manufacturing today is, worldwide, under intense adaptive pressure. Rapid technological change has heightened competitive pressures at the firm level through shortened product life cycles, the emergence of new business models, and the introduction of new materials and advanced manufacturing techniques. Global macroeconomic, commodity price, and exchange rate instability has increased uncertainty about demand and cost conditions. The still-ongoing integration of labour-abundant emerging markets into global trade continues to modify national comparative advantages, particularly as China moves up the value chain. And the proliferation of global value chains continues to drive a spatial re-organisation of global production, creating new opportunities and competitive challenges worldwide. Global value chains also impact in a complex way on locally clustered production networks, in some cases enhancing them through local-global synergies and in other cases draining away the local dynamism and accelerating the life cycle progression of the cluster.

1.1. Attracting and Maintaining Manufacturing as a Worldwide Policy Goal

Policy is impacting heavily on manufacturing, on a worldwide basis. Traditionally, the transition from an agrarian to an industrial economy was associated with a rising share of manufacturing in

GDP. The further development of the economy towards services and knowledge-based activities was associated with a subsequent decline in manufacturing's share of activity while living standards nonetheless continued to rise (see e.g. Rowthorn and Ramaswamy 1997). On this basis, the advanced countries should in principle be seeking to increasingly specialise in knowledge-based aspects of production, such as design, while allowing the actual "making" of things to progressively shift to developing economies. However, for a number of reasons, the advanced countries are striving to retain their manufacturing sectors and in fact to re-industrialize – which obviously has important implications for developing economies seeking to use manufacturing as a springboard to development.

The renewed interest in manufacturing worldwide reflects the recognition of important linkages between manufacturing and other activities vital to economic success.

First, manufacturing accounts for about 70% of global trade and about 80% of global business R&D (McKinsey Global Institute 2012). Manufacturing thus remains a driver of economic prosperity in advanced economies. In particular, given the strong "home bias" in R&D activity in multinational firms (National Science Board 2010), local manufacturing anchors local innovation activity that is critical to future economic performance. Further, as the "resource curse" and "Dutch Disease"² literature has brought out, longer-

2 The "resource curse" or "Dutch disease" refers to the negative impact which large-scale exports of natural resources can have on other sectors of the economy, e.g. the manufacturing sector.

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term economic performance may be damaged if the manufacturing sector dwindles. This is because the manufacturing sector is associated with accelerated technological development because of learning-by-doing or skill/research intensity (e.g. Van Wijnbergen 1984; Matsuyama 1992; Gylfason et al. 1999), or productivity gains because of economies of scale (e.g. Krugman 1987).

Second, notwithstanding the growing importance of global value chains, the observed clustering of suppliers around manufacturing establishments in many industries indicates that physical proximity continues to be important in the production chain. This is especially true for activities that require considerable interaction between the buyer and supplier and that may involve the exchange of tacit information, and for activities in which “just in time” supply relationships cause input suppliers to co-locate with major manufacturers. By the same token, manufacturing anchors a substantially larger share of economic activity, including high-end services, than its direct share of GDP would suggest. Somewhat paradoxically in a globalised production system, some of the most intense competition for manufacturing activity is thus being waged by sub-national levels of governments, including cities, seeking to exploit the large local multiplier effects of a manufacturing establishment. Often, this competition is supported by analyses explicitly based on Porter's (1990) “diamond” model.³

Third, a large share of services exports on a value-added basis consists of services embedded in exported goods (Koopman et al. 2010). Moreover, increasingly the direct export of services is contingent on the exports of goods (e.g., after-sales services provided by manufacturing firms).⁴ Accordingly, to compete in

services, advanced countries are sensing the need to maintain a viable manufacturing base.

Fourth, many manufacturing sectors feature significant degrees of increasing returns (e.g., large body and regional aircraft and semiconductors historically, and solar panels and potentially other “future” industries today); this motivates countries to use strategic trade policy to capture international rents.⁵

The broadly shared OECD consensus on industrial policy that emerged over the course of the 1980s and 1990s eschews policy interventions to affect the structure of production. Instead, it promotes “horizontal” economic policies that facilitate economic activity in general without targeting the support to particular companies or sectors, that is:

- Investing in human resource and education to ensure a supply of skilled workers, including workers with tertiary education and technical industrial skills;⁶
- Promoting competitive financial markets;
- Creating supportive framework policies for small business formation, including by addressing gaps in small business financing;
- Providing high quality public economic infrastructure to reduce logistics and other operating costs for firms doing business locally;
- Supporting research and development;
- Ensuring global market access through a pro-active trade policy; and
- Providing a stable macroeconomic operating environment.

However, this consensus (which, it should be noted, was histori-

The inflow of foreign currencies resulting from the exports of natural resources leads to an appreciation of the exporting country's currency which causes other sectors to lose competitiveness.

3 The diamond model seeks to explain why particular industries or cluster become competitive in particular locations (nations or sub-national geographical locations). It explains competitiveness through four groups of factors, which are visualized in a diamond shape: factor conditions (i.e. those related to factors of production, such as land, labor, capital); demand conditions for the industry of cluster; related and supporting industries; and firm strategy, structure and rivalry.

4 Analytically, this is captured by the so-called “servitisation” of

manufacturing, which refers to trend set by manufacturers to create value by adding services to their products; see e.g. Neely et al. 2011.

5 Brander and Spencer (1985) provide the theoretical framework for strategic trade policy.

6 This is becoming an increasingly important consideration in the face of a projected global shortage in these areas (McKinsey Global Institute 2012).



cally honoured as much in the breach as in the observance) is increasingly under strain in the current international environment, which features anaemic growth and high unemployment in the OECD, in contrast to much more robust growth in developing countries. Non-neutral sectoral policies in support of manufacturing are being pursued in all the major industrialised economies, in rivalry with the BRICs and developing countries worldwide (see Annex A).

1.2. A Changed Global Environment for Eastern African Manufacturing

The global environment in which the Eastern African manufacturing sector develops going forward will be greatly different compared to that in which manufacturing sectors developed elsewhere in the past. This has significant implications for Eastern African policy.

Historically, manufacturing in the early industrialisers (the now advanced countries) occurred in the context of vertically integrated production and/or locally clustered production webs. The positive externalities were thus mostly locally retained.

The next wave of industrialisers – the East Asian “Tigers” – took advantage of the breakdown of these vertically integrated and locally anchored production frameworks, plucking what in some sense might be deemed the “low-hanging fruit” of globalisation in the early years of this process (the 1980s and 1990s). The “original equipment manufacture” (OEM) and “original design and manufacture” (ODM) models of outsourcing⁷ transferred large integrated chunks of the production process to economies such as Korea and Taiwan and later China which still enabled significant learning by doing effects (as is shown by the transition from OEM to ODM models of outsourcing).

7 Under OEM, a company outsources the manufacture of its products or components to another company but markets and distributes them under its own brand name; under ODM, the product design is also outsourced by the company marketing and distributing the product, i.e. the original design manufacturer undertakes its own R&D and creates its own intellectual property.

The BRICs constituted the third wave and again represented a special case. All the BRICs were in economic crisis in the early 1990s: China was in its post-Tiananmen Square recession; Russia was in economic free-fall following the collapse of the Soviet Union in 1991; India was in a balance of payments crisis; Brazil was in a hyper-inflation economic meltdown; and South Africa was experiencing its worst economic performance of the post-WWII period with stagflation and declining investment in part due to the anti-Apartheid sanctions. The simultaneous recovery of these economies over the latter part of the 1990s was sufficient to inspire the coining of the term “BRICs” by November 2001 (O’Neill 2001).⁸ In addition to the accelerated growth that is possible in a post-crisis recovery stage, the BRICs’ growth was boosted by the large early returns from trade opening as they moved from virtual isolation from the global economy towards much more openness. The BRICs thus reaped the major benefits from internal policy reforms that moved them from excessively heavy state intervention towards a more liberal market-oriented economy, while retaining some capacity for industrial policy intervention. The main phase of the BRICs’ expansion post-2001 also benefitted greatly from the bubble-driven growth in the industrialised countries.

Eastern Africa’s industrialisation push in the years ahead will take place in a very different and novel context.

First, the conditions under which the BRICs experienced their surge also helped greatly in turning around the Sub-Saharan economies. At the time of the launch of the Doha Round, Sub-Saharan Africa (excluding South Africa) comprised an economy of just under USD 200 billion, so thinly spread as to be generally uninteresting to the advanced economies except as a source of raw materials. In fact, the vast majority of developing countries were lumped together as the “small, weak and vulnerable” and the lack of commercial interest they inspired allowed (in the context of the WTO’s Doha Round) contemplation of an offer to them of a “round for free.”⁹ Now, Sub-Saharan Africa (excluding

8 Originally, the term did not include South Africa.

9 Then EU Trade and Development Commissioners Pascal Lamy and Franz Fischler proposed, in a letter to WTO members on 9

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South Africa) is projected in the IMF's World Economic Outlook (IMF 2013) to break the USD 1 trillion threshold in 2014. Over the past five years, Sub-Saharan Africa grew by a cumulated 26% compared to 2.5% growth in the OECD. Reflecting these changes, in 2010, McKinsey Global Institute started to talk of "lion economies" (McKinsey Global Institute 2010), not dwelling on meeting Millennium Development Goals but rather providing a business-oriented commentary on rapid urbanisation, a rising number of consuming households, growth in manufacturing and services, and a dynamic private sector that was attracting interest from global businesses and investors. Accordingly, there are new – and as yet not fully absorbed – implications flowing from the changes wrought over the past decade in Eastern Africa and its environs.

Second, globalisation itself has reached a far more mature stage than was faced by the first, second, or third wave of industrialisers. The process of fragmentation has reached an advanced stage – the limits of further fragmentation are likely being approached, and returns to further fragmentation are rapidly diminishing. Indeed, there are some signs that the pendulum has started to move in the opposite direction with multinationals consolidating production, in part due to the risks to extended supply chains revealed by the tsunami disaster in Japan and the floods in Thailand which disrupted hard drive production.¹⁰

Third, counter-currents are building. The industrialised world is now seeking to claw back industrial and manufacturing activity and jobs, as highlighted above. Reflecting these pressures, the policy trend is shifting from liberalisation, deregulation and full emphasis on horizontal policies towards re-regulation and government intervention, including in specific sectors. The BRICs meanwhile are turning increasingly to issues of balancing and managing the internal tensions generated by the inequalities that

developed during the period of rapid growth.

Fourth, the uncompensated contribution of the natural environment to the development dynamic of the first three waves of industrialisers has greatly diminished the capacity of the biosphere to support further exploitative growth by the remaining developing countries. The bill is coming due in the form of climate change, increasingly acidic oceans and declining fish stocks, diminished habitat and alarming rates of species extinction. Sustainable development has never been realised in practice: the stylised environmental Kuznets curve that the first waves of industrialisers traced¹¹ involves first drawing down the natural endowment in order to attain the technological level at which further growth can be sustained with diminishing impacts on the environment. There is very little remaining margin – if any – for latter day industrialisers.

Fifth, the pace of technological change continues to accelerate as the absolute number of highly educated researchers expands exponentially, the power of research technology expands exponentially, and the body of knowledge (including patents) that is being generated grows even faster as a consequence. A few observations underscore the profound change that has occurred even in the short span of the past decade. First, the number of patent applications worldwide almost tripled between 2002 and 2011, rising from a little over 400,000 per year to almost 1.2 million per year (*The Economist* 2013). Second, China has risen from being a marginal source of patents to being the largest source over the same time frame. Third, while *The Economist* expressed scepticism over the value of Chinese patents, in the OECD's most recent survey in the Programme for International Student Assessment (PISA), the first place in reading, mathematics and science was taken over by Shanghai ahead of Korea, Singapore and Finland in the three respective categories. In China's development over the past few decades quantity preceded quality and

May 2004, that the "small, weak and vulnerable economies" get the "round for free".

10 See, e.g., "Is global value chain-driven trade on the wane?" Canadian Trade Commissioner Service, CanadExport, <http://www.tradecommissioner.gc.ca/eng/canadexport/document.jsp?did=146920>

11 The environmental Kuznets curve is a hypothesized relationship between environmental quality and economic development: various indicators of environmental degradation tend to get worse as modern economic growth occurs until average income reaches a certain point over the course of development. See Shafik (1994).



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the same will likely be true in knowledge generation. Fourth, while the vast majority of patents granted are of minimal value, disruptive technologies continue to surface (e.g., 3-D printing). Indeed, the intense interest in so-called “future” technologies (see Annex A) testifies to the widespread conviction based on a wealth of task force reports that economies will be subjected to profound competitive pressures due to technological advance.

At the same time, Eastern Africa is approaching this policy chal-

lenge armed with the benefits of the lessons learned from the comparative success of the developmental models that proved to be successful when applied in Asia and most recently by the BRICs. Moreover, Sub-Saharan Africa’s growth over the past decade has created new endowments, including a very different image abroad, which can be exploited by the Eastern African economies going forward. Below, we consider the implications for Eastern African manufacturing of modern “made in the world” production systems and the lessons learned from the Asian Miracle.

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Technological revolutions in transportation and communication of the past half century have dramatically expanded the scope for trade by driving down the unit costs.





2.0 GLOBAL VALUE CHAINS AND “MADE IN THE WORLD” PRODUCTION

While trade in production inputs is probably as old as trade itself, without question the technological revolutions in transportation and communication of the past half century have dramatically expanded the scope for such trade by driving down the unit costs. The drive to modularise and standardise components is a natural consequence of cost efficiency gains from exploiting these new trade opportunities.¹² This has had transformative effects on the organisation of production with vertical integration within firms giving way to distributed production webs that often feature clustered nodes in particular locations (e.g., Silicon Valley and its many imitators) but also extended chains that spread globally.

Gereffi, Humphrey and Sturgeon (2005) identify five types of global value chain governance: hierarchy, captive, relational, modular, and market. These forms of governance range from high to low levels of explicit coordination of production required and of power asymmetry between the firm organising the value chain and those plugging into it. Which form of governance prevails in a given industry depends on (1) the complexity of transactions; (2) the ability to codify transactions, and (3) the capabilities in the supply-base. High value-to-weight ratios permit electronics to use truly globalised value chains; in the auto sector, lower value-to-weight ratios in many automotive parts results in large portions of the value chain being concentrated in firms clustered closely around the main assembly plant.

The establishment of a global supply base of modularised goods

12 Information technology facilitates both the fragmentation and re-location of functions ranging from design and R&D to factory production and reintegration of the resulting outputs into a product. Modularization is key to efficient fragmentation while standardization reduces the need for exchanging tacit knowledge (see e.g. Baldwin and Clark 2000).

and services also has facilitated the use of global sourcing by small and medium-sized enterprises (SMEs), thus driving global integration ever deeper into the economy. Similarly, the emergence of globally integrated markets provides the pre-existing business eco-system that enables new firms to start-up to serve global niches (so-called “born global” firms) without relying on local demand to become established.

Because of the international fragmentation of production, products increasingly no longer have a national pedigree but are “Made in the World”.¹³ For firms, this poses a critical question regarding business strategy: what is the core business that the firm needs to retain in-house in order to grow and what are the non-core functions that it can profitably out-source locally or internationally?

For governments, it raises equally critical questions for economic strategy: how to capture part of the contestable global value-added that flows through the global value chains?

For analysts, it raises particular problems of understanding the impact of trade policies and domestic framework policies that affect the conditions for trading firms – hence the “Made in the World” initiative to better understand the value-added content of trade. Traditional measures of trade no longer convey the same meaning as they once did. Analytical tools such as Revealed Comparative Advantage¹⁴, the Trade Specialisation Index¹⁵, and

13 A concept promulgated by the World Trade Organization through its “Made in the World” initiative. http://www.wto.org/english/res_e/statis_e/miwi_e/miwi_e.htm.

14 The revealed comparative advantage is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows. The manufacturing sector revealed comparative advantage is calculated as the share of the country’s manufactured exports in the country’s total exports divided by the share of manufactured world exports in total world exports (Balassa 1965).

15 The trade specialisation index is used to measure the degree of specialisation in the production/consumption of goods through trade. It compares the net flow of goods (exports minus imports) to the total flow of goods (exports plus imports) and ranges from -1 to 1. Positive values indicate that an economy has net exports (hence it specialises on the production of that specific product) and negative values means that an economy imports more than

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the many variants thereon, which were developed for a world of largely national production systems, can mislead as much as they inform when applied to modern trade data.¹⁶ Of course the traditional trade measures retain their utility and importance for many macroeconomic purposes. But the understanding of the microeconomics of trade, in particular of the all-important linkages of trade to domestic production, productivity, innovation and jobs, increasingly depends on new measures of trade that account for the domestic value-added in the goods and services that a country exports, net of the imported value of intermediate parts and components.

2.1. Global Value Chains as Opportunity and Risk

For developing countries, the emerging global production framework obviously provides the much-touted opportunities, but it also creates risks to which policymakers in Eastern Africa should be alert.

On the positive side, plugging into global value chains organised by foreign multinational firms allows individual slices of the activity that go into the production of a more complex good to be conducted in a developing economy without the problems of coordinating the entire production process. At the same time, the re-export of the processed good within the value chain allows this activity to be undertaken without the equally great challenges of developing local markets for the products. This echoes the “born global” model for start-ups.

Importantly, plugging into global value chains usually also means entry into exporting, which has important consequences in terms

of productivity growth. Modern firm-level studies of trade provide very strong evidence that more productive firms self-select into exporting and that, post-entry into export markets, they tend to grow faster than their domestically oriented competitors. The reallocation of market share from less-productive firms to more-productive firms is an important part of the gains from trade as they are now understood.¹⁷

In addition, a number of channels have been identified through which entry into exporting increases the productivity of the firms themselves, including through various types of knowledge spillovers, the relaxation of credit constraints, and the incentive to commit to productivity enhancing process technology that is geared to the expanded scale of the intended export markets.¹⁸

These productivity effects have been documented for African firms. Van Biesebroeck (2005), studying nine countries in Sub-Saharan Africa, finds higher post-export-market-entry productivity levels and also higher post-entry productivity growth. He attributes these to the ability of exporters to exploit potential scale economies (in part by relaxing the “lack of demand” constraint that many domestically oriented producers felt), switching technology to more advanced technologies, and the fact that exporting provides access to a more reliable client base and to institutions that specifically deal with credit risks associated with foreign trade, something that is often lacking in domestic trade. Bigsten

it exports (net consumption). The index removes bias of high export values due to significant re-exports activities and thus is more suitable to identify real producers than traders. See e.g. Ferrarini and Scaramozzino (2011).

16 See for example the often-cited example of the Apple iPod. As shown by Linden, Kraemer and Dedrick (2007), only 1% of the value-added was contributed by the assembly function carried out in China.

17 Melitz (2003) and Bernard, Eaton, Jensen and Kortum (2003) provide the seminal treatments in this literature. Antràs and Helpman (2004, 2008) and Helpman (2006) provide insights into the complex global strategies of multinational firms. Kasahara and Lapman (2013) demonstrate the role of imported intermediate goods and services in boosting the productivity performance of domestic firms. Grossman and Rossi-Hansberg (2008, 2012) describe the phenomenon of “trade in tasks” which underpins the proliferation of global value chains. Redding (2011) provides a survey of theoretical developments in this literature; Melitz and Trefler (2012) provide a recent overview of the current understanding; and Ciuriak (2013a) provides a detailed summary of policy implications.

18 Silva, Afonso and Africano (2012) provide a good review of the historical background of scholarship on the “learning by exporting” concept. See Ciuriak (2013b) for a recent survey of the now extensive literature on this topic.



Box 1: Main Manufacturing Sub-Sectors and their Characteristics

(a) Technology innovation for global markets

- Includes: computers and office machinery, semiconductors and electronics, and medical, precision, and optical equipment;
- Characteristics:
 - (a) High R&D, services and value-added; trade intensive (including GVCs); relatively capital intensive;
 - (b) battleground industries for the industrialised economies and China;
 - (c) Sector with future development potential for Eastern Africa based on prior development of innovation systems and capabilities.

(b) Global innovation for local markets

- Includes: chemicals and pharmaceuticals, transport equipment and automotive, machinery, electrical equipment, and appliances;
- Characteristics:
 - (a) High R&D, services and value-added; trade intensive (including GVCs); relatively capital intensive;
 - (b) battleground industries for the industrialised economies and China;
 - (c) FDI-dependent and with some existing scope for regional mandates in Eastern Africa (e.g., auto or cell-phone assembly) as well as some niche supply chain entry points for firms graduating from Eastern African innovation system incubators.

(c) Resource-based commodities

- Includes: wood products, pulp & paper, basic metals, minerals-based products, refined petroleum, coke, and nuclear products;
- Characteristics:
 - (a) low R&D intensity; moderate services inputs; high capital & energy intensity; limited job content;
 - (b) good upstream linkages to basic resource industries,

good downstream linkages thus enabling other industrial development;

- (c) scope for regional development depends heavily on resource endowments and capacity to mobilise capital; basic knowledge requirements probably require FDI as a major component and considerable investment in supporting local infrastructure.

(d) Regional processing

- Includes: printing & publishing, food processing & beverages, fabricated metals, rubber & plastics;
- Characteristics:
 - (a) low R&D and trade intensity, moderate services inputs, varying degrees of capital intensity;
 - (b) large and stable sector that is responsive to local tastes, with good upstream linkages to agriculture and basic resource industries, good downstream linkages thus enabling other industrial development, and relatively labour intensive thus providing jobs;
 - (c) significant scope for regional supply to develop in tandem with regional demand and the least demanding type of activity in terms of local industrial capabilities and in terms of requirements for infant industry protection/support.

(e) Labour-intensive tradable goods

- Includes: textiles & apparel, leather, furniture, jewellery, toys and miscellaneous manufactures;
- Characteristics:
 - (a) low R&D, services and capital intensity but high trade intensity and high job content;
 - (b) good upstream linkages to basic resource industries;
 - (c) considerable scope for export-oriented manufacturing development in Eastern Africa as this activity migrates from the more advanced developing economies.

Source: Adapted from McKinsey Global Institute (2012)

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et al. (2004) also found positive post-export-entry productivity effects in a firm-level study on four Sub-Saharan African countries, Cameroon, Ghana, Kenya and Zimbabwe.

At the same time, there are several cautionary notes to be sounded. First, the literature on “learning by exporting” associates learning effects primarily with exporting to more advanced countries and to direct interaction with demanding foreign clients, while local firms that sell globally through intermediaries may derive little benefit from the export nature of their sales (Ciuriak 2013b). Accordingly, *how* Eastern Africa participates in global value chains has important implications for the extent of knowledge spillovers that are a vital part in perpetuating growth and industrialisation.

Also, the monopsony power of the multinationals that organise global value chains allows them to capture the rents within the production web, minimising the returns that accrue to local participants in developing economies.

Further, the ability to participate in global value chains depends on low frictional costs of trade – which in turn requires that developing economies invest heavily in public infrastructure, including transportation and advanced technology for trade administration. These may be considered “no regrets” policies in the sense that they are likely to be equally advantageous to domestically driven production and are in any event necessary to longer-run development. However, it still may be the case that the cost of the provision of the public services will be borne by local factors of production but to some extent captured by multinational firms with monopsony power.

2.2. Sectoral Differentiation

Manufacturing is highly heterogeneous: different sub-sectors feature different industrial structures and dynamics. McKinsey Global Institute (2012) has suggested a useful classification for the present purpose since it serves to organise a discussion of which sub-sectors are likely to play prominently in Eastern African manufacturing in the near term (Box 1). This taxonomy suggests

an eclectic mix of development strategies.

The first two sub-sectors are strategically problematic for Eastern Africa in the near term: first they require capabilities that have yet to be developed in the region and second they are battleground sectors for the advanced economies and China, all of which have greater policy resources to throw into the contest than Eastern Africa. However, as Eastern Africa's capabilities develop, these areas will become increasingly important for new start-ups.

Resource-based commodities may reward strategic commitment but clearly the scope for this depends on local endowments. Moreover, the capital intensity (which usually goes hand-in-hand with knowledge intensity) will typically require entry by foreign capital and the commitment of the state to provide new economic infrastructure (roads, electricity, water service etc.). A good example is provided by Ethiopia's attempt to develop downstream processing of its tantalum and phosphate resources. Foreign partners need to engage and the state may have to offer generous terms on resource concessions and also weigh in heavily in infrastructure provision (Assefa, Bienen and Ciuriak 2013). The resource rents then become the main source of return to the state.

The most attractive manufacturing sub-sectors for Eastern Africa would appear to be regional processing and labour-intensive tradable goods. The first of these two aims to develop manufacturing capacity to serve regional needs drawing on global resources while the second involves the reverse strategy of drawing on local resources to serve global markets. Neither sector is being strategically contested by the major economies, although the labour-intensive tradable goods sectors has faced traditional market access restrictions in the advanced countries as these sectors are phased out there. As assessed in Dinh et al. (2012), Africa has a competitive advantage in many of these sub-sectors already.

Global value chains can figure strongly in both of these contestable sub-sectors. For example, in the case of labour-intensive traded goods, the Ethiopian leather goods sector features processing of local leather (largely aimed at European markets,



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including through Turkish manufacturers), but requiring a range of imported inputs (Assefa, Bienen and Ciuriak 2013).

Finally, we would add a variant to the McKinsey framework that is very much Africa-centric:

(f) **Local processing of unique local resources for global markets.**

- Includes: pharmaceuticals, biotechnology products;
- Characteristics:
 - a. high R&D intensity, high trade intensity;
 - b. battleground sectors for the advanced economies and China;
 - c. strong upstream connections to local resources;
 - d. scope to capture supply chain scarcity rents.

Basic resources are normally undifferentiated commodities. However, some of Africa's key resources are highly differentiated – in particular the biosphere resources. Biotechnology is a major

battleground industry for the advanced countries and China. But Africa controls a considerable portion of the underlying DNA. In this area, Eastern African economies have some leverage to capture rents that would otherwise flow to foreign multinationals.

One example is branding. The Ethiopian highlands are the origin of coffee. The greatest genetic variation of coffee species is to be found in this region and neighbouring countries such as Kenya. Yet the brand is "Arabica". Simply put, this represents a spectacular failure to capture brand recognition for indigenous product.

As will be discussed below with reference to East Asia, all economic activity is ultimately knowledge-based and the main factor driving long-term development is building knowledge capacity. As Eastern Africa ramps up its manufacturing capacity from entry-level jobs in the global economy to more rewarding tasks, this would seem to be an area to aim for by targeting research and development resources and training today.

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Industrial policy is itself a battleground issue today, just as are the numerous **“future industries”**





3.0 THE RETURN OF INDUSTRIAL POLICY AND THE DEVELOPMENTAL STATE, AND ITS RELEVANCE FOR EASTERN AFRICA

Industrial policy – that is, public policy intervention intended to influence the structure of an economy (and hence policy that is “sectoral” or “vertical” as opposed to “horizontal” or “neutral” in nature) – is itself a battleground issue today, just as are the numerous “future industries” mentioned in the preceding discussion. The reason for that is straightforward: predictions based on consensus economic theory and interpretations of the empirical record are colliding uncomfortably with contrary facts. Both national practice (see Annex A) and even synthesised views supported by the World Bank¹⁹ and the OECD (Warwick 2013) are thus now moving towards recognising the grounds for some form of sectoral intervention.

3.1. Renewed Interest in the Role of the State in Economic Development

There is renewed interest in the role of the state in economic development because of the combination of various factors. First, as is discussed in more detail in Annex B, arguments that an active state role in development was generally leading to negative economic outcomes were not confirmed by empirical evidence. Second, the Paris Declaration on Aid Effectiveness, signed by 61 bilateral and multilateral donor agencies and 56 aid-recipient countries, recognises that country “ownership” of development policies is essential to aid effectiveness. Implicitly, this recognition also acknowledges the failure of the microeconomic elements

of the Washington Consensus-based structural adjustment programmes to deliver the expected results (especially in the African context).²⁰ Third, doubts about the consensus model have arisen because of the 2008-09 recession and the extraordinary requirements for the public sector to “bail in” to key industries, including but not limited to banking (Stiglitz, Lin and Monga 2013). And fourth, the enduring success of the Eastern and Southeast Asian model is based on an active Government intervention in the structure of the economy. Conversely, the OECD members, who formally eschew industrial policy and bend over backwards to configure their economic support as being “horizontal”, have managed a combined cumulative growth of only 2.5% in the past five years.

The concept used to capture the state’s active role in economic development is that of the “developmental state” – or more accurately “capitalist developmental state”. The term was coined by Chalmers Johnson to describe the East Asian model of “market-conforming methods of state intervention” (Johnson 1982).

There are few arguments concerning the status of some economies as good examples of developmental states – in particular Japan, Korea and Taiwan. Nevertheless, the model fits less clearly for highly successful East Asian states such as Singapore and Hong Kong. Singapore started with the developmental state model but subsequently adopted reforms to conform more closely to the neoliberal consensus model, although elements of the developmental state remain embedded resulting in what has been termed a hybrid neoliberal-developmental state (Liow 2012). As

19 E.g., the World Bank now supports a new industrial policy “which is distinct from the ‘old’ functional/ horizontal industrial policy of the 1980s and 1990s and capable of avoiding its familiar pitfalls of ‘picking winners.’” See the World Bank website, “Knowledge for Development”, <http://go.worldbank.org/AW9KZWB10>.

20 The term “Washington Consensus” – much like the term “developmental state” – has acquired considerable intellectual baggage over the years and has come to stand for policies (e.g., capital account liberalization or floating exchange rates) that were never part of the original framework as articulated by the coiner of the term, John Williamson (see, in this regard, Williamson 2004). The main distinction between the framework constructed by Williamson and the developmental state model lies in the microeconomics; to the extent that problems encountered by economies prematurely liberalizing capital accounts or allowing their exchange rates to become significantly over-valued, the fault lies elsewhere. Nonetheless, on the key issue of microeconomics, the models are distinct.

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regards Hong Kong, Johnson (1999) states unequivocally that it fits the mould of the developmental state, while Williamson (2012) classifies it as the most laissez faire state other than the Baltic economies. Moreover, the major ASEAN economies – Malaysia, Indonesia, Thailand and the Philippines – which are classed as following the developmental state model (e.g., Doner et al. 2005) have clearly been much less successful in the long run than the Japanese role model and there is considerable variation within the group (Malaysia for example being a far better long-term performer than the Philippines). The lesser degree of success in the ASEAN economies has been attributed to the fact that the conditions were not as conducive to success: for example, the government bureaucracy had less autonomy and corruption appears to have been more of an issue (Routly 2012).

China of course represents today the closing argument in the development state hypothesis. Yet its experience is enigmatic in many respects when held up to the mirror of Japan. China has accomplished in the past three decades an unprecedented – taking into account scale as well as speed – degree of convergence towards advanced economy levels of industrial capabilities, quite apart from its extraordinary advance in terms of per capita GDP and poverty reduction. Yet most of the movement in China was away from state intervention to allow more private sector activity (see e.g. Williamson 2012: 10). While China shared in common with Japan a powerful bureaucracy, unlike Japan it had a dominating political leadership. Whereas Japan had a pre-existing industrial skill set, China started with a peasant skill set, which explains China's singular focus over the years on acquiring technology and developing its own innovation capabilities.

For the present purposes – informing Eastern African policy on manufacturing – what is noteworthy is not so much the contrasting trajectories of China and Japan as the convergence towards a middle ground between a microeconomic model based on the private sector and one based on the state. In this sense, the successful application of the developmental state approach is determined less by enabling conditions as many writers have

emphasised,²¹ as on policies that subordinate considerations such as profit or consumer surplus to the primary goal of growth.

This is what makes it particularly interesting for Eastern Africa at this stage. To this issue we now turn.

3.2. The Relevance of the Asian Model for Eastern Africa

Whether or not the Asian developmental state model can be effectively applied in an African context is much disputed.

One thesis – sometimes labelled the “impossibility thesis” (see e.g. Musamba 2010) – is that African states generally lack the capacity to pursue the policies adopted by East Asian developmental states. It adds that African states are also vulnerable to having state-led economic policies being captured by vested interests. Another argument suggests that Africa's ethnical fragmentation pre-disposes it to distributional policies over growth policies. Yet another one states that there is insufficient democratic development (or alternatively a lack of benign autocracy) to enable the successful application of the model. These are variants of the numerous “exceptionalism” arguments. As Nyaluke and Seifu (2007) put it the exceptionalism thesis amounts to a claim that Africa's disproportionately large share of poorly governed states and underdeveloped economies is due to specifically “African” factors (i.e., socio-cultural conditions unique to Africa that are inimical to economic prosperity and liberal democracy) that make the region an outlier to conventional economic theories.

On the other hand, while developmental states have largely failed in Africa (e.g., Mkandawire 1998), some African states appear to have successfully applied the model. These include the small economies of Botswana (see e.g. Sebudubudu 2005) and Mauritius, and in recent years Rwanda. Another recent example

²¹ For example, Musamba (2010) lists a development-oriented political leadership, an autonomous and effective bureaucracy, a production-oriented private sector, and performance-oriented governance as the defining features of a developmental state.



is Ethiopia, which has cast its Growth and Transformation Plan in the mould of the developmental state model (see e.g. Assefa, Bienen and Ciuriak 2013) and which has achieved some remarkable economic advances (even if one accepts the IMF's more sceptical assessment of actual growth rates achieved in Ethiopia).²² The existence of counter-examples allows one to sidestep the fundamental debate on the suitability of the developmental state model for Africa and to focus instead on trying to identify potentially transferable economic policies.

From a perspective of drawing lessons, conditions in Eastern Africa are more similar to those of Southeast Asia than they are to Northeast Asia particularly in terms of regional states having relatively strong resource bases to exploit. The Asian model did work in Southeast Asia but much less well than in Northeast Asia. The new-found fossil fuel resources in Eastern Africa will intensify this contrast with the Northeast Asian context while intensifying the similarity with the Southeast Asian context.

In addition, in Northeast Asia (Japan, Korea, Hong Kong and Taiwan), the growth impetus appears to have come largely from domestic productive resources (with state-directed financing playing an important role in a context where financial returns were suppressed playing an important role) while relying on export markets for demand. As noted in more detail in Annex B, other factors varied: Japan and Korea practiced infant industry protectionism but Hong Kong did not.

To all outward appearances, these economies bootstrapped themselves into economic growth, although in the conception of

the “flying geese” metaphor, the role of Japan as the “lead goose” is emphasized. To the extent that the latter metaphor captures something that is essential to the East Asian experience, it may also make the recent Asian experience a unique historical event: it involved the rapid reconstruction of a nation that had built its industrial skills over a much longer period,²³ with regional spillover effects and US geopolitical interest in the region explaining the pattern of spread of growth. In this sense, the more important lessons for Eastern Africa might come from post-Meiji Japan and from China after its opening up: in both instances, a largely peasant-based economy was transformed into an industrial power in a dramatic surge in which a powerful centralized state government relentlessly pursued technological modernization essentially for national security reasons.

Southeast Asia, by contrast, especially the ASEAN 5 economies (Singapore, Thailand, Malaysia, Indonesia and the Philippines), received the growth impetus largely from FDI inflows from Japan. A major factor was the post-Plaza Accord rise in the yen which prompted Japan's powerful corporations to outsource labour-intensive production to regional production bases. Southeast Asia lacked globally competitive firms then and it lacks them now. Today, 37 of the top 50 Asian firms are Japanese; exactly one (Malaysia's Petronas, an oil company) is from Southeast Asia. Only one other Southeast Asian firm makes the top 500 – Thailand's PTT, also an oil company. Considered at the firm level, Southeast Asia did not really have a miracle.

China is an interesting middle case: unlike Japan but like Southeast Asia, China grew rapidly on the basis of FDI and processing trade. China, however, has from the beginning of its opening up era emphasized technology acquisition; this quest is now being

22 The IMF's decomposition of the official growth figures suggests that Ethiopia's rate of capital accumulation in the public sector (10.8%) exceeded even the comparable figure for East Asian economies in the 1980s (8.9%). The IMF also expressed scepticism about Ethiopia's high implied productivity growth, given that many factors normally associated with high TFP growth were absent in Ethiopia. These factors include initial human and physical capital conditions, terms of trade and openness, low inflation, a competitive real exchange rate, low government consumption, high international reserve coverage, and low external debt. See IMF (2012), Box 1. Ethiopia: Growth Accounting.

23 Japan's industrialization is usually dated to the Meiji Restoration of 1868 and is connected with the visit of Commodore Perry's gunboats in 1853-54 which created a sense of urgency in Japan of the need to industrialize to avoid colonization. However, as Ohno recounts, Japan had developed most of the precursors of an industrialized market economy over the course of two centuries during the Edo period. See Kenichi Ohno, “East Asian Growth and Japanese Aid Strategy,” National Graduate Institute for Policy Studies, GRIPS Development Forum.

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expressed in the form of Chinese firms buying foreign firms and their technology (e.g., Lenovo buying IBM's personal computer arm). China still trails Japan in terms of firms in the top 50 Fortune 500 in Asia – it currently has only six firms compared to Japan's 37; however China has overtaken Japan in terms of number of firms in the top 500 with 89 in the top 500 compared to Japan's 68.

In other respects there are no clear generalizations that can be derived from a review of the history of developmental states, other than the empowering conclusion that state promotion of growth and state activism in the shaping the microeconomics of development is *not* ruled out by the available evidence. South Africa's National Planning Commission supports this view arguing that it is possible to implement a developmental state model but that there is no prototype for the developmental state: each country that has applied the model has pursued a unique set of policies in response to its own set of challenges.²⁴ The East Asian experience provides not one but many models under which rapid industrialisation was achieved from often dramatically different initial conditions. For example, the so-called “Beijing Consensus”, which aspires to a competitive status with the Washington Consensus, remains quite nebulous in terms of specifics with the main distinguishing feature being its emphasis on pragmatic experimentalism and technology acquisition.²⁵

24 National Planning Commission, “Building a developmental state,” <http://www.npconline.co.za/pebble.asp?reid=54>

25 See Ramo (2004) for an exposition and Williamson (2012) for a commentary on the substantive content of the Beijing Consensus.

Are there alternatives to emulating, to the extent possible and with the tools available, the developmental state as pioneered and widely applied in East Asia?

Currently, the main contender for such a role is the “growth diagnostics” approach. This provides a lesser role to the state, namely that of identifying (working with the private sector) binding constraints to growth but then allowing the economy to evolve in microeconomic terms on a market basis. The World Bank's new industrial and innovation policy framework emphasises this concept, coupled with the prescription of “matching winners” rather than “picking winners”. However, there would appear to be no bright line in terms of operational guidelines for policymakers between the Beijing Consensus described above and growth diagnostics – which emphasizes the diagnostics but still requires state intervention to deliver the solution through some degree of active involvement in directing the evolution of the microeconomics of the state.

The handful of examples of successful application of a developmental state model in Africa represent in some sense “proof of concept” – it can be done. However, the devil is as always in the detail and in this regard, each economy in Eastern Africa must consider the assets it possesses as it looks forward in shaping its path to industrialisation.



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There are some **positive developments** in Eastern Africa to note in terms of **policy execution**



PART 2: MANUFACTURING IN EASTERN AFRICA – A REVIEW AND ASSESSMENT OF THE CURRENT SITUATION

4.0 OVERVIEW OF ECONOMIC FRAMEWORKS AND PERFORMANCE IN EASTERN AFRICA

4.1. Overall Economic Policy Framework

In terms of policy direction, some regularities can be perceived across the region across several dimensions:

- Regional economic integration is being pursued by most of the study countries as a staging ground to prepare to compete globally. This in good measure reflects the momentum of the East African Community (which includes five of the seven study countries, with Ethiopia and the Seychelles not members).
- Economic policy frameworks feature a primary role for the private sector but do not exclude an active role for government. Indeed, they involve the state in achieving economic objectives in a fashion inspired by the East Asian economic model, including through well-articulated vision statements and forward-looking economic plans. We note that this model has been reinforced by the poverty reduction strategy plans (PRSPs) which were formulated as the role of the state in development began to be re-evaluated in the mid-2000s.
- At the same time, there is no clear focus on the need to foster the emergence of home-grown firms with the capacity to ac-

cumulate and develop industrial skills and knowledge and to translate these into scalable production for global markets.

- Nor is there a clear and urgent push to acquire technology. Rather, the study countries are focused on areas of existing comparative or competitive advantage in old and low technology areas for near-term development.
- Countries are banking on using resource revenues to fund development in the face of dwindling international transfers. What appears to be shaping up is in fact a trade of African resources in exchange for Chinese infrastructure funding and construction.

Generally, there are some positive developments in the region to note in terms of policy execution. For example, the importance of quantum improvements in trade corridor efficiency is acknowledged – and more importantly is now being acted on in terms of road, rail and port improvements.

In a number of other areas, such as power and telecommunications, priorities seem to be well placed and investments are being made but the region has not been able to optimize its existing capacities by taking advantage of network externalities through trade linkages. Weaknesses in these areas continue to magnify costs for firms.

In a number of other areas, governments say the right things (e.g., reducing the costs of doing business) but the progress is halting and slow.

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More importantly, from our perspective, there is no clear, quantitatively grounded policy vision in Eastern Africa as regards how it proposes to get from where it is to where it wants to be 10 or 20 years down the road. Realistic evaluations based on growth accounting of the capital and knowledge assets that will have to be accumulated are not in evidence.

The importance of private sector development is routinely acknowledged but it is not clear that it is well understood that developing formal enterprises that integrate knowledge and skills from a wide range of disciplines is central to the creation of an industrial society.

Most importantly, while we acknowledge the pragmatism in focussing on areas of existing comparative advantage in terms of getting the industrialization process moving forward, we do not observe the singular focus on acquiring technology which characterized the early development of Japan and the latter day development of China.

4.1.1 Economic Strategies

As regards the specific planning frameworks (Table 1), most study countries have adopted general long-term vision plans which set out goals to reach higher income levels, reduce poverty, and meet Millennium Development Goals (MDGs). In addition, most now have medium-term economic plans with often highly ambitious real GDP growth targets and explicit goals for manufacturing sector expansion. The latter plans are typically based on leveraging local resources and agricultural output for basic processing manufacturing activities. Finally, most study countries also have industrial policies in place.

As noted, the vision statements and transformation plans do not appear to be quantitatively grounded. Thinking in terms of production functions based on land, labour and capital (and embodied technology) inputs, land-based strategies quickly run into decreasing returns.

4.1.2 Trade and Regional Integration Strategies

In terms of trade orientation (Table 2), regional integration behind high tariffs against third parties is the main approach in the study countries. Ethiopia alone has declined to enter into deep regional integration agreements (although it continues negotiations) while it focuses on niche global markets. Seychelles' geographical isolation (about 1,900 km from mainland Africa) is a major constraint to enhanced regional integration.

Extra-regional FTA activity is limited and a focus on participation in global value chains through logistics costs reductions is not clearly in evidence.

The individual country reports provide little evidence that regional integration strategies have actually had the desirable effect of generating viable regional chains and driving development. Several reasons can be suggested to explain this reality.

First, at a general level, the region produces few complex products. Regional sourcing is typically limited to raw materials or the food and beverages, tobacco, and textiles industries. Moreover, in those cases where more complex products are produced, the higher-value-added inputs often come from outside the region. A case in point is the Seychelles beverages industry. Beverages involve several inputs such as sugar, flavours and preservatives, glass bottles, and labels. The Seychelles' firms surveyed obtained sugar, flavours and preservatives from England; packaging and labels from Singapore; and cartons from suppliers in South Africa and Madagascar. In the leather industry, tanning chemicals, spares parts for tanning machinery and accessories are typically imported, e.g. in Kenya and Ethiopia.²⁶ A similar story emerges from the Kenya metal products manufacturing sector. The Tanzania country report documents that a local sweets manufacturer relies on extra-regional imports of sugar because the local product is "dirty". This points to the classic "missing markets" issue

26 Note that the Ethiopia country report identifies a very high import quotient for advanced inputs and the vast majority of these are likely to be sourced from outside the region, although the data do not specifically establish that point.



Table 1: Policy Frameworks for Manufacturing within the Study Countries

Country	Framework	Themes/Manufacturing Targets
Burundi	<ul style="list-style-type: none"> CSLP II (Poverty Reduction Strategy 2), Burundi Vision 2025 Industrial policy and strategy to be defined 	Agricultural-led Industrialization, Targets to be determined in new industrial policy
Ethiopia	<ul style="list-style-type: none"> Growth and Transformation Plan 2011/12 to 2014/15 (2011) Industrial Development Strategy (2001; a new industrial policy is under preparation) 	Agricultural-led Industrialization; manufacturing to be leading sector of the economy. Specific targets to be determined in new industrial policy.
Kenya	<ul style="list-style-type: none"> Vision 2030 (2008) Medium Term Plan II 2013-2017 (2013) Industrial Development Masterplan (2008) and National Industrial Policy Framework (2012) 	Value-addition to local raw materials; manufacturing to increase share of GDP from 10% to 15%. Sustained manufacturing growth rate of 10%.
Rwanda	<ul style="list-style-type: none"> Vision 2020 (2000) Economic Development and Poverty Reduction Strategy 2 2013-2018 (2013) National Industrial Policy (2011) 	Transformation from subsistence agriculture economy to a knowledge-based society. Industry share in GDP to increase to 20%
Seychelles	<ul style="list-style-type: none"> Seychelles Strategy 2017 (2007) Industrial Policy (forthcoming) 	To be determined. The Seychelles Strategy 2017 did not prioritise manufacturing
Tanzania	<ul style="list-style-type: none"> Tanzania Development Vision 2025 (1999) Five Year Development Plan 2011/12 – 2015/16 (2011) Sustainable Industrial Development Policy (1996) 	Accelerate growth of manufacturing from 8% recently to 12.1%. Focus on SEZs and EPZs.
Uganda	<ul style="list-style-type: none"> Uganda Vision 2040 (2013) National Industrial Policy (2008) & 5-year National Industrial Sector Strategic Plan (2010) 	Value-addition to local raw materials and agro-processing. Targets (2040): Increase share of industrial sector in GDP from 25% (2010) to 31%; manufactures in total exports from 24.1% to 50%; labour productivity in the industrial sector from US\$3,550 to US\$24,820; the labour force in the industrial sector from 7.6% to 26%; labour productivity by about 8 times; manufactured exports as a share of total exports from 4.2% to 50%; the technology up-take and diffusion, as measured by the technology achievement index, from 0.24 to 0.5; public expenditure on R&D as share of GDP from 0.1% to 2.5%; and innovations, as measured by patents registered from 3 to 6,000
EAC	<ul style="list-style-type: none"> EAC Industrialization Policy 2012-2032 (2012) EAC Industrialization Strategy 2012-2032 (2012) 	Regional, market led approach for equitable industrialisation in the region. Targets (2032): Diversified manufacturing base and local value added content of manufactured exports raised from 8.6% to at least 40%; strengthened national and regional institutional capabilities for industrial policy design and management; strengthened R&D, technology and innovation capabilities to support structural transformation of the manufacturing sector; increased share of manufactured exports to the region relative to imports from 5% to 25%; increased share of manufactured exports relative to total merchandise exports from 20% to 60%; contribution of MSMEs to manufacturing GDP from 20% to 50%.

Source: Country Reports

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Table 2: Study Countries' Trade Policy Frameworks

Country	Regional	Global	Orientation	Key tools
Burundi	EAC/COMESA	WTO	Regional and Global	Regional border infrastructure; support to export priority sectors
Ethiopia	COMESA (but not COMESA FTA)	Negotiating WTO accession	Global	Industrial parks/clusters & infrastructure links to Djibouti for global market access
Kenya	EAC/COMESA	WTO	Regional and global	Regional border infrastructure; EPZs and SEZs; and FTAs with extra-regional parties (including EU EPA)
Rwanda	EAC/COMESA	WTO	Regional, diversification	FTAs with extra-regional parties (including EU EPA), cluster approach
Seychelles	COMESA	Negotiating WTO accession	Europe	Fisheries Agreement with EU; SEZ
Tanzania	EAC	WTO	Regional, focus on land-locked neighbours	SEZs and FTAs with extra-regional parties (including EU EPA)
Uganda	EAC/COMESA	WTO	Regional and global	Regional border infrastructure; support to export priority sectors.

Source: Country Reports

in industrialization: the lack of qualified or cost-effective regional suppliers can prevent the establishment of other industries.²⁷ Regional integration cannot solve this problem if the economies are highly similar in their capabilities; plugging into global supply chains on the other hand circumvents this problem and permits industrialization to take place without the full local or regional supporting supply networks in place.

Second, value chains are typically organized by larger firms with the knowledge base and managerial capacity to coordinate fragmented production, international sourcing, and international sales. The modern, firm-level trade literature documents that relatively few firms use imported inputs or export. Firms that import intermediate inputs tend to be larger and more productive than other

firms in their industry as is also typically the case with firms that export. Moreover, firms that both import intermediates and export tend to be larger and more productive than firms that are active in either market, but not in both.²⁸ The relative paucity in Eastern

²⁷ Rodrik (1994) explains East Asian development successes in terms of government stepping in to solve the missing market problem – sometimes also labelled coordination failure.

²⁸ Kasahara and Lapman (2013) develop a model which explains the rarity of firms importing intermediate inputs on the basis that firms face fixed costs of importing intermediate inputs and thus only more productive firms are in a position to actually seek out these inputs. Andersson, Lööf and Johansson (2008) provide an intuitive motivation for the presence of fixed costs of importing intermediates. They note that an importing firm must establish exchange agreements with foreign suppliers; which typically involves a search process for potential suppliers, inspection of goods, negotiation and contract formulation, and other related costs, which are by their nature sunk. A variant of Kasahara-Lapham approach is provided by Kugler and Verhoogen (2008) who embed use of intermediates in a Melitz-type model and develop a quality-complementarity hypothesis, in which plant productivity and use of intermediate inputs is correlated with quality of outputs. They draw on Colombian data that provides evidence that within narrowly defined sectors, output prices, input prices and export status are all positively correlated with plant size.



Table 3: Study Country Performance in Terms of GDP and GDP Per Capita, 2003–2013

Country	Growth 2003-2013			Level in 2013		
	Population	Per capita Real GDP	Real GDP	Population (millions)	GDP per capita (USD)	GDP (USD billions)
Burundi	2.2%	-0.2%	2.0%	8.99	640	5.8
Ethiopia	2.3%	5.7%	8.1%	88.85	1,330	118.2
Kenya	3.0%	-1.1%	1.9%	43.32	1,858	80.5
Rwanda	2.0%	4.1%	6.1%	10.64	1,538	16.4
Seychelles	1.1%	1.6%	2.8%	0.09	25,878	2.4
Tanzania	2.5%	1.7%	4.3%	46.28	1,713	79.3
Uganda	3.3%	-0.1%	3.2%	36.82	1,477	54.4

Source: IMF, World Economic Outlook Database, October 2013.

Africa of large, productive firms capable of organizing value chains is thus a major factor inhibiting the success of industrial development strategies predicated on this idea.

Third, development is inextricably associated with technological advance. Regional integration in Eastern Africa generates little in the way of knowledge spillovers since few regional firms have acquired the advanced knowledge in the first place. As noted previously, learning effects occur primarily when exporting to more advanced countries and in direct interaction with demanding foreign clients, while local firms that sell globally through intermediaries may derive little benefit from the export nature of their sales. The same issue applies to regional integration – exporting to regional partners at a similar or even lesser stage of development fails to drive learning effects. Hence, this strategy does not

Other branches of the literature approach the importing of intermediates from the perspective of the outsourcing literature and consider the different strategies of firms when outsourcing complex versus simple goods. Naghavia, Spies and Toubal (2011) find that firms outsource highly complex products to countries where intellectual property rights are protected. This is not likely to be a major factor in Eastern African firms' decisions in the short run when considering regional vs. global value chain strategies, but it would be a factor in the longer term.

ignite a rapid move up the technology ladder.

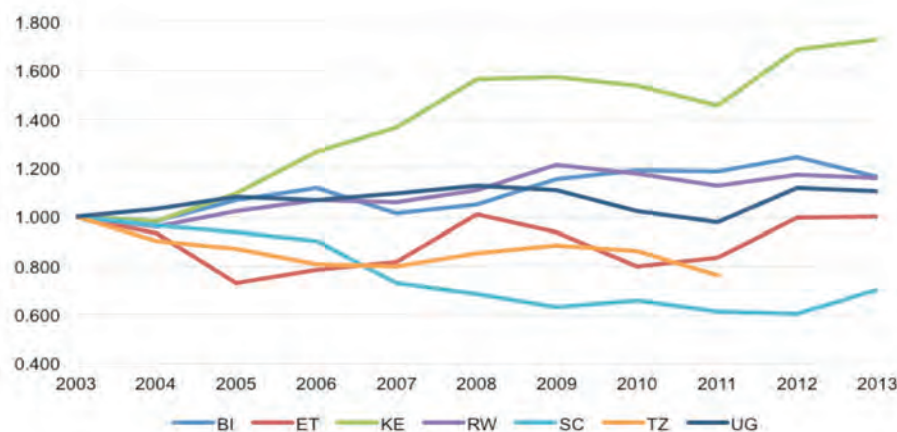
Fourth, given high general/MFN tariffs²⁹, regional preferences particularly within the EAC engender significant extent of trade diversion. While this hopefully serves to drive the realization of scale economies for firms in the region, it also militates against external competitiveness. A strategy of regional integration thus may turn out to be the slow boat to global competitiveness.

While the above considerations temper expectations regarding what a regional integration strategy can promise to deliver, there are also certain advantages that should be weighed in the balance. In particular, regional integration offers a number of positive factor for manufacturing in several regards: (a) the creation of a large single market will serve to attract FDI and economies of scale for those regional producers that can make the leap to regional

²⁹ The simple average MFN tariffs on non-agricultural goods (in 2012) are 11.7% in the EAC countries, 16.5% in Ethiopia, and 6.2% in Seychelles, but substantially higher for some key products of the region. E.g., in the EAC countries the average MFN tariff on beverages and tobacco is 25.3%, wood and paper 16%, textiles 19.6%, clothing 25.2%, and leather and footwear 12.7% (WTO/ITC/UNCTAD 2013).

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Figure 2: Real Effective Exchange Rate Trends of Study Countries, 2003-2013



Source: Bruegel Institute

exporting; (b) regional governance will facilitate the emergence of competent regional regulatory authorities in areas such as standards, drawing on the best talent within the entire region; and (c) as private sector development accelerates, and as firms capable of organizing supply chains emerge, regional value chain integration will start to become a driver of growth.

4.2. Overall Economic Performance

The regional economies vary widely in basic measures of economic performance (Table 3). Five of the seven have per capita incomes in 2013 within the relatively narrow range of USD 1,330 to USD 1,858, with an average of USD 1,583. Burundi is an outlier on the low side, with a GDP per capita 40% of the average of the middle five, and the Seychelles is an outlier on the high side, with a GDP per capita 16 times the average of the middle five. Growth rates of population, per capita income and overall GDP also vary widely.

Table 4: Macroeconomic Performance of Study Countries, Selected Indicators

	CPI (Average 2003-2013)	Current Account Balance (% of GDP 2013)	Fiscal Balance (% of GDP 2013)
Burundi	10.6%	-15.8%	-1.7%
Ethiopia	16.5%	-6.4%	-2.8%
Kenya	8.5%	-7.8%	-5.8%
Rwanda	8.4%	-11.6%	-2.8%
Seychelles	8.2%	-24.1%	2.8%
Tanzania	8.9%	-14.9%	-5.3%
Uganda	9.1%	-12.0%	-1.8%

Source: IMF, World Economic Outlook Database, October 2013.



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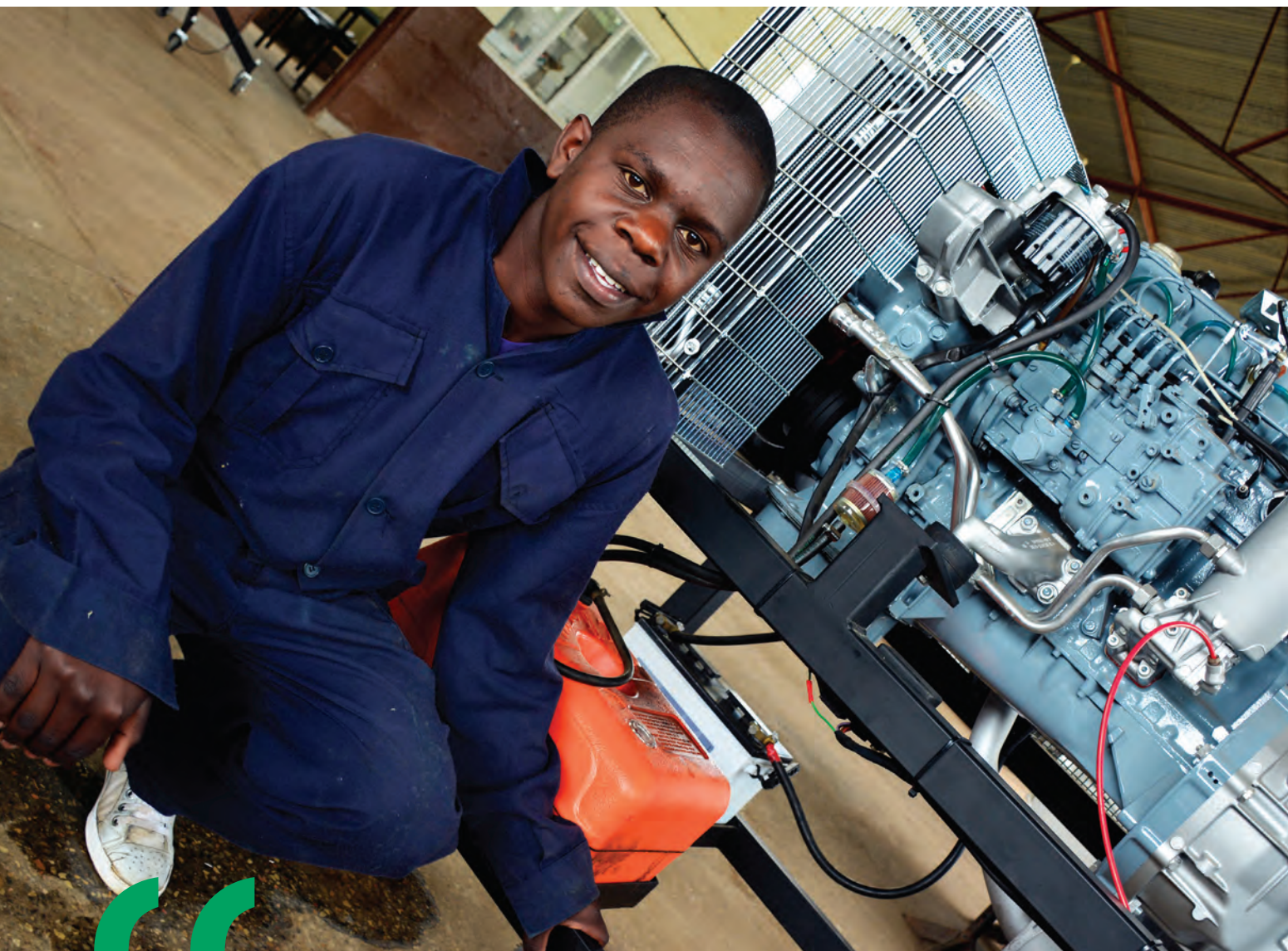
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Other macroeconomic indicators generally suggest fragility and limited scope for aggressive government fiscal measures (Table 4): inflation rates tend to be high (with Ethiopia being an outlier on the high side), current accounts are all in significant deficit, as are fiscal balances with the exception of the Seychelles which has had a string of surpluses in recent years.

Performance in respect of exchange rates has also been highly diverse across the study countries, with some experiencing sig-

nificant real appreciations – resulting in overvaluation and a loss of competitiveness – and others significant real depreciations (Figure 2). From the perspective of using regional integration as a springboard to greater global competitiveness of manufacturing, this poses a problem. Moreover, the divergent trends may well be exacerbated by capital inflows and subsequent revenue flows related to oil and gas exploitation. This will be a particular issue in terms of maintaining exchange rate stability, an important factor in fostering a manufacturing sector.

EASTERN AFRICA'S MANUFACTURING SECTOR: Promoting Technology, Innovation, Productivity and Linkages



It is not simply “making things” that matters, but making things at scale



5.0 DESCRIPTIVE OVERVIEW OF MANUFACTURING IN EASTERN AFRICA

Policy interest in manufacturing is based on a number of characteristics of manufacturing that have traditionally made it the cornerstone of economic development. Manufacturing is a key driver of:

- Productivity growth;
- Formal employment growth;
- Innovation and technological advance; and
- Export performance.

It is not simply “making things” that matters, but making things at scale. For this, manufacturing must be organized within formal, scalable enterprises that are in a position to employ technology, train workers, and develop firm-specific knowledge that permits them to contest growing markets and make the leap into exporting. Scalable enterprises using labour-intensive processes generate the jobs that developing countries with large numbers of young people entering the labour force require. Over time, as firms employ increasing amounts of capital, it is the productivity growth rather than the employment that becomes the main contribution of the sector.

Further, it is the acquisition of transferable industrial arts that makes manufacturing critical in driving the diversification of production that is associated with economic development. For example, the industrial skills acquired in extruding metal pieces for toys or bicycles serves as the foundation for entry into auto parts or aerospace components.

Similarly, while manufacturing is critical to export capacity, exporters tend to be larger and relatively highly productive enterprises. Moreover, it is the interaction with foreign markets that drives

the various spillovers (“learning by exporting”) and that makes entry into export markets (particularly to advanced economies) an important driver of productivity at the firm level. Informal enterprises do not contribute to exports and do not serve this important function.

Finally, more complex manufactured goods are the most important mode of exports of business services and technology. Simply put, business services and technology are generally far more likely to be exported embedded in goods than they are to be sold on a cross-border basis.

From this perspective, the comparatively high share of GDP or share of exports accounted for by “manufacturing” sectors in some Eastern African countries is misleading since much of it consists of informal artisanal activity or minimal processing of agricultural products for export (raw hides, for example, are considered “manufactured” goods under some standard definitions). Such activity is not, however what policymakers aiming at industrialization are seeking to promote: it has few value-chain linkages, does not develop transferable firm-specific knowledge assets that lead to diversification of the export palette, and does not generally provide “learning by exporting” spillover benefits.

5.1. Manufacturing Share of GDP

With this general caveat in mind, while there is a considerable difference across the study countries in the share of GDP accounted for manufacturing, as a broad generalization, the sector accounts for a small share of GDP (Table 5). However, this statistic alone says very little about the actual degree of industrialization of a country; by comparison, Kenya and Tanzania have manufacturing shares of GDP in the same range as the United States (12%) and the UK (10%). The shares are, however, low compared to the levels of manufacturing typically associated with industrializing countries, which typically have manufacturing shares of GDP ranging as high as 30 to 40%.

Manufacturing value-added (MVA) per capita is a somewhat

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Table 5: Structure of GDP by Economic Sector, Eastern Africa, 2011

Country	Share of GDP in 2011 accounted for by:			
	Agriculture	Manufacturing	Other Industry	Services
Burundi	34.7%	9.8%	8.5%	47.0%
Ethiopia	45.2%	3.8%	7.0%	44.0%
Kenya	28.5%	11.0%	6.6%	53.9%
Rwanda	32.1%	6.6%	9.8%	51.6%
Seychelles	2.2%	7.2%	6.4%	84.2%
Tanzania	25.8%	10.1%	14.7%	47.9%
Uganda	23.4%	8.6%	16.8%	51.2%

Source: Country Reports

better indicator of industrialization. In the study countries, this indicator has shown mixed trends across the various countries in the region. The Seychelles, which in 2000 had the biggest manufacturing sector in relative terms, has seen MVA per capita decline by almost half in the last ten years – from over USD 1,500 per capita in 2002 to an average of only USD 831 since the global crisis of 2008. Kenya, which ranks second highest in the region in MVA per capita, registered strong growth in this indicator up to 2008, more than doubling from USD 39 in 2002 to USD 85, but then experienced a decline with the crisis, from which it has yet to recover (Figure 3). Several countries in the region (Rwanda, Tanzania and Uganda) have managed to sustain relatively strong growth in this indicator since the mid-2000s, from very low levels, while Burundi and Ethiopia have seen limited growth. Not only are the trends divergent but also the levels are highly disparate, ranging from below USD 20 in Ethiopia to a figure some 75 times higher in the Seychelles. The regional weighted average of about USD 36 per capita is an order of magnitude smaller than Vietnam (USD 301) and very far behind BRICS countries like South Africa or China, which are at USD 835 and 1,300 respectively.

In absolute size, the combined manufacturing sector in the seven study countries as a whole is only about one-third the size of the manufacturing sector in Vietnam, which has a population one-third the size of the study countries. Given the latitude for very strong

catch-up growth in manufacturing in the study region, especially with the increase in regional incomes from the rebound in resource prices in recent years, the inconsistent and overall weak dynamic indicates that economic conditions and policies in force are not conducive to rapid industrialization.

5.2. Manufacturing Share of Exports

The manufacturing share of goods exports varies widely across the study countries (Figure 4), as do the trends. For the study countries combined, manufactures broadly defined comprise about 50% of total goods exports and have been on a flat trend. However, because of the broad definition accorded to manufacturing, these statistics, like those of share of GDP, afford little insight into the state of manufacturing for policy purposes. For example, in the case of the Seychelles, exports of processed or preserved fish or fish products – in particular canned tuna – represent the bulk of “manufactured” exports.

Thus, if a narrower definition of “manufactures” is applied³⁰, the story is completely different, and the most recent share of manufactured goods in merchandise exports in no case exceeds 35% of goods exports (Figure 4b). Specifically, given that Seychelles' exports largely consist of products not included in the narrow definition, its share of manufactures in exports drops to less than 5%. Only three countries, Kenya, Uganda and Tanzania, have shares of 20% and above. The regional average, heavily influenced by Kenya's performance, increased until 2008 to a peak of 28% and has since dropped again.

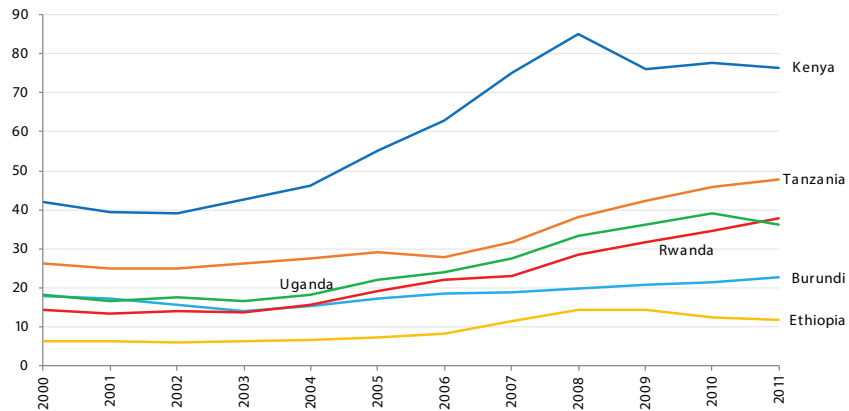
5.3. Manufacturing Scale, Employment and Productivity Growth

Consistent data about manufacturing productivity, measured in terms of manufacturing value added per worker, across the

³⁰ Manufactures defined as comprising only commodities in SITC sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals).

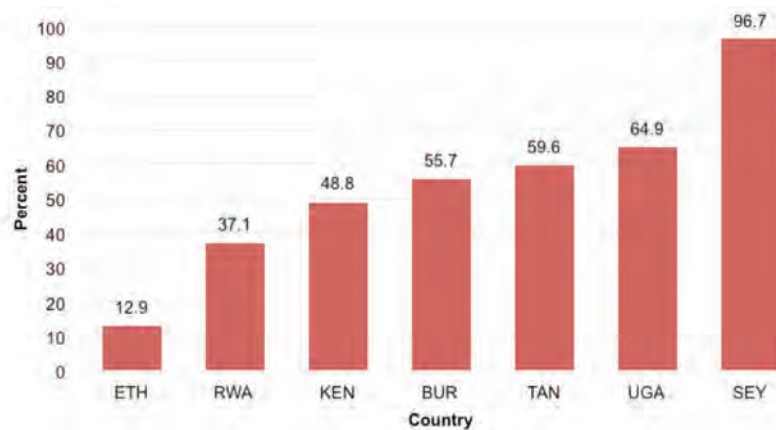


Figure 3: Manufacturing Value Added Per Capita in Selected Study Countries, 2000-2011 (USD)



Source: World Development Indicators

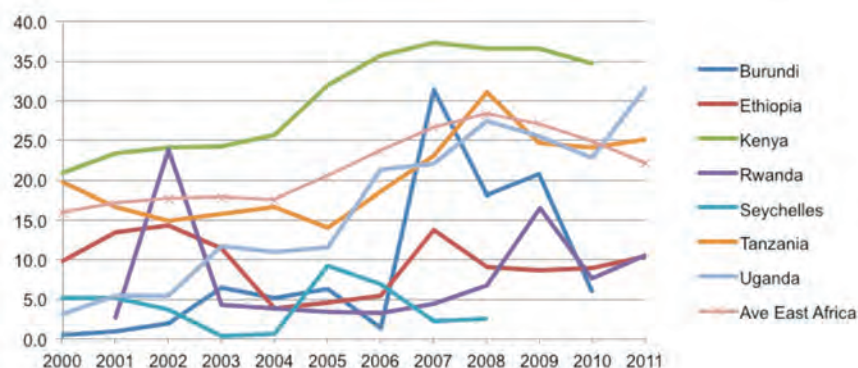
Figure 4a: Share of Manufacturing, Broadly Defined, in Study Country Exports, 2012



Source: Country Reports

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Figure 4b: Share of Manufacturing, Narrowly Defined, in Study Countries' Merchandise Exports, 2000-2011 (%)



Source: WDI, own calculations

region are not available. However, the data for the pair of study countries which have the highest and lowest MVA share of GDP, the Seychelles and Ethiopia (Table 6), suggest that the level of productivity is low, that productivity growth is slow, and that the scale of plants is also generally small,³¹ although in both countries, as elsewhere, the size distribution is highly skewed.

5.4. Public versus Private Ownership

Eastern Africa has a history of significant levels of state ownership of enterprise. However through extensive privatization, today manufacturing enterprise is generally in private ownership in the study countries. Uganda largely privatized in the 1990s, Rwanda since 2006, and Kenya is in the midst of its third wave of privatization with significant remaining state-holdings on the auction block, including several manufacturing establishments.³² Burundi

recently privatized its coffee industry and is attempting to private other state-owned enterprises. Ethiopia (26%) and Tanzania (8%) have relatively high shares of total manufacturing employment accounted for by publicly owned firms. The Seychelles features a unique situation: one firm, IOT, which is 40% owned by the Government of Seychelles, is the main industrial employer. IOT cans tuna and produces fishmeal as well as fish oil through a subsidiary. It is the second largest tuna-canning factory in the world and, with more than 2,000 employees, is by far the largest single employer in the Seychelles.

There is no general pattern in terms of policy direction. Uganda is moving away from narrow incentives to promote general activity by supporting the development of industrial parts. The Seychelles is also moving in the direction of greater *laissez faire*, in part because of the reforms agreed as a result of its debt crisis in 2008-09. Tanzania, meanwhile, has reverted to using an economic plan and Ethiopia has even nationalized its logistics industry, which suggests there is at least some discontent with the results of the heavy reliance on private sector dynamics to generate the desired catch-up growth.

³¹ Note that, given the differences in capital intensity of sectors, the data are not directly comparable.

³² These include the Agrochemical Food Company, East African Portland Cement, the New Kenya Cooperative Creameries, and the Numerical Machining Complex. Source: US Department of State, 2012 Investment Climate Statement – Kenya.



Table 6: Manufactured Value Added per Employee and Plant, Selected Economies, Eastern Africa, 2011

	Year	MVA (USD billions)	MFG Employment	MVA/ Employee (USD)	Manufacturing Establishments	MVA/ Establishment (USD)
SYC	2011	0.08	4,670	16,231	305	248,525
ETH	2011	1.12	173,397	6,453	2,194	510,000
Memo:						
ETH Growth	2001-11	8.3%	6.3%	1.8%	10.6%	-2.1%

Note: Growth figures for MVA are in terms of local currency at constant prices; levels shown are in USD for cross-country comparison purposes. Growth rates in USD terms are influenced heavily by exchange rate trends. Data for other study countries are not available.

Source: Country Reports

5.5. Manufacturing by Sector

Manufacturing in the study countries is dominated by food and beverages, largely basic processing of agricultural output (Table 7). The percentage varies by economy, however, as does the main input. In the Seychelles, for example, the main manufacturing activity is fish-processing. For the other study countries, cotton-based textiles and clothing, the production of leather (driving off the regional availability of animal hides), and wood-based products (including furniture, paper and printing) also figure prominently in the regional production mix. The study countries also have some capability in the production of more refined consumer products based on agricultural inputs, including soaps, perfumes, cosmetics etc. In addition, there is some nascent industrial development of more advanced products for local or regional consumption: Ethiopia, Kenya and Tanzania have small industries producing more complex products like vehicles, electronic equipment (e.g., cell phone assembly) or machinery and equipment. For Ethiopia, for which statistics are available, imported components constitute about 90% of the value of goods in these categories.

Industrial products (chemicals, rubber & plastics, and basic metal products) appear to be based mainly on imported inputs.³³ This highlights the absence of well-developed local basic industries.

Regional manufacturing activity based on local agricultural inputs (e.g., food and beverages or pharmaceuticals and cosmetic products) or local mining products (ceramics, cement, and other non-metallic mineral products) naturally has much stronger production multipliers, as illustrated by data for Ethiopia (Figure 5).

The reliance on imported inputs is most pronounced in the Seychelles which has the narrowest resource base. For example, the burgeoning beverage industry relies on imported inputs for everything from the basic sugars and other ingredients for the drinks, to the bottles, the labels, and the shipping cartons, which are sourced from geographically dispersed locations.

At the same time, the Seychelles provides a good example of

³³ See, for example, the breakdown of domestic vs. imported inputs to sectoral manufacturing for rubber and plastics products, chemicals and metal products in the Ethiopia country report.

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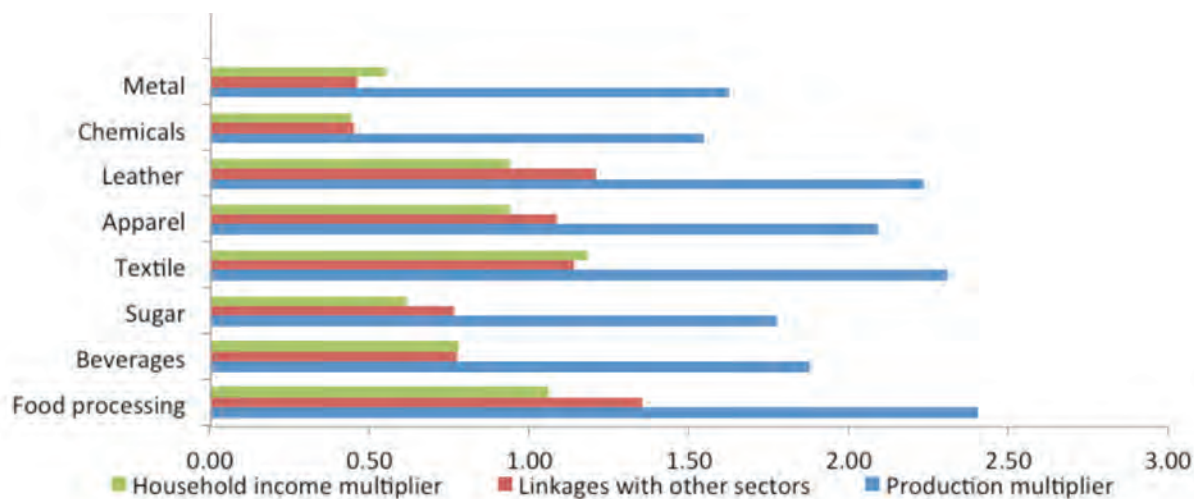
Table 7: Composition of Manufacturing Activity by Main Sector, Selected Eastern African Economies (%)

Industrial Group	Ethiopia (2009/10)	Kenya (2011)	Rwanda (2012)	Seychelles (2011)	Tanzania (no date)	Uganda (2011)*
Food, Beverages & Tobacco	32.5	39.7	72.4	73.9	57.0	52.0
Textiles and Apparel	16.6	13.6	4.9	na	5.0	5.0
Tanning and Leather	5.8	1.6	na	na	na	Na
Wood Products, Furniture, Paper & Printing	11.7	5.7	8.3	na	na	8.0
Vehicles and M&E	1.4	3.5	na	na	na	Na
Other	32.0	35.9	14.4	26.1	38.0	35.0

Notes: * Shares based on employment; data for Burundi are not available.

Source: Country Reports

Figure 5: Ethiopia: Multipliers of Selected Manufacturing Subsectors



Source: Computed from the EDRI (2009) SAM; see Ethiopia country report.



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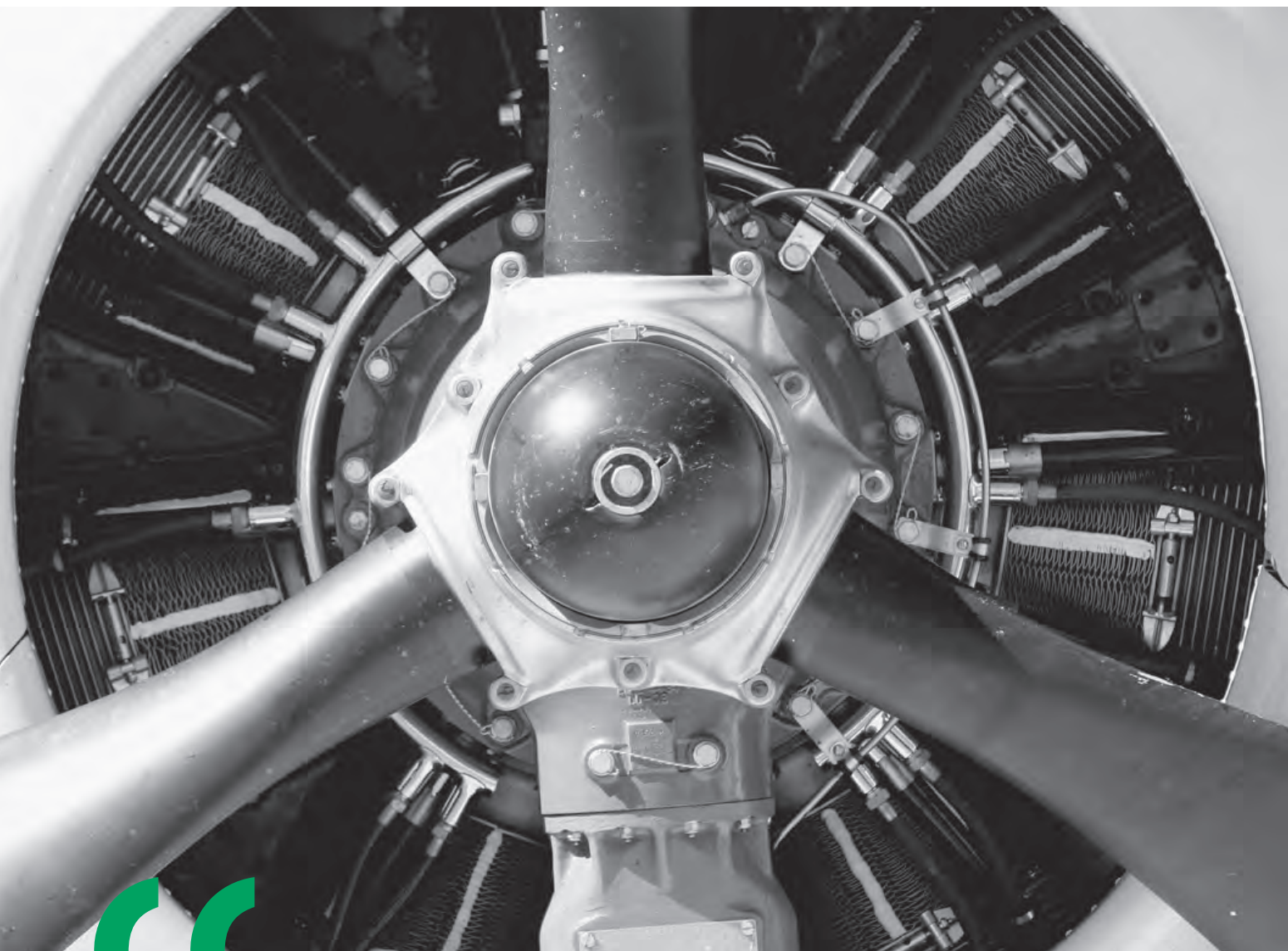
classic value chain participation. The Seychelles has one firm, Chelle Medical, producing specialised orthopaedic appliances (in particular, reusable laryngeal masks) for export. The company imports the parts (tubes and masks made out of silicon) from Singapore, assembles (glues) the masks in its factory and then exports the final product to a distributor in Europe.

Similarly, Kenya's manufacturing sectors oscillate between dependence on imported inputs and participation in value chains. Manufacture of soap, perfumes, cosmetics and toiletry products for the domestic market depends on imported inputs. The

same is true in the vehicle assembly and in the pharmaceutical sectors, where the manufactured products are exported to the regional markets of the EAC Partner State countries and to the COMESA region.

Finally, there are encouraging signs of diversification from initially narrow bases. The rapid evolution of a bottled water industry in the Seychelles in a context of an expanding local beverage industry which features both a multinational firm and local start-ups suggests the effect of knowledge spillovers. Further, one of the start-up firms has started to export, based on imported inputs.

EASTERN AFRICA'S MANUFACTURING SECTOR: Promoting Technology, Innovation, Productivity and Linkages



Most countries have particular subsectors in which they do have some degree of comparative advantage





6.0 AN EVALUATION OF THE EASTERN AFRICAN MANUFACTURING SECTOR'S COMPETITIVENESS AND COMPARATIVE ADVANTAGE

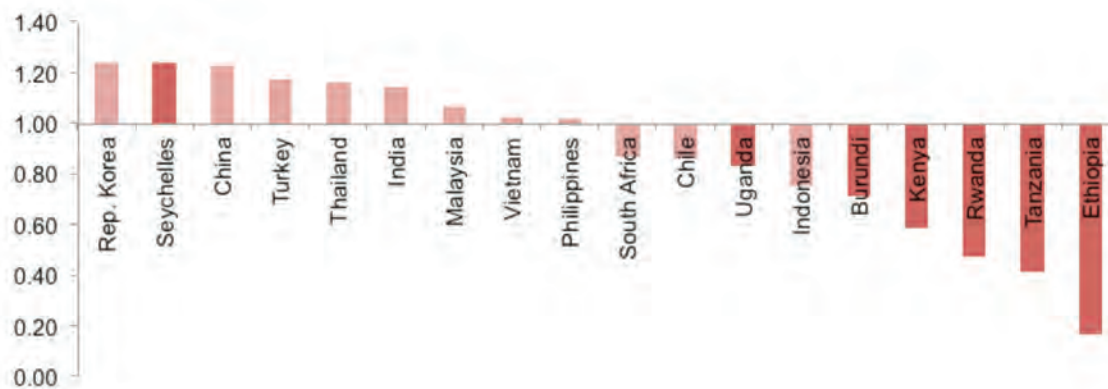
The study countries – with the exception of the Seychelles which is a special case – have a revealed comparative disadvantage³⁴ in manufacturing overall (Figure 6), although most countries have particular subsectors in which they do have some degree of comparative advantage – for example, Kenya in food and beverages, leather products, textiles and clothing, and in non-metallic mineral products including cement and ceramics; Rwanda in processed

tea; Tanzania in textiles; and Uganda in cement, clay and ceramics. The Seychelles' processed fish products give it a comparative advantage in that sector and in manufacturing overall.

There are few insights to be gleaned from these data, however. For example, in the case of the Seychelles, because virtually all of the processed fish products produced by the Seychelles count as manufacturing, it has a degree of comparative advantage in manufacturing comparable to an industrial powerhouse like Korea. This, however, is misleading in terms of the implications for the scope for growth-enhancing innovation and diversification of production based on learning by doing that attracts policy attention to manufacturing. While clearly aligning its production with its main comparative advantage generates static welfare gains, fish processing does not serve as a powerful springboard for further development for the Seychelles. The same is true for countries producing other basic staples like tea or cement.

34 A comparative advantage is "revealed" if $RCA > 1$. If RCA is less than 1, the country is said to have a comparative disadvantage.

Figure 6: Revealed Comparative Advantage in Manufacturing – Eastern African & Comparator States, 2012



Source: Country Reports

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As regards trends in comparative advantage, Uganda has been reducing its degree of comparative *disadvantage* over time, but the country reports on Ethiopia, Kenya, and Rwanda show either flat or overall negative trends in this indicator. Generally, there is no pronounced trend towards industrialization in the region to be discerned from examining revealed comparative advantage.

An alternative way to look at the potential of Eastern African countries to successfully grow their manufacturing sectors is provided by UNIDO's Competitive Industrial Performance (CIP) index, which uses eight indicators classified in six dimensions to assess an economy's ability to produce and export manufactured goods competitively (UNIDO 2002). Importantly, the CIP index

includes a measure of export quality, measured by the average of the share of manufactured exports in total exports and of medium- and high-technology products in manufactured exports.

The CIP index for 2012/13 (Table 8) lists Kenya and Tanzania as 102nd and 106th overall in the global rankings (out of 135 countries), trailed by Uganda (120th), and with Rwanda (129th), Ethiopia (130th), and Burundi (132nd) clustered near the bottom of the rankings. While the region has improved its CIP index scores over the years, the progress has been slow and quantitatively minimal when compared to the distance to be covered to rival East Asian countries: for example, Vietnam improved its CIP index score by 0.003 in 2010 compared to 2009; Eastern Africa

Table 8: UNIDO Competitive Industrial Performance Index – Eastern Africa & Comparators

	2000	2005	2006	2007	2008	2009	2010
Burundi	0.000	0.001	0.000	0.001	0.001	0.001	0.001
Ethiopia	0.000	0.001	0.001	0.002	0.002	0.002	0.002
Kenya	0.008	0.010	0.010	0.009	0.009	0.011	0.010
Rwanda	0.001	0.002	0.002	0.002	0.002	0.003	0.002
Seychelles	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tanzania	0.003	0.004	0.005	0.005	0.007	0.008	0.009
Uganda	0.002	0.003	0.004	0.004	0.004	0.004	0.004
Average Eastern Africa	0.002	0.004	0.004	0.004	0.004	0.005	0.005
Benchmark countries:							
Korea	0.318	0.356	0.364	0.366	0.373	0.399	0.404
China	0.162	0.239	0.257	0.274	0.291	0.318	0.329
Malaysia	0.197	0.190	0.192	0.183	0.169	0.184	0.183
Thailand	0.136	0.151	0.155	0.157	0.160	0.168	0.171
Indonesia	0.077	0.074	0.074	0.072	0.075	0.082	0.082
South Africa	0.072	0.076	0.076	0.076	0.080	0.077	0.077
India	0.045	0.056	0.059	0.060	0.064	0.073	0.075
Philippines	0.084	0.075	0.075	0.072	0.070	0.071	0.073
Chile	0.060	0.069	0.072	0.071	0.072	0.073	0.072
Vietnam	0.025	0.035	0.038	0.041	0.045	0.051	0.054

Source: UNIDO.



achieved an improvement of the same absolute size over the course of ten years.

In summary, realistically assessed, the study countries at this stage have barely carved out a toehold in the global manufacturing sector. This reality is masked by the broad definitions of manufacturing activity that are customarily applied and are reflected in the country studies, which can give the impression of extensive manufacturing activity. While the region does have comparative advantage and/or cost competitiveness in individual product groups, the UNIDO CIP index puts Eastern Africa's position in the global manufacturing scene in sharp perspective – and shows that the region barely registers as a manufacturing location.

That being said, the region also features examples of the factors leading to successful industrialization:

- Downstream processing of basic agricultural and mineral resources;
- Branding to raise value of exported local products;
- Value chain participation (processing imported imports for export);
- Assembly of more complex products for regional consumption based on imported inputs;
- Diversification from initially narrow bases;
- Learning spillovers from the presence of multinational firms; and
- Evidence of “learning by exporting” spillovers to new start-ups.

The presence of these examples also raises the question of why the dynamic has not been stronger. The next chapter tries to provide answers to this question.

EASTERN AFRICA'S MANUFACTURING SECTOR: Promoting Technology, Innovation, Productivity and Linkages



The ability of Eastern Africa to undertake more complex forms of economic activity has risen



7.0 EXPLAINING COMPETITIVENESS AND COMPARATIVE ADVANTAGE OF THE EASTERN AFRICAN MANUFACTURING SECTOR

Competitiveness and comparative advantage are distinct concepts: the former assesses whether a country can compete globally, given factor conditions, local costs, and its exchange rate; the latter assesses which sectors in an economy are the most efficient relative to others in the same economy. Thus, competitiveness involves international comparisons while comparative advantage involves comparisons across domestic industries.

7.1 Enablers for Manufacturing in Eastern Africa

As we elaborate below, the study countries generally features binding constraints in the operating environment for firms and in its infrastructure deficits. For a complex process such as manufacturing, success is difficult to achieve but failure is easy: In a highly competitive world, one weak link in the chain of events that takes place between the production of raw materials, their transformation into inputs, transportation to a factory, recombination into a manufactured product, and finally the onward shipment of that good to a customer, can thwart the entire enterprise by sending the business elsewhere to a different supplier. Accordingly, a binding constraint anywhere in the chain makes it impossible to realistically assess the effectiveness of *general* policies – the specific successes testify, however to the ability of governments to facilitate particular sectors.

Table 9: Legal and Regulatory Environment in Study Countries, 2012 (Rank out of 185 Economies)

Economy	BDI	ETH	KEN	RWA	SYC	TZA	UGA	Ave.	RWA & SYC	Trailing Five
Doing Business Rank	159	127	121	52	74	134	120	112	63	132
Protecting Investors	49	128	100	32	70	100	139	88	51	103
Getting Credit	167	104	12	23	167	129	40	92	95	90
Enforcing Contracts	175	50	149	39	83	36	117	93	61	105
Paying Taxes	137	103	164	25	20	133	93	96	23	126
Construction Permits	141	53	45	98	57	174	118	98	78	106
Starting a Business	28	163	126	8	117	113	144	100	63	115
Registering Property	127	112	161	63	66	137	124	113	65	132
Resolving Insolvency	161	117	100	167	65	129	69	115	116	115
Getting Electricity	164	94	162	49	144	96	127	119	97	129
Trading Across Borders	177	161	148	158	33	122	159	137	96	153

Source: World Bank, Doing Business 2013.

EASTERN AFRICA'S MANUFACTURING SECTOR: Promoting Technology, Innovation, Productivity and Linkages

7.1.1 Legal and Regulatory Environment

As regards the legal and regulatory environment, Rwanda and the Seychelles have forged ahead in terms of creating favourable conditions to doing business but the trailing five have an average ranking that is twice as far behind the leaders as that of the leading two (Table 9).³⁵

What stands out from a regional perspective is the very low ranking on (a) trading across borders and (b) the cluster of issues relating to starting and closing a company. Given the importance of exporting to attain scale economies as well as to create channels for learning and knowledge spillovers, the poor performance on trading across borders is particularly detrimental to the prospects for achieving rapid industrialization. Furthermore, given the importance of production networks for manufacturing, the difficulties of establishing formal enterprise also represent a key impediment to filling local supply gaps – this compounds the problems in trading across borders for international sourcing. The low scores on these issues are corroborated by the small numbers of formal enterprises in the region – which is a key factor holding back the development of firm-specific knowledge assets which are especially important for more complicated manufacturing processes.

Another indicator of the weak dynamic in private sector development is the very small amount of foreign direct investment (FDI) flowing into the region and the minuscule amount flowing out (Table 10). UNCTAD's World Investment Report for 2013 breaks down African economies by inward and outward investment into five size groups. The study countries are clustered in the smallest size categories for inward flows and only two register as having outward FDI at all.

Note that two-way flows of FDI are associated with modern business models of integrative trade. Firms capable of undertaking outward FDI typically are the most productive firms in an economy. The general absence in Eastern Africa of outward FDI thus implies

³⁵ The World Bank's rankings are broadly consistent with the World Economic Forum's Global Competitiveness Report 2013/2014, Rwanda being 66th overall and 90th for the Seychelles.

Table 10: Inward and Outward FDI

Scale	Inflows	Outflows
USD 3 billion or over		
USD 2.0 to 2.9 billion		
USD 1.0 to 1.9 billion	Uganda, Tanzania	
USD 0.5 to 0.9 billion	Ethiopia	
USD 0.1 to 0.4 billion	Kenya, Rwanda, and Seychelles	
Below USD 0.1 billion	Burundi	Kenya and Seychelles

Source: UNCTAD (2013: 39)

that established firms in the region have not been able to attain the scale and level of productivity required to be foreign investors.

7.1.2 Policy and Institutional Support

Governments in the study countries have developed many schemes and policies over the past decades to promote industrialization, including privatization, various incentive schemes for private business, special programs for priority sectors, and horizontal initiatives aimed at facilitating the business environment in general.

The heterogeneity of sectors places certain limits on the utility of generalizations. For example, the development of the cut flower trade from Kenya and more recently from Ethiopia to Europe shows how factors such as trade logistics which are generally problematic in both countries (both rank very low on the World Bank's Logistics Performance Index) have clearly been sidelined for that particular industry. In this industry, timing is critical. The entire process from cutting in the greenhouse, transport to the air terminal, availability of cold storage, timely onward shipment to destinations abroad, and customs clearance must be executed without delay, so that flowers cut one day in Africa are on sale in European flower shops the following morning. The World Bank's



Doing Business survey suggests that it takes 42 days to export from Ethiopia and 26 from Kenya. Clearly, these constraints do not apply to cut flowers.

To some extent this reflects the distinction between the business climate in general and the actual operating conditions that firms experience when they have a degree of “climate control” (Hallward-Driemeier and Pritchett 2011). As a result of special dispensations for priority sectors or simply “learning the ropes” of how to operate in a given environment, actual conditions may be far easier for some firms than for others.

The failure of Eastern African manufacturing to take off thus does not necessarily point to any specific policy as having failed (it should also be mentioned that many have been only recently adopted and many others are in the pipeline). Nor does it point the finger at any institutional support mechanism (although stakeholder views on the effectiveness of these institutions vary). The most that can be concluded is that the combination of policies and institutional mechanisms has not yet eliminated the binding constraints on rapid industrialization. The identification of these binding constraints is, given the example of cut flowers, inevitably a country-by-country, sector-by-sector exercise.

One general observation that can be offered in this regard is the utility of experimentation in special economic zones (SEZs). Allowing different SEZs to adopt different policies can help experimentally to identify successful formulas that help to compensate for other constraints on industrialization in the region.

7.1.3 Infrastructure

With the notable exception of the Seychelles, the study countries’ economic infrastructure is weak by global standards – and even by African standards. The poor state of infrastructure in the study economies except the Seychelles is a significant cost amplifier for businesses; for the Seychelles, the problem is rather one of high fixed costs of infrastructural facilities due to the small population base.

7.1.3.1 Energy

Inadequate energy supply is the most significant infrastructural problem in the region: Eastern Africa has the lowest per capita energy generating capacity on the continent, and stakeholders identify inconsistent supply (which results in power outages and the requirement for expensive supplementary generation equipment) as a major cost factor. The African Development Bank has identified the lack of regional energy supply integration as a contributing factor to the poor results since a combined grid can better handle fluctuations in local peak demands. Clearly, for energy-intensive production, inconsistent power supply is a major competitive disadvantage; for all industries, it tends to tilt comparative advantage towards labour-intensive production over the use of capital.

The study countries have untapped energy resources under development, including hydro (especially in Ethiopia) and fossil fuels. The development of these resources promises to alleviate the energy supply situation over the medium term at the source. However, developing connectivity in the electrical grid and the effective management of the new energy resources (including by using trade) remain challenges. The advent of fossil fuel revenues will also raise the traditional problems of maintaining macroeconomic stability and avoiding the resource curse.

The low level of hook-up of households to the electrical grid also serves as a major inhibitor of an important source of manufacturing growth: household appliances. The vast majority of households in the region still reportedly rely on wood and charcoal for cooking, which is one of the most environmentally inefficient energy sources. The problem starts with the very poor state of housing in the region: urbanization is unfortunately characterized not by a housing construction boom but by urban sprawl of largely informal, poor-quality housing that generates little demand for formal-sector manufactured goods. It may be noted that a major factor in China’s growth acceleration was the expansion of modern housing units which in turn drove extremely high rates of growth in demand for white goods and electronic household goods. These industries provide the learning experience that

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enables firms to progress to more sophisticated manufactured goods. The planned expansion in electrification coverage from 35% to 60% of households in Eastern Africa has the potential to drive a very significant expansion of a class of manufacturing that is well suited to the region: production of durable goods for regional consumption.

7.1.3.2 Transport & Logistics

In terms of surface transport, Eastern Africa has serviceable regional trunk road networks, but the conditions are often poor resulting in high transportation costs when the combination of speed and distance covered are jointly taken into account. A 2011 study of the two main road corridors showed that the Northern Corridor (anchored by the port of Mombasa and running north of Lake Victoria and down through Kampala and Kigali to Bujumbura) was almost entirely paved but only 13% of roads were in good condition, 44% in fair condition, and 43% in bad condition (EAC 2011). Over 90% of this key corridor consisted of one lane. The Central Corridor anchored by the port of Dar es Salaam to the Tanzanian hinterland as well as to Burundi, Rwanda, and Uganda was in even worse shape with significant portions still unpaved. Since many road projects have been underway, the actual situation is evolving rapidly.

Very limited availability of rail transport compounds the problems since it pushes goods transport onto roads, which tends to cause damage to the roads and creates congestion at places, as well as raising by a significant margin the unit cost of transport over longer distances. Particularly for the landlocked regional countries, high-speed, heavy-duty rail transport to sea ports coupled with customs facilitation has great promise to enable global trade integration. There are some notable improvements in the works in the region's infrastructure program, in particular the rail route from Addis Ababa to Djibouti, already under construction, and a standard gauge rail link from Mombasa to Malaba with a branch line to Kisumu apparently now cleared for construction with the signing of a deal between Kenya and China.³⁶ The EAC has ap-

proved the budget for the Eastern Africa Railway Authority which is to be responsible for repair and extension of the Eastern African rail network in the context of an overall master plan.³⁷

Finally, in terms of logistics, this remains probably the single biggest inhibitor of industrialization of any of the infrastructure problems. Eastern African ports generally underperform when compared to global competitors across a range of indicators (Table 11).

Moreover, the main ports at Mombasa and Dar es Salaam are grappling with capacity constraints, although congestion will be significantly alleviated in the case of Mombasa by the recent commissioning of a new berth facility that will expand handling capacity by 200,000 TEU. Coupled with inefficient import and export procedures, goods remain in port for relatively long periods, which minimizes the opportunities for participation in global production networks. The problems in ports are compounded by the problems of getting to port: transport to ports is inhibited by hold-ups at national borders and checkpoints along the road networks (African Development Bank 2013). Roadblocks, weigh stations and random police checks are pervasive in the region (World Bank 2011: 11).

Finally, a "hidden" cost of the problems that Eastern Africa faces in trade is that two-thirds of the containers shipped out of Eastern African ports are empty (Table 12) – these shipping costs must be covered by the cost of importing goods and exporting. Accordingly, improving export capabilities in Eastern Africa, by helping to balance container-based trade, would work to reduce trade costs both coming and going. This virtuous circle (improved export competitiveness driving down shipping prices and improving export competitiveness even more) would be a key factor in enabling Eastern Africa's participation in global value chains.

36 Mike Pflanz. "From Indian Ocean to Uganda: China will build Kenya's new rail line," *How Hwee Young/Reuters*, 20 August 2013.

37 CPCS Transcom. 2009. "East African Railways Master Plan: Final Report."



Table 11: Port Performance: Eastern Africa and Comparators

	Djibouti	Mombasa	Dar es Salaam	Eastern Africa	Southern Africa	West Africa	Global Best Practice
Container dwell time (days)	8	5	7	5 to 28	4 to 8	11 to 30	<7
Truck Processing Time (hours)	12	5	5	4 to 24	2 to 12	6 to 24	1
Containers per crane per hour	17	10	20	8 to 20	8 to 22	7 to 20	20 to 30
Container handling charge (US\$/TEU)	135	68	275	135-275	110-243	100-320	80-150
General cargo handling charge (US\$/tonne)	8	7	14	6 to 15	11 to 15	8 to 15	7 to 9

Source: African Development Bank. 2013. "State of Infrastructure in Eastern Africa," Economic Brief.

Table 12: Container Utilization, Mombasa and Dar es Salaam (%)

		2003	2004	2005	2006	2007	2008	2009
Mombasa	Full	78.0	91.0	94.1	86.3	101.3	102.9	95.8
	Empty	79.0	110.0	107.5	132.2	165.5	181.0	205.6
Dar es Salaam	Full	39.2	43.9	53.3	49.1	54.3	58.7	63.7
	Empty	38.4	49.8	59.8	68.8	81.0	95.7	106.0

Source: Nathan Assoc. 2011. Corridor Diagnostic Study of the Northern and Central Corridors of Eastern Africa.

7.1.3.3 Telecommunications

In terms of telecommunications, some of the study countries have among the highest costs and lowest penetration rates for fixed telephone line, mobile phones and especially Internet services in Africa (African Development Bank 2013). Penetration rates vary widely across the region (Table 13); however, even in the relatively advanced Seychelles, the Internet penetration rate is half the level of the advanced countries. That being said, the situation has improved over the past decade by orders of magnitude.

While mobile phone penetration is growing rapidly (notably, the region pioneered borderless mobile roaming, with free incoming calls and local tariffs), the region's overall access to telecommunication facilities (especially to the Internet) is very poor. This represents a major handicap for business, especially for the

evolution of networks of businesses operating in supply chains. Moreover, the quality of connections is often poor.

As the sector develops, increased supply can be expected to bring down costs. In Kenya, for example, the number of mobile phone operators has increased from one to four, which has led to a fall in costs.

However, even at the current level, the introduction of mobile phone service underpinned the success of the Ethiopian Commodity Exchange (ECX), the first such in Africa. The ECX is cell-phone driven and has expanded its reach to 2.4 million participants in four years; it now fields 1.2 million calls per month for price information which in turn spreads through local markets. Tanzania's economic reforms are credited for a remarkable im-

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Table 13: Internet and Cell Phone Users and Penetration Rates, Eastern Africa, 2012

	Internet Users	% Penetration	Rank	Cell Phone users	% Penetration
Seychelles	42,380	47.08%	92	138,272	153.61%
Kenya	13,805,311	32.10%	129	30,731,754	71.46%
Uganda	4,941,704	14.69%	156	16,356,387	48.62%
Tanzania	6,136,331	13.08%	161	27,219,283	58.02%
Rwanda	937,964	8.02%	177	5,690,751	48.66%
Ethiopia	1,352,259	1.48%	204	20,523,889	22.46%
Burundi	128,799	1.22%	208	2,247,126	21.29%

Source: International Telecommunications Union: Percentage of Persons Using the Internet

provement in quantity and quality of telephone services, although Internet remains a challenge.

7.1.3.4 Summary of Infrastructure

Overall, details aside, the low level of economic infrastructure services constitutes a major binding constraint on the development of manufacturing in the region, the Seychelles excepted. The very poor quality of housing and low levels of electrification represents another binding constraint from the demand side.

7.2. Comparative Advantage of Manufacturing in Eastern Africa

In a difficult business environment, comparative advantage emerges essentially on the basis of which type of activity is least inhibited by the omnipresent and multiple constraints. Generally speaking, the limited internal connectivity within Eastern Africa in terms of telecommunications and transportation combined with low levels of urbanization have tended to work against economic activity that relies on coordinating numerous inputs and agents in the production process (in the limit, this situation favours subsistence agriculture).

As these three constraints have been progressively reduced – and at an increasingly rapid pace over the course of the past decade – the ability of Eastern Africa to undertake more complex forms

of economic activity has risen exponentially. However, with trade integration, the region's comparative advantage is determined far more by the rest of the world than by its own endowments. The forces of comparative advantage thus work to channel Eastern Africa's productive energies towards exploitation of its agricultural and resource potential – a tendency that will be intensified powerfully by the discovery of significant reserves of oil and gas in the region.

Modern firm-level trade theory restates the idea of comparative advantage in terms of sectors where factor conditions create more intense competition and thus lead to the emergence of exceptionally competitive firms which then translate that advantage into dominant positions in international trade. As noted earlier, the most competitive firms also tend to become foreign investors. Accordingly, a signature of comparative advantage in a firm-level view of trade is the presence of domestically-based multinational firms. Eastern Africa's comparative disadvantage in manufactures is thus "revealed" much more reliably by the absence of regionally-based multinational manufacturers than by the conventional interpretations of the trade statistics based on broad definitions of what constitutes "manufacturing", as discussed above.

In a static analysis, economic theory indicates that, all else being equal, a country aligning its production with its comparative advantage maximizes its welfare. In a dynamic analysis, where learning by



doing and scale effects are taken into account, a policy designed to promote activities like manufacturing which feature these positive externalities can, however, lead to higher longer-term growth. This is the essential message of the resource curse literature and the basic premise of any manufacturing promotion policy for the region.

Among the study countries, the economy most powerfully shaped by comparative advantage is the Seychelles where the fisheries and tourism dominate economic activity. The emergence of off-shore financial services would only further intensify the already rather extreme comparative disadvantage to manufacturing. However, even in the Seychelles, there is room for a viable manufacturing sector. Moreover, the benefits of diversification and of more varied employment opportunities for the inevitably heterogeneous labour pool would reward policy that leans against comparative advantage in order to create space for manufacturing activity. In the larger study economies, these effects are less easily discerned but the basic point nonetheless applies with equal validity. This is in fact the basis for the “new” industrial policy that is presently taking shape.³⁸

Bearing these considerations in mind, as the various binding constraints on economic activity are sidelined in Eastern Africa, its underlying strengths will emerge. Importantly, these strengths will be expressed in the form of enterprises that pull together sufficient firm-specific knowledge and other assets to become leading players on the global stage in specific fields. This phenomenon is now being observed in China where two decades of industrial development have now nurtured the emergence of globally known firms such as Haier (appliances), Lenovo (computers), Huawei (smartphones), and Geely (autos). In some cases, these firms are overcoming China’s liability in terms of brand recognition (suspect quality) by acquiring foreign firms (e.g., Lenovo taking over IBM’s personal computer business) and in other cases are promoting their own name (Huawei). What is important for Africa’s policymakers is to be aware that theory cannot predict which firms in which specific sector will emerge as Eastern Africa’s future brand names. There is accordingly an important element of “horizontality” to be

observed in promoting manufacturing (i.e., allowing competitive markets to identify the “winners”), even as manufacturing as an activity is promoted.

To summarize, given the presence of prohibitive conditions to the development of manufacturing in Eastern Africa, its ultimate structure of comparative advantage can hardly be discerned from the existing structure of economic activity. In the short term, however, the pattern of revealed comparative advantage (which features fairly simple manufactured products such as textiles and clothing, leather products and resource-based manufactures) represents a reasonable starting point for policy in terms of sectoral focus, while the main thrust of policy continues to be aimed at alleviating the binding constraints in terms of operating conditions and infrastructure and logistics deficiencies.

7.3. SWOT Analysis of Key Manufacturing Sub-Sectors in Eastern Africa

We identify seven sub-sectors (Table 14) that are more or less common across the region, focussing on the more general features of the strengths/weaknesses/opportunities/threats that apply region-wide. We classify the selected niches according to the taxonomy of manufacturing sub-sectors proposed earlier (section 2.2), namely:

- a. **Technology innovation for global markets** (e.g., computers, office machinery, semiconductors and electronics, and medical, precision, and optical equipment);
- b. **Global innovation for local markets** (e.g., chemicals and pharmaceuticals, transport equipment and automotive, machinery, electrical equipment, and appliances);
- c. **Resource-based commodities** (e.g., wood products, pulp & paper, basic metals, minerals-based products);
- d. **Regional processing** (e.g., printing & publishing, food processing & beverages, fabricated metals, and rubber & plastics);

38 See, e.g., the World Bank’s “New Industrial and Innovation Policy”: <http://go.worldbank.org/AM6Y15CT00>.

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Table 14: Study Country Manufacturing Sub-sectors Selected for Detailed Analysis

Sub-sector	Sub-sector category
Agro-processing	4 - Regional Processing
Textiles and Clothing	5 - Labour-intensive tradable goods
Leather and Leather Products	5 - Labour-intensive tradable goods
Wood Products	3 - Resource-based commodities
Niche Pharmaceuticals	6 - Local processing of unique local resources for global markets
Industrial materials	3 - Resource-based commodities
Assembly of Advanced Products	2 - Global innovation for local markets

- e. **Labour-intensive tradable goods** (e.g., textiles & apparel, leather, furniture, jewellery, toys and other miscellaneous manufactures); and
- f. **Local processing of unique local resources for global markets** (e.g., pharmaceuticals, biotechnology products).

The selected sub-sectors are clustered in categories 3 to 5, which have regional anchors in terms of the demand or the underlying resource inputs. Neither category is a strategic focus in the major economies; and, as assessed in Dinh et al. (2012), Africa has a competitive advantage in many of these sub-sectors already.

7.3.1 Agro-processing

In the short-term, agro-processing to produce food and beverage products represents an essential element in the process of developing an expanded manufacturing capability given the availability of the raw material and the semi-skilled nature of the labour force requirements. It also has scope for growth in value addition in terms of higher quality food preparations and branding.

7.3.2 Textiles and Clothing

Textiles and clothing has been a basic “starter” sector for industrializing countries in East Asia and can serve the same role in Eastern Africa as East Asia starts to shed some of this activity as it moves up the value chain. The sector is labour-intensive and so can

provide strong job-creation benefits; moreover, it has scope for innovation in terms of both fashion and development of industrial textiles. The World Bank’s study on light manufacturing in Africa (Dinh et al. 2012) has scoped out the possibility for very substantial expansion of this activity in the region with well-rehearsed reforms.

7.3.3 Leather and Leather Products

The mainland study economies have the basic necessary requirements for a thriving leather goods industry. The rapid expansion of the livestock sector provides the basis for a large supply of hides and skins which are highly regarded for their quality characteristics. The major weaknesses that have limited the development of a regional leather goods industry have well-understood solutions.

7.3.4 Wood Products

Eastern Africa has the wood resources to develop a thriving furniture and building products industry targeted at the regional market itself (due to the high weight-to-value ratio of wood products which drive regionalization of the sector). Yet the region features a high ratio of imported wood products.

7.3.5 Niche Pharmaceuticals

Africa has the highest disease burden of any continent but by far the lowest level of available medicines. The continent has a rich biological basis, over 80% of which not been subjected to standard scientific evaluation (Berger et al. 2010). Given that 67%



SWOT Analysis of Agro-Processing in Eastern Africa (category 4)

Strengths:

- Strong comparative advantage in land-based production, including for animal husbandry, generates raw materials for processing
- Large rural labour force with agricultural background to draw on for basic semi-skilled processing tasks
- Low cost labour
- Favourable conditions for year-round production
- Variation in climatic conditions by altitude results in a rich variety of agricultural products including
- Proven successes in removing barriers to exports (e.g., cut flowers) serve as demonstration projects

Opportunities:

- Untapped potential for improved returns from branding
- Rich biological base for biotech development
- Great scope for land productivity growth moving from subsistence agriculture to commercial farms and expanding utilization of arable land
- Rapid urbanization and rising real incomes in the region drive regional demand

Weaknesses:

- **Binding Constraint: under-developed local input availability, which forces reliance on imported inputs, raising costs through the supply chain**
- Under-developed rural infrastructure (transportation and storage, electrification, and telecommunications)
- Low level of technology in the agricultural base
- Under-developed linkages with technical institutes (e.g., agro-focused clusters linked to universities)
- Under-developed market framework, including for compliance with SPS requirements in export markets, commodities exchanges, financing techniques suited for agriculture (e.g., cattle as collateral), etc.
- High cost of regulatory compliance due to limited business process capabilities and public administration inefficiency

Threats:

- Drought risk due to dependence on rain-fed agriculture raises risks for raw material supply
- Expansion of commercial farming to provide feedstock raises environmental issues as well as social conflict over traditional land and water rights
- Climate change raises risks for longer-term location of processing plants

of new medicines introduced worldwide from 1981 to 2002 were derived from natural sources, the region has a largely unexplored potential resource base to both develop manufacturing activity and to simultaneously generate major positive externalities for the region's health care systems. Recognizing this, the African Union Commission together with UNIDO have developed a "Pharmaceutical Manufacturing Plan for Africa" (African Union 2007), the EAC has adopted a Regional Pharmaceutical Manufacturing Plan of Action, Ethiopia has identified the pharmaceutical sector as a priority area; the Seychelles has opportunities in this sector using its essential oils as a basic input to higher-value added pharma-

ceutical products. While the main target of the research would be Africa-specific diseases, the research would generate export capability worldwide.

7.3.6 Industrial materials

The construction materials sector has been growing rapidly due to induced demand from infrastructure development and urbanization. This includes a diverse set of products, including ceramics (bricks, tiles and blocks), cement, structural steel products, basic hardware (wire, nails, etc.), and various chemical-based industrial products. Eastern Africa's mineral wealth is only now being discovered due

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SWOT Analysis of Textiles and Clothing in Eastern Africa (category 5)

Strengths:

- Strong comparative advantage in land-based production of raw materials (e.g., cotton)
- Plentiful, cheap unskilled and semi-skilled labour
- Duty free, quota free market access in the EU and the United States

Weaknesses:

- **Binding Constraint: slow and costly trade logistics which undermine labour cost advantages**
- Weak market institutions (export financing etc.)
- Weak supply chain integration
- Low level of technology
- Under-developed linkages with technical institutes for research and innovation support

Opportunities:

- Increasing costs in competing developing countries, notably China.

Threats:

- Cotton production is rain-fed and raw material supply is thus susceptible to drought
- Climate change

to systematic surveying and prospecting. Except for cement and clay products Eastern Africa largely relies on imported industrial materials at high prices due to transportation costs.

With Eastern Africa currently experiencing a mining boom – e.g., commercial scale rare earth mineral deposits (niobium) were confirmed in mid-2013 at Mrima Hill, Kenya;³⁹ Uganda has suspected large iron ore deposits that have yet to be properly surveyed etc. – the basis for downstream manufacturing of industrial (and agricultural in the case of phosphates) inputs is being established.

The region lacks established industrial capabilities however – for example, Ethiopia decided to shut down its tantalum mine in 2013 because of the problems its state-owned company was experiencing with a build-up of radioactivity. Tantalum is an irreplaceable element used in the production of cell phones and computers, and

a prime enabler of miniaturization of electronics. Ethiopia supplies about one-sixth of the global market, evidence of the leverage it has in ultimately managing the resource to maximize benefits for the country.

7.3.7 Assembly of advanced products for regional markets

One cause of the new-found attraction of Africa to multinational firms is the emergence of a middle class consumer society as incomes rise. The demand for advanced consumer goods makes feasible the location of plants within the region to service the regional market. This type of manufacturing activity is in its early days in the region but both automobile and cell phone assembly based on imported parts has been established in the region. The scope for building supply chain linkages is thus starting to emerge as well.

39 Mrima Hill was surveyed as far back as 1955



SWOT Analysis of Leather and Leather Products in Eastern Africa (category 5)

Strengths:

- Strong comparative advantage in land-based production of raw material: animal hides
- Regional hides and skins have good quality reputation for up-scale leather products
- Plentiful, cheap unskilled and semi-skilled labour
- Duty free, quota free market access in the EU and the United States

Weaknesses:

- **Binding Constraint: input supply of high quality hides and skins**
- Lack of training in hide preparation leads to high spoilage rates
- Slow and costly trade logistics, including on imports of basic industrial chemicals for tanneries, which undermine labour cost advantages
- Under-developed linkages with technical institutes for research and innovation support to improve livestock on the input side and design and technical skills on the processing and product developing side

Opportunities:

- Ectoparasites – a disease that damages a significant percentage of regional hides – can be controlled by a modest program costing less than USD 10 million/year (World Bank, 2012), substantially expanding the supply of quality hides and skins
- Most hides and skins are exported unprocessed; hence a major opportunity for expansion of regional value addition both for local markets (displacing imports) and for export

Threats:

- Change in land-use patterns with the expansion of commercial livestock
- Livestock husbandry is based on rain-fed pasture and so raw material supply is thus susceptible to drought
- Climate change

SWOT Analysis of Wood Products in Eastern Africa (category 3)

Strengths:

- Strong comparative advantage in land-based production of raw material: timber
- Plentiful, cheap unskilled and semi-skilled labour
- Duty free, quota free market access in the EU and the United States

Weaknesses:

- **Binding Constraint: low, inconsistent and poorly organized input supply forces reliance on high-cost imports**
- Low-scale, low-technology, artisanal market structure

Opportunities:

- Significant scope for import replacement in a rapidly urbanizing region

Threats:

- Unsustainable forestry practices

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SWOT Analysis of Niche Pharmaceuticals Manufacturing in Eastern Africa (category 6)

Strengths:

- Comparative advantage in pharmaceutical innovation, development and production based on African Traditional Medicine and the continent's rich biodiversity as basic inputs
- Rich complementary resource base for pharmaceutical inputs (e.g., essential oils)

Weaknesses:

- **Binding Constraint: narrow institutional base for research and development**
- Limited availability of skilled researchers
- Unreliable supporting infrastructure (including electricity, water, transport and ICT)
- Inadequate regulatory and oversight capacity
- Reliance on imported capital goods and inputs
- Perverse trade incentives (reverse tariff escalation): no tariffs on essential medicines but high tariffs on pharmaceutical inputs

Opportunities:

- Significant range of tropical diseases have been neglected by the multinational pharmaceutical companies leaving market niches to be developed
- Significant scope for scale production to meet African needs, displacing expensive imports
- Funding support from global initiatives to support research into neglected diseases
- Scope to use TRIPs flexibilities to manufacture local generics

Threats:

- Donor-funded programs favour imported medicines
- Biodiversity decline due to unsustainable exploitation of natural resource base and climate change
- Emigration of highly skilled researchers ("brain drain")
- Rent-seeking oligopolistic market dynamics in the global pharmaceutical industry



SWOT Analysis of Industrial Material Manufacturing in Eastern Africa (category 3)

Strengths:

- Low value-to-weight ratios provides scope for competitive production of mineral-based products
- An apparently rich mineral base is only now being discovered creating the prospects for a joint mining and downstream manufacturing boom

Opportunities:

- Eastern Africa's infrastructure and urbanization boom provides strong demand
- Rare earth minerals provide a base for entry into advanced products

Weaknesses:

- **Binding Constraint: few firms have established capabilities in developing industrial products – FDI would likely be needed**
- Energy intensity of production requires stable low-cost energy supply

Threats:

- Global over-capacity in steel and other industrial products
- Environmental damage from mining and manufacturing (e.g., tantalum-related radioactivity in Ethiopia)

SWOT Analysis of Assembly of Advanced Products in Eastern Africa (category 2)

Strengths:

- Low cost, trainable labour force provides a basis for competitive local assembly
- Eastern Africa common market will eventually have the size to allow the exploitation of economies of scale

Opportunities:

- Emerging middle class is creating sufficient demand to warrant local assembly

Weaknesses:

- **Binding Constraint: regional firms have not established capabilities – activity depends on FDI**
- Absence of supply chain linkages limits the multiplier effects

Threats:

- Failure to develop regional standards and/or to conclude the single market in the region
- EPAs between EU and EAC are likely to affect local manufacturing industry

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Manufacturing plays a key role in socioeconomic transformation and development



PART 3: CONCLUSIONS AND POLICY RECOMMENDATIONS: HARNESSING OPPORTUNITIES AND EASING THE CONSTRAINTS TO MANUFACTURING IN EASTERN AFRICA

8.0 CONCLUSIONS

Manufacturing plays a key role in socioeconomic transformation and development. The limited role that manufacturing currently plays in Eastern Africa is therefore a potential source of concern for policy makers and their development partners. The contribution of manufacturing to GDP and employment is small in the region, diversification is limited, and the level of technological development is low: much of the activity still consists of minimal processing of agricultural and mineral resources.

Policy frameworks in the study countries are generally well-aligned to achieving policy goals in terms of expanding manufacturing. While a number of problems were identified in execution, some positive developments can also be noted in this respect, e.g. in the area of trade corridor efficiency. Also, the study countries have a competitive advantage in several manufacturing sub-sectors: Agro-processing and textiles and clothing represent essential short-term “starter” sectors for industrialization; both are labour-intensive which is important in terms of providing jobs for an urbanizing population. The leather and wood products sectors have regional sources of raw material inputs and the inhibiting factors are well-understood and should be treatable. Niche pharmaceuticals represent a potentially highly important niche. In industrial materials, Africa has the resources but relies heavily on imported inputs due to lack of domestic capabilities to transform the resources into industrial inputs. Given the construction boom in the region, there is considerable scope to scale up industry in this sector.

Finally, the rapid urbanization and the emergence of middle class is making the region increasingly attractive for manufacturing activity that consists of assembly of advanced products for regional markets. This type of manufacturing activity is in its early days in the region but both automobile and cell phone assembly based on imported parts has been established in the region. The scope for building supply chain linkages is thus starting to emerge as well.

To capitalize on this potential, the study countries need to address multiple binding constraints in the legal and regulatory operating environment that manufacturing firms face, and in the infrastructure and logistics services on which they depend. This points to the need for a continued push on a horizontal policy agenda. This is admittedly a difficult and costly programme; accordingly, it will be important to prioritize those horizontal elements that represent the immediate binding constraints on the development of manufacturing for at least some sectors.

The horizontal policy agenda needs to be complemented by sectoral policies. While these are typically country-specific, a few generalizations can be made. First, a trouble-shooting approach may help work through the problems of specific sectors. Second, promoting the emergence of larger firms that have the capacity to enter export markets is recommended; but government should avoid creating monopolies. Successful government strategies to promote industrial development include government procurement (government as “launch customer”) and direct engagement in areas where there are

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significant public good characteristics; subsidies to corporations generally should be avoided. Finally, the acquisition of selected manufacturing firms for re-settlement in industrial parks in Eastern Africa would introduce advanced techniques, machinery and equipment and to some extent supplier and customer connections.

A significant share of global manufacturing activity can be gained by Eastern Africa with focussed and determined policy interventions. The results would represent a major boost to the region's development.

Since detailed policy recommendations and action plans are addressed primarily in the country reports which consider actionable steps that can be taken by the countries in the region, the following sections present a limited number of generalizable horizontal and sectoral policy recommendations. For more detailed recommendations and proposed action plans we refer to the individual country reports. In addition, further specific action plans for the implementation of recommendations are prepared separately for discussions with RECs, governments and donors.

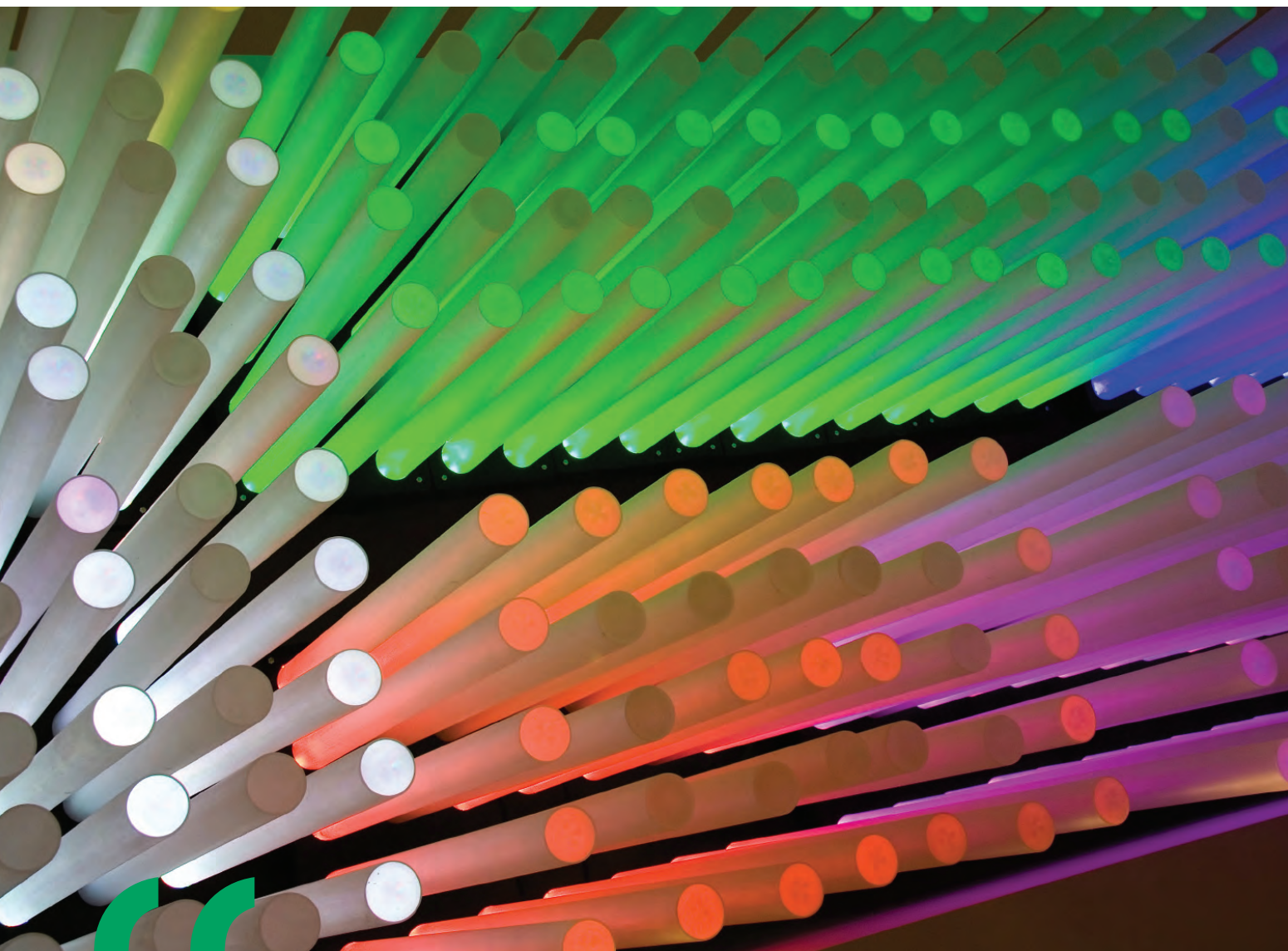


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Regional integration
**promises to be a positive
factor for manufacturing**



9.0 POLICY RECOMMENDATIONS

As the above SWOT analysis of manufacturing in Eastern Africa shows, there are ample and varied opportunities to develop both light and heavy manufacturing, including establishing a foothold in some more advanced activities such as pharmaceuticals and assembly of advanced products.

The analysis also underscores the presence of multiple binding constraints in the legal and regulatory operating environment that manufacturing firms face, and in the infrastructure and logistics services on which they depend. This points to the need for a continued push on a horizontal policy agenda. This is admittedly a difficult and costly program; accordingly, it will be important to prioritize those horizontal elements that represent the immediate binding constraints on the development of manufacturing for at least some sectors.

Regional integration promises to be a positive factor for manufacturing in several regards: (a) the creation of a large single market will serve to attract FDI and economies of scale for regional producers that graduate to becoming regional exporters; (b) regional governance will facilitate the emergence of competent regional regulatory authorities in areas such as standards, drawing on the best talent within the entire region; and (c) as private sector development accelerates, and as firms capable of organizing supply chains emerge, regional value chain integration will start to become a driver of growth. That being said, a number of considerations argue for a combined strategy of focusing initially on global value chain participation to overcome the various problems that the region appears to have encountered in its regional integration strategy: the limited role of the region in producing complex products and missing regional markets; the paucity of regional firms with the capacity to organize and manage fragmented production chains; the limited scope for

knowledge spillovers across value chains within the region due to the limitations of the technological capacity of the leading firms; and the adverse impact on the global competitiveness of firms relying on higher-cost regional inputs where regional sourcing is induced by high tariffs against third parties.

The developmental experience of Eastern Africa and East Asia in particular underscores the importance of avoiding unsettling extreme swings in policy – whether nationalization of industry or complete withdrawal of the state from economic activity. Successful models appear to feature vibrant private sectors but also active participation of the state to fill gaps where necessary – and the state's withdrawal as the private sector develops the necessary capabilities. Clearly, at this stage of understanding of the economics of development, striking the right balance is as much art as science.

9.1. Macroeconomic Policies to Support Manufacturing

The Asian model has several characteristic features of particular importance:

- export orientation (which sidesteps the problem of lack of demand in the domestic economy, especially for more sophisticated products which help develop industrial skills);
- high savings rates (which provided the capital to allow non-debt-generating economic expansion); and
- real price stability, anchored by a relationship to the main trading partner (in Asia's case to the United States).

These features emerge endogenously under particular monetary conditions: namely, a competitive (not necessarily under-valued but definitely not over-valued exchange rate¹), exchange rate stability vis-à-vis the main trading partner; and positive real

1 See in this regard John Williamson's (2004) commentary on the features of the Washington Consensus, a framework distilled largely from East Asia's experience and which emphasized maintaining a competitive exchange rate.

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interest rates (which, inter alia, pre-dispose businesses to hire workers rather than intensify capital usage).

Most Eastern African countries will face a growing challenge of maintaining monetary conditions conducive to sustained manufacturing development as a result of FDI inflows related to oil and gas discoveries – and eventually the resource revenues themselves.

Recommendation 1

As a primary pillar of a manufacturing policy, it is recommended that Eastern African economies adopt a policy of maintaining a competitive exchange rate and positive real interest rates to induce the savings required to finance growth. Eastern African study countries need to lean hard against the tendency for manufacturing to be crowded out by the resource sector.

Given the plans to move towards currency union within the EAC group of countries, an early move to align exchange rates within the region in line with costs, and to guide the regional exchange rate towards a competitive level for the region as a whole should be a first priority.

9.2. Development of a Competitive Business Environment for Manufacturing

Although Rwanda and the Seychelles have achieved tolerably efficient business framework conditions, the other five regional economies lag far behind. Domestic reforms in these countries to improve the business environment are therefore required.

Recommendation 2

Recognizing the importance of establishing scalable formal enterprises, Eastern African countries should prioritise reforms that remove barriers for formal start-ups.

Furthermore, building on the success demonstrated in sidelining binding constraints in the cut flower sector, Eastern African countries should systematically troubleshoot the inhibiting factors in other priority sectors.

9.3. Leveraging Foreign Direct Investment

Our reading of the history of East Asia's experience in terms of relevance for Eastern Africa is that the strongest parallels in circumstances are between Southeast Asia and Eastern Africa. The Southeast Asian "Miracle" growth surge was closely associated with outward Japanese FDI aimed at outsourcing labour intensive production due to the yen's post-Plaza appreciation. Such a windfall is unlikely to materialize for Eastern Africa in the foreseeable future, particularly in view of the counter-currents that are now being seen to consolidating value chains to minimize risks.

Recommendation 3

FDI is an important part of the development puzzle for Eastern Africa in view of the parallels with Southeast Asia. At the same time, a comparison of China's approach to capitalizing on FDI inflows to Southeast Asia's approach would seem to be warranted given China's greater success in translating FDI into domestic technological advance.

9.4. Investment in Infrastructure

Sustained investment is required to develop energy, transportation (over and above the three main trade corridors) and telecommunications facilities in the region to enable widespread manufacturing activity to become viable. Regional coordination in transportation and energy infrastructure is essential.

Recommendation 4

Specifically, we recommend the following:

- **Inefficiencies in the existing electricity grid should be minimized by expeditiously entering into a regional energy trade agreement.**



- The Addis Ababa-Djibouti corridor improvements, and the deal between Kenya to China to construct a modern standard gauge rail link on the Northern Corridor to Uganda need to be complemented by heavy duty rail link on the Central Corridor. The still more ambitious plans for the Eastern Africa Rail network need to be moved forward expeditiously.
- The installation of world-class telecommunications facilities in the main industrial centres should be a leading priority.

9.5. Improvements in Trade Logistics

While the Seychelles has no particular challenges in terms of trade logistics, the mainland study countries depend heavily on three major ports – Djibouti, Mombasa and Dar es Salaam – and the associated three major (road) corridors. At present, trade flows moving along these corridors predominantly or exclusively use roads which are often congested and in poor condition, are subject to multiple checks at roadblocks and borders and face long dwell times in port.

Shifting the major part of freight movement from road to rail would substantially reduce costs given the relative efficiency of rail over road for long distance haulage and would also sidestep the problems of roadblocks and border checks given suitable customs arrangements. National concerns about security would be alleviated by the non-stop movement of trains from one customs-controlled dry port to another.

The need for these measures has long been acknowledged in response to multiple studies of transportation and trade logistics in the region which have made these points.

Recommendation 5

Regional transit agreements and modern risk-based customs procedures need to be implemented to eliminate delays and costs in the logistics chain in intra-regional transit.

9.6. Further Development of Special Economic Zones and Cluster Policies

While removing the roadblocks to development posed by inadequate infrastructure and poor business operating conditions for the entire region is an enormous task that will take a decade and perhaps more to achieve, oases of suitable conditions can be achieved for industrial parks established as special economic zones which are appropriately serviced and where streamlined rules are applied – with allowance for experimentation to discover what actually works in an Eastern African context.

Recommendation 6

We recommend emphasizing the development of industrial parks as special economic zones with flexibility for autonomy in rulemaking to facilitate discovery of what works.

A key feature of such zones would be the designation of resident firms as authorized economic operators (AEOs) for customs purposes to streamline customs procedures for both imports and exports.

Recruiting multinational firms to establish a presence in these parks and clustering university-linked research institutes (supported by public funding), branches of engineering schools, and vocational training facilities around these industrial parks would stimulate the development of the region's knowledge base by encouraging knowledge spillovers (i.e., technology adoption). As well, this close proximity of learning institutions to industrial activity would help guide the formulation of educational curricula suited to industrial requirements.

The provision of public support for industry should focus on “in kind” support rather than financial incentives which have generally failed to achieve objectives while creating tax leakage, generating large

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deadweight administrative costs of monitoring the use of public funds by private corporations, and creating an environment for corruption. An example of the in kind support we envisage could consist of specific research undertaken by publicly funded research institutes to address specific problems encountered by firms.

9.7. Improvements in Finance Infrastructure for Manufacturing

The ease of access to debt and equity financing varies widely across the region. However, investment capital for start-ups or business expansion is very limited and credit mechanisms based on varied types of collateral need to be developed to address the issues facing particular sectors.

One such area is in supply chain financing, where small suppliers participating in value chains sponsored by larger manufacturers are provided working capital by export credit agencies based on the creditworthiness of the supply chain organizer and the contractual commitments of the latter. An effective export credit financing system that supports the supply chain of export-oriented production helps to develop backward linkages within the economy, promotes enterprise development by enabling small firms to graduate into larger size classifications by providing working capital based on the receivables of the larger, creditworthy buyers, and improves export competitiveness in a WTO-compatible way.

There is also a need to increase funding and increase the role of Development Finance Institutions (DFIs) for lending especially to support the graduation of successful SMEs into larger size categories and for the start-up of new firms to increase competition in domestic markets.

Recommendation 7

The study countries should apply a “troubleshooting” approach to determine and address the factors in

the financial framework that inhibit capital supply for operations and expansion. Problems in each country will tend to be particular to that country. Mobilizing savings from the poor and policy reforms, as well as an increased role of Development Finance Institutions, to make informal “unbankable” companies bankable (including more flexible collateralization rules), would help convert informal sector companies into scalable formal one. Credit mechanisms based on varied types of collateral need to be developed to address the issues facing particular sectors. An effective export credit financing system is needed.

9.8. Sectoral Policy Recommendations

Given the examples mentioned in this study where sector-specific approaches have facilitated rapid development of new sectors, the horizontal approach needs to be accompanied by sector-specific strategies. The individual country reports provide detailed proposals for the individual sectors in the individual countries; given the inherently specific nature of problems, only a few useful generalizations can be made in this regional synthesis report.

9.8.1 Need for a Pragmatic Approach to Identify and Eliminate Binding Constraints

The example of the rapid development of the cut flower industry serves as a useful role model for sectoral policies in terms of identifying and eliminating binding constraints along the entire chain of production events and stages to enable a specific activity to succeed.

A good example of an issue that appears at first blush to be reasonably straightforward, not excessively expensive, and that removes a binding constraint for an important sector is that of ectoparasitic damage to animal hides. The World Bank argues that a USD 20 million expenditure per annum would bring this problem under control. The result would be a quantum increase in the supply of raw hides and skins to the leather processing sector.



Recommendation 8

The region might consider establishing a small trouble-shooting office, with a multi-disciplinary staff, to work through the problems of specific sectors, starting with roadmaps such as are provided in the present study but which require further elaboration to be applied in the field. The proposed office would engineer the business processes that would resolve the problem and apply the solution in pilot trials to demonstrate proof of concept.

9.8.2 Facilitation of Scalable Firms in Selected Manufacturing Sub-sectors

It is important that the region foster the emergence of firms capable of operating at significant scale and exporting. At the same time, state interventions should strike a balance between promoting consolidation of fragmented industries and promoting competition. A major reason for the failure of industrial policies in the past was that state interventions often involved nationalization of an entire industry and thus the creation of a monopoly – for example, Britain’s early postwar approach to industrial policy. Japan’s early “developmental state” success by contrast was achieved in a context where the government promoted “orderly” competition. As noted above, while government-sanctioned industry cartels covered some 43% of Japanese manufacturing in the 1960s (Weinstein 1995), Japan did not eliminate competition and in fact in most industries the major *keiretsu* were in fierce rivalry with one another.

Applying these lessons of history in the Eastern African environment, Ethiopia’s recent nationalization of its logistics industry follows the less successful British model of the 1950s-1960s rather than the more successful Japanese model of the same era.

Recommendation 9

The successful model for manufacturing development is a mixed model, which embraces both private sector and state involvement in the economy. The division of

labour is based on the characteristics of goods and activities and is thus naturally complementary, with the state engaging to provide public goods, to promote activities with positive externalities, and to make investments that feature risk-return profiles that private capital will not embrace. Success can be achieved in a context where the government promotes “orderly” competition – consolidation yes, but monopoly no.

9.8.3 Public Procurement in Support of Selected Manufacturing Sub-sectors

Recommendation 10

In considering interventions to promote specific activities, governments should consider first the scope to use government procurement to provide assured demand to competing private sector suppliers (government as “launch customer”), and direct engagement through state-owned corporations that enter niches which the private sector is not serving. This avoids handing out subsidies to firms while stimulating private sector activity in a competitive environment.

9.8.4 Acquisition and Relocation of Firms

Perhaps most provocatively, we put forward the suggestion that governments in the region consider the “buy” alternative to “build” (in terms of developing home-grown capabilities) or “borrow” (in terms of encouraging inward FDI) in acquiring technology. The Rwanda country report develops this idea. We summarize the key points below.

Without a doubt, the defining characteristic of the transcendentally successful developing countries in Northeast Asia in terms of *rapidity* of development was the singular focus on technology acquisition. Both Japan in the Meiji Restoration period and China in its “opening up” phase post 1978 placed an over-riding emphasis on catching up to the technology that geopolitical rivals possessed. They approached the problem in different ways, given the differences in initial conditions: Japan studied and copied technology developed in the industrial-

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izing West; China invited in foreign firms to invest and transfer technology. A third option that is open to Eastern Africa is to buy firms that own and apply technology.

Every year, tens of thousands of manufacturing firms go bankrupt in advanced countries. Plants are shuttered or sold. These firms possess firm-specific knowledge and embody established technology. The problems they face may reflect technological obsolescence in competing for advanced country markets or simply labour cost or exchange rate conditions that have emerged in their home country. The acquisition of a handful of these firms for re-settlement in industrial parks in Eastern Africa should be considered. This should be complemented with a mentoring role for the firms' managerial and senior technical staff and partnership agreements with local Eastern African firms in the same industry. Such relocation of firms would introduce advanced techniques, their machines and to some extent their supplier and customer connections. At a minimum, the transplanted firms would provide an opportunity for training and learning. Examples of this approach are the relocations of the motorbike producer "Zündapp" and the coking plant "Kaiserstuhl" from Germany to China.

Note that this approach stands the conventional wisdom ("governments can't pick winners") on its head: China did not set out to pick winners but deliberately bought "losers" – although importantly they were not losers of their own fault but of policy decisions and a changing macroeconomic development. Implicitly, China applied a very different but equally valid market principle of "buy low, sell high". Firms, of course, use the acquisition approach for rapid expansion and rounding out of the range of their product offerings all the time – including by acquiring troubled firms that come on the market with interesting technology but failed business models. That is what we have in mind.

Operationally, governments would establish industrial holding companies (of which there are many in the history of development in the advanced countries, not to mention models such as Singapore's Temasek), which acquire industrial assets, partner them with local firms, and eventually privatize and use the proceeds to repeat the process and seed another industry.

What is industrial wreckage in the advanced countries could become industrial gold in Eastern Africa.

Recommendation 11

The acquisition of selected manufacturing firms for re-settlement in industrial parks in Eastern Africa should be considered, complemented with a mentoring role for the firms' managerial and senior technical staff and partnership agreements with local Eastern African firms in the same industry. Such relocation of firms would introduce advanced techniques, their machines and to some extent their supplier and customer connections. We suggest an experimental approach in which the firms for acquisition should:

- have failed largely for macroeconomic reasons (e.g., labour costs or currency over-valuation);
- embody a relatively high level of technology and possibly possess proprietary technology;
- operate in sectors with backward and forward linkages to Eastern African supply chains; and
- supply goods that are in growing demand in Eastern Africa, providing the firm the opportunity to profit from its geographical transplant.

An approach along these lines could serve to generate quantum leaps in technological capability – including in basic industries such as agricultural processing (e.g., dairy) where Eastern African technology lags well established global standards.



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ANNEXES

ANNEX A: MANUFACTURING POLICY PROPOSALS AND POLICIES IN SELECTED ADVANCED AND BRICS COUNTRIES

European Union: The European Commission has tabled proposals, in *A Stronger European Industry for Growth and Economic Recovery* (EC 2012), to reverse the de-industrialisation of Europe and to expand the share of industry in EU GDP from 16.3% to 20%. The Commission argues that “[s]everal new technology areas are converging to lay the foundation of the new industrial revolution based on green energy, clean transport, new production methods, novel materials and smart communication systems. These will change the global industrial landscape and our competitors in the U.S. and Asia are investing heavily in these areas. Europe needs new industrial investment at the time when lack of confidence, market uncertainty, financing problems and skills shortages are holding it back.” Six Commission sectoral task forces have been formed:

- Advanced Manufacturing Technologies for Clean Production;
- Markets for Key Enabling Technologies;
- Bio-based product markets;
- Sustainable industrial policy, construction and raw materials;
- Clean vehicles and vessels; and
- Smart grids.

Within the EU, the Member States also follow their own industrial policies, typically framed in cluster-support, innovation-system terms. Some examples are:

- **Germany** focuses on promoting clusters. To avoid sectoral targeting (“picking winners”), it has structured a cluster competition, with winning clusters receiving EUR 40 million of support.

- The **United Kingdom** has signalled interest in advanced manufacturing (including aerospace, automotive and life sciences), in addition to knowledge-intensive traded services and enabling sectors, such as energy and construction.
- **France** has cluster-oriented policies (“pôles de compétitivité”) and a programme to support innovation in future technologies, including an Industrial Innovation Agency to provide expertise to determine future technological trends worth supporting; risk-sharing public-private partnership programmes funded in the amount of EUR 30-50 M a year; and a EUR 35 B “Grand Loan” scheme to support research infrastructure, focused on priority sectors including digital economy, nano and bio-technology, renewables and low-carbon vehicles.
- **Netherlands** has a *Top Sectors* initiative driven by the new Ministry of Economic Affairs, Agriculture and Innovation which is responsible for developing a cohesive policy agenda for nine sectors in which the government believes the Netherlands excels: water, food, horticulture, high tech, life sciences, chemicals, energy, logistics and creative industries.
- **Finland** has enjoyed considerable success through a long-standing emphasis on technology policy aiming at increasing the productivity of manufacturing and diversifying away from forestry products towards advanced machinery and electronics. This is supported by an educational system focused on equality of opportunity for education, not excellence, which has attracted international attention due to its success.

United States: The President’s Council of Advisors on Science And Technology has tabled *Capturing Domestic Competitive Advantage in Advanced Manufacturing* (PCAST 2012), which urges the government to “establish a national network of manufacturing innovation institutes [... invest] in community college training of the advanced manufacturing workforce; [...] evaluate platform manufacturing technologies for collaborative investment; [...] reinvigorate the image of manufacturing in America; and [...] introduce] trade, tax, regulatory, and energy policies that would



level the global playing field for domestic manufacturers.” The Obama Administration has established the Advanced Manufacturing Partnership, Advanced Manufacturing National Program Office (AMNPO), Advanced Manufacturing Technology Consortia program, National Robotics Initiative, and Materials Genome Initiative. Although Congress has blocked the proposed creation of a National Network for Manufacturing Innovation (NNMI), the Administration used the Department of Defence’s existing authorities and FY2012 regular appropriations to launch a pilot institute, the National Additive Manufacturing Innovation Institute, and plans to establish three additional manufacturing institutes in FY2013 using existing authorities and appropriations, two by the Department of Defence (DOD) and one by the Department of Energy (DOE), to get around Congressional resistance.

China has targeted a number of Strategic Emerging Industries (SEIs) in its current (12th) Five-Year Plan, including:

- energy-efficient and environmental technology (including a focus on recycling);
- next generation ICT equipment, including: core electronics such as integrated circuits, displays etc. for next generation Internet (this SEI also targets convergence of telecom, broadcasting and Internet networks and cloud computing; and the development of digital and virtual technologies for creative industries);
- biotechnology (including bio-pharmaceuticals, medical equipment; genetically modified foods, and marine biology technologies);
- high-end equipment manufacturing, including aerospace (aviation and satellites), rail and marine technologies, and intelligent manufacturing equipment with digitally integrated systems;
- new energy, including advanced nuclear, solar, wind-power and biomass technologies and distributed power consumption;
- new materials, including advanced functional and structural materials, carbon fibre, composite, and nanotechnology-based materials; and

- new-energy vehicles and components, including electric and hydrogen-powered vehicles and batteries.

Along with the SEI plan, China has announced twenty key projects and facilitating policy measures to increase the share of GDP accounted by these industries by eight percentage points by 2015 and by fifteen percentage points by 2020. China has demonstrated its ability to deliver on its plans: R&D expenditures reached 1 trillion yuan in 2012, accounting for 1.97% of GDP. About 5% of this (about 50 billion yuan) was allocated to fundamental research. The number of national engineering research centres and other facilities has grown steeply, as have venture capital investments and patent applications and grants.

India adopted a National Manufacturing Policy in November 2011 with the intention of increasing manufacturing share of GDP from 16% to 25% by 2022, including by attracting a substantially greater share of global FDI. Specific measures include the establishment of national investment and manufacturing zones (NIMZs) which will benefit from fiscal incentives and regulatory exemptions.

Brazil has established the Plano Brasil Maior (Greater Brazil Plan) which combines an ambitious trade policy with industrial policy, with emphasis on innovation and increasing labour productivity. Under the plan, Brazil will implement policies favouring investment and exports, including by improving the framework for financing innovation and value-added activity and the competitiveness of supply chains. Specific measures will include business tax incentives and strategic use of public procurement, and deployment of the revenues from Brazil’s new-found energy resources. To offset the competitive effects of its currency appreciation, tax breaks are to be provided to the labour-intensive clothing, footwear, furniture and software industries.

Japan: The *Industrial Structure Vision 2010* issued by Japan’s industry ministry (METI 2010) outlines a range of cross-cutting policies aimed at, inter alia, making Japan “Asia’s industrial centre” and promoting “enhancement and retention of key industrial capabilities”, together with more targeted interventions in the following sectors:

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- Infrastructure-related system sales (nuclear power, water, railways, etc.);
- Environment and energy problem-solving industry (smart community, next-generation vehicles, etc.);
- Creative industries (fashion, content, etc.);
- Medical, nursing, health, and child care services; and
- Frontier fields (robots, space, etc.).

Korea has recently developed strategies for certain “flagship” industries: automobiles, shipbuilding, semiconductors, steel, general machines, textiles and parts and materials. Korea is also targeting 17 future growth industries in the general areas of green technology, high-tech convergence technology, and value-added services (Ministry of Knowledge Economy 2011).

Turkey has adopted an Industrial Strategy for 2011-14 that combines a range of horizontal policies combined with sectoral strategies for the following industries: chemicals; ceramics; iron, steel and non ferrous metals; electrical and electronics; textiles, garments and leather; pharmaceuticals; and recycling.

Canada, which in recent years had emphasised a “horizontal” industrial policy under the *Advantage Canada* programme, is again engaging actively and openly in industrial policy in the energy sector, in manufacturing and in defence-related industries such as shipping and aerospace. The 2013 federal budget included a policy framework to support manufacturing as the second item on its priority list and at the sub-national level, the Province of Quebec has launched a new industrial and manufacturing strategy with a central role to be played by a new agency, the Quebec Economic Development Bank.

Australia: A Taskforce on Manufacturing has produced a report *Smarter Manufacturing for a Smarter Australia* containing wide-ranging proposals aimed at boosting Australia’s manufacturing sector. The new Abbott Government campaigned on a policy to boost manufacturing (“Tony Abbott - The Coalition’s policy to boost manufacturing”). While implementation is an open issue, Australia appears to be anticipating the end of the China-driven

resource boom and renewing emphasis on other sectors to support the economy in the future. Both the central bank and the government have indicated a desire for a lower Australian dollar to help manufacturers and to boost exports.

ANNEX B: INDUSTRIAL POLICY AND THE DEVELOPMENTAL STATE – A BRIEF CONCEPTUAL SUMMARY

Industrial Policy in Theory

Arguments that support non-neutral policies depend in some way on market failures or imperfections – that is, as an exceptional case to the norm of no intervention.¹ We summarise these very briefly below.²

Externalities: The main basis for public policy interventions is the existence of positive or negative externalities that cause the prices determined by purely private decision-making to not appropriately represent actual social costs or returns – e.g., because the negative externalities are not borne by the agents carrying out the activity (pollution) or the positive externalities are not captured by the agents making the investment (i.e., the returns to the investment are not fully appropriable). Support for industries that generate substantial positive spillovers can thus provide economic gains to society over and above the returns to the private agents. As a rationale for public policy, it is important that the spillover benefits occur locally – if these benefits “leak” to other regions, the rationale for using local taxpayers’ funds is eroded.

The most widely used policy to harness local positive externalities is cluster policy. Since clusters tend to be industry specific,

1 Sykes (2005) makes this point. See Geanakoplos (2004) for a recent discussion of the basic Arrow-Debreu general equilibrium model which identifies a market-determined optimum without a public sector to organize collective action.

2 For convenience, this basic exposition draws heavily on a working paper by BKP Development associate Ciuriak (2012). A good basic restatement of the theory is also provided by Warwick (2013).



cluster policies will typically qualify as “vertical” initiatives, even if government support falls mostly into the horizontal or enabling category allowing the market to sort out the winners and losers amongst the firms in the cluster. While the reality of spillovers in vibrant industrial districts such as Silicon Valley is hardly in question, it remains unclear whether such results can be engineered by policy. The general conclusion reached from evaluation of cluster policies to date is that, to minimise the risk of resource misallocation, governments should limit support to existing and emerging clusters rather than trying to create them where they do not already exist.

Strategic Trade Policy: As Brander and Spencer (1985) argued, it is advantageous for a country to capture a larger share of profitable, imperfectly competitive industries as this shifts profits in its favour. There are several good examples of industries (e.g., semiconductors and civil aviation) that feature the large sunk costs and steeply declining costs that make strategic trade policy enticing to governments. At the same time, game theoretic analysis of such cases suggests that the rivalry leads to a prisoner’s dilemma where both sides lose. Specifically, both governments would be jointly better off not subsidising their domestic firms, but in the absence of cooperation they end up in the ‘bad policy equilibrium’ where both sides subsidise rather than attaining the preferable ‘good policy equilibrium’ where neither subsidises (see e.g. Dixit and Kyle 1985: 139) At the same time, non-combatants surveying the scene can hardly fail to note that the economies that fought the hardest for these industries dominate them today: the US, Japan and Korea in semiconductors; the United States and the European Union in large body civil aircraft; and Canada and Brazil in regional aircraft. Third party contenders meanwhile wrote off their sunk assets.

Infant Industries: Firms often face steep learning curves in the early stages of developing industrial processes. Moreover, experience gained in producing one good often has applications in producing others. Accordingly, if a country has latent potential in an industry in which it would have comparative advantage in the long run but which may not get off the ground because of,

for example, a lack of well-developed venture capital markets, there is an argument for government to step into the breach to support firms while they climb the learning curve. The premise is that temporary support at the early stage of gaining experience in industrial production can help kick start industries that would otherwise not establish themselves, with endogenous knock-on effects in starting further new industries.

The infant industry argument is generally viewed sceptically due to the fact that import substitution policies adopted based on this theory ultimately were abandoned as failures by countries that tried them (particularly India and Latin America). However, conclusive evidence on the issue remains elusive. Krugman and Obstfeld (2009) surveying developing country experience in this area reach no firm conclusion as it is difficult to separate the role of industrial policies from other factors. Rodrik (2008), surveying the same empirical evidence, observes that, while there are many examples of failed attempts to nurture infant industries, it is also hard to find examples of successful development without such support at some stage.

Coordination failure: The production of a particular good typically requires complementary inputs produced by other firms or industries. A venture in a developing economy may never get off the ground if it depends initially on importing a wide range of intermediate goods and services that are not available locally, as this may involve prohibitive costs. Government involvement may then be required to elicit the investment commitments in complementary goods and services to make the first industry viable.³ While this issue is unlikely to arise in advanced market economies, it may well be an inhibiting factor in developing economies.

3 This source of development failure was articulated by Rosenstein-Rodan (1943) who noted that, if various sectors of the economy adopted increasing returns technologies simultaneously, they could each create income that becomes a source of demand for goods in other sectors, and so enlarge their markets and make industrialization profitable jointly where it would not be individually. Scitovsky (1954) provided an early theoretical interpretation in terms of “pecuniary externalities”; and Murphy, Shleifer and Vishny (1989) provide a modern treatment of this idea in terms of multiple equilibria.

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The Policy Debate over Industrial Policy

The fundamental reasons for industrial policy interventions briefly surveyed above – externalities, increasing returns, steep learning curves, and missing markets – are actually commonplace features of the industrial landscape. The consensus opinion against industrial policy interventions was thus formed not on the basis of the absence of potential need but rather on the basis of an argument of government failure – that the attempt to correct or offset these market failures resulted in worse outcomes because governments lacked the necessary information to make efficient interventions (as expressed in the meme “governments can’t pick winners”), or because governments would get captured by rent-seekers and could not walk away from losers (as expressed in the meme “losers pick government”).

The force with which this consensus opinion is typically stated is unusual in economics and thus noteworthy in and of itself. This is particularly the case since there is no systematic econometric evidence one way or the other. It should be explicitly noted in this regard that there is no accepted definition delineating what is and what is not industrial policy; nor are there databases documenting the use or effects of industrial policies. Accordingly, as Rodrik (2008) has noted, the field simply does not lend itself to systematic econometric evaluation. The evidence, such as there is, consists therefore of historical narratives in the form of case studies and cross-country comparisons – which are rich and interesting but hardly conclusive, given the historical specificity of the background conditions in which industrial policies were used by individual countries as well as the many other factors that must be controlled for. Cross-country econometric studies are heavily disputed.⁴

Further, as will be discussed in more detail below in evaluating the East Asian model, historical examples of the use of industrial policy for development rarely furnished clean tests of these theories. For example, Brazil's import substitution industrialisation (ISI) programme protected infant industries which may have had the

desired effect of attaining dynamic benefits but protected mature industries by an even greater amount, thus imposing dynamic costs (see e.g. Colistete 2010). Small markets such as Chile or Argentina that attempted across-the-board ISI on a sustained basis incurred dynamic losses due to the limits imposed by the domestic market on economies of scale and competition while other small market economies such as Hungary and Czechoslovakia had their small market issues compounded by comprehensive economic planning (Balassa 1970). Britain applied its post-WWII industrial policy through nationalisation which imposed monopolies with the attendant dynamic costs as well as compounding the difficulty of isolating pure industrial policy from the effects of public versus private ownership (see Parker 1992 for an analysis of the latter issue). India meanwhile applied its industrial policies with heavy bureaucratic regulation (the so-called “license-permit-quota raj”⁵) which generated stifling business costs.

While there are many examples of failed use of state intervention to drive growth, there are few examples of successful industrialisation *without* state support:

- The first wave of industrialisers all made heavy use of industrial policies (Chang 2003);
- The second wave of successful industrialisers, Japan and the East Asian Tiger economies, established the Asian Model, discussed below; and
- The third wave of successful industrialisers, the BRICS, all feature active involvement of the state in industrial development.

Two historical anecdotes suffice to underscore the point concerning the first wave.

First, in his famous argument for free trade and *laissez faire*, David Ricardo gave the example of the advantages stemming from the free exchange of English wool for Portuguese wine. Chang (2003) delves into the historical origins of this English comparative advantage in woollen manufactures, going back to the English

4 See e.g. the debate over the effects of openness on growth: Sachs and Warner (1995), Rodriguez and Rodrik (1999) and Srinivasan and Bhagwati (1999) provide a flavour.

5 The term is due to C. Rajaji; see Rodrik and Subramanian (2004: 3)



wool manufacturing policy going of Edward III (1312–1377). In Edward's day, England was a backward country mainly exporting raw wool. Edward sought to turn this around: "[Edward] wore English cloth to set an example, brought in the Flemish weavers, centralised trade in raw wool, and banned the import of woollen cloth" (Chang 2003: 3). Subsequently, "from 1489, Henry VII implemented schemes to promote woollen manufacturing, which included sending royal missions to identify locations suited to wool manufacturing; poaching skilled workers from the Low Countries; increasing duties on the export of raw wool; and even temporarily banning the export of raw wool" (Chang 2003: 4). The wool manufacturing policy was substantially broadened with Walpole's 1721 industrial policy package which included the following measures:

"First of all, import duties on raw materials used for manufactures were lowered, or even altogether dropped. Second, duty drawbacks on imported raw materials for exported manufactures were increased. Third, export duties on most manufactures were abolished. Fourth, duties on imported foreign manufactured goods were raised. Fifth, export subsidies (then called "bounties") were extended to new export items like silk products and gunpowder, while the existing export subsidies to sailcloth and refined sugar were increased. Sixth, regulation was introduced to control the quality of manufactured products, especially textile products, so that unscrupulous manufacturers would not damage the reputation of British products in foreign markets." (Chang 2003: 4)

By the 1800s, when Ricardo expounded the benefits of free trade abroad and *laissez faire* at home, England was the world's leading industrial power. The German economist Friedrich List writing in 1885 commented on the self-serving nature of free trade arguments emerging from Britain:

"Any nation which by means of protective du-

ties and restrictions on navigation has raised her manufacturing power and her navigation to such a degree of development that no other nation can sustain free competition with her, can do nothing wiser than to throw away these ladders of her greatness, to preach to other nations the benefits of free trade, and to declare in penitent tones that she has hitherto wandered in the paths of error, and has now for the first time succeeded in discovering the truth." (List 1885, cited in Chang 2003: 5).

Second, the first known articulation of the infant industry argument was made by Alexander Hamilton, the US Secretary of the Treasury, in his 1791 report to Congress on US manufacturing policy. While the United States did not immediately act on Hamilton's observations, during the first great period of globalisation (which dates from the end of the Napoleonic wars to the outbreak of World War I), the United States had one of the highest tariff walls in the world – and became the "workshop of the world" behind them (see Chang, 2003: 6).

Notably, Hamilton was a politician making political arguments in a political forum while Ricardo was a stockbroker and investor formulating an argument that, if adopted as policy, would raise profits on English manufactures in which he was presumably invested; accordingly, it is no slight to suggest that the arguments they advanced were self-serving – one could hardly expect otherwise. While both articulated theories that have since been restated in formal economic theoretical terms, for latter day practitioners, it remains important to understand that these theories emerged in particular contexts to which they were well suited. Thus, while comparative advantage remains an important part of economic theory, the modern version acknowledges that it can be created – just as apparently the British created it through industrial policy in woollen manufactures. Ricardo's assumption that technology is fixed and not free to flow across borders (which is contradicted by the British import of skilled workers from the lowlands as the above history recounts) leads to the powerful conclusion in favour

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of free trade; a revised version in which comparative advantage can be created with suitable policies can lead to quite a different conclusion if the benefits of having comparative advantage in a particular sector (e.g., manufactures) is greater than in another (e.g., raw material production), at least for the period in which comparative advantage is being established.

The Developmental State Revisited

The term developmental state – or more accurately “capitalist developmental state” – was coined by Chalmers Johnson to describe the East Asian model of “market-conforming methods of state intervention” (Johnson 1982). In fact, the model could as well be termed the Japanese model since Johnson’s concept was derived primarily from his characterisation of Japan’s industrial policy as practiced under MITI from 1925–1975. The concept, however, also fits very well Japan’s pre-war colonies, Korea and Taiwan, which emerged from the wars with Japanese-modelled systems of governance (see e.g. Woo-Cumings 1999: xi-xii), and to lesser extents other historical and recent cases. Given the importance of this concept, a brief discussion of the features of the Japanese model that inspired its coinage is warranted, particularly since the concept proved to be controversial and was subject to much commentary and interpretation.⁶

In Japan, the capitalist developmental state model emerged as the answer to the multiple challenges facing the country in the wake of the disastrous outcome of the war, given the remaining assets that Japan still had – in particular the professional bureaucracy and the *keiretsu* which emerged as the reformation of the *zaibatsu* system of conglomerates that had dominated the Japanese pre-war economy.⁷ In effect, with the political leadership and the

top echelons of Japanese society removed from power and supplanted by US overarching governance, it was left to the public and corporate bureaucracies to reconstruct Japan’s economy – and they did so based on experience and relationships developed in the preceding decade of the command wartime economy. In the immediate aftermath of the war, the government instituted rationing and price controls and provided public financing to priority industries through the Reconstruction Public Loan Corporation. In the 1950s, as the emergency measures were abolished, the government nonetheless retained control over foreign exchange and continued to administer the “priority production system” developed for postwar reconstruction, using instruments such as special depreciation allowances, research subsidies, and tariff exemptions.⁸ Also, loans by the Development Bank of Japan (DBJ) and the Export-Import Bank of Japan provided signals to private sector lenders to follow.⁹ Meanwhile, by as early as 1952, three of the leading *zaibatsu* – Mitsui, Mitsubishi and Sumitomo – began to reassemble themselves as *keiretsu*, to be joined in short order by three others – Fuji, Dai-ichi and Sanwa (Porter and Sakakibara 2004).

Between 1958 and 1973 Japan sustained near-double-digit growth, quadrupling the size of its economy (Ito 1996: 206). This period is considered “the heyday of Japanese industrial policy” as Japan’s industrial structure shifted from agriculture to manufacturing, and from light industries such as textiles to heavy industries such as automobiles (Okuno-Fujiwara 1991: 278). The criteria relied on to identify industries for support by the Ministry of International Trade and Industry (MITI) were: (a) scope for productivity growth; (b) a high income elasticity of demand to take advantage

6 See Johnson (2001) for a commentary on the controversy the concept unleashed.

7 Regarding the reconstruction of the conglomerate system, see Chapter 10, The Kennan Restoration, in Takemae (2002). Takemae also reports that Japan’s Holding Company Liquidation Commission, ultimately designated only 18 of the 325 largest firms for disbanding as “excessively concentrated” and of these only 11 were eventually broken up into smaller units, four simply had their stockholdings liquidated, and three had some of their

industrial assets sold off. Mitsui and Mitsubishi were prohibited from using their corporate logos for a period.

8 See Okuno-Fujiwara (1991) for a detailed account of Japan’s industrial policy evolution in this period.

9 METI refers to this as the “cowbell” effect: “the screening of the DBJ and other government financial institutions offered a cowbell effect to private banks, induced loans by these banks, and made their financing to industries smoother and more efficient.” See METI, “The History of Japan’s Industrial Policies”, available at: http://warp.ndl.go.jp/info:ndljp/pid/3481373/www.meti.go.jp/english/policy/economy/pdf/Policy_History.pdf.



of growth of the world economy; and (c) linkages to related industries to generate employment growth. Mergers and “orderly” competition were encouraged and trade liberalisation was delayed as long as feasible to allow targeted industries to gain international competitiveness (Okuno-Fujiwara 1991: 278-279). Reflecting the pervasive government influence, in the mid-1960s, over 1,000 government-sanctioned industry cartels were in place, covering some 43% of Japanese manufacturing (Weinstein 1995). Following Japan’s accession to the OECD in 1964 and implementation of the trade liberalisation mandated by the GATT agreements in the Kennedy Round in 1967, MITI modified its approach, replacing the overt controls with “administrative guidance”.

There are several noteworthy special features and circumstances that enabled and shaped the Japanese model that Johnson observed first hand.

First, the political class and shareholders were essentially not in the picture in the early years and effective control of the economy was in the hands of public ministry bureaucrats and corporate technocrats. The immediate goal was thus not maximising profits or maximising current consumer welfare, but rather re-industrialisation – that is maximising growth.¹⁰ For the same reason, there was no pressure for an over-valued exchange rate to support conspicuous consumption and foreign investments (i.e., capital flight) by social and political elites as often has been the case in developing countries with extreme income inequalities.¹¹ Nor was there any divergence of aims between the managerial class executing the strategy and the population which was equally focused on reconstruction, which minimised the potential for friction (consider in this regard the current unrest in Brazil over expenditures of public fund in preparation for the 2014 World Cup and 2016 Olympics). Also, the technocrats were strongly motivated by the existential threats that Japan faced at the time

10 Öniş (1991) emphasizes the focus on growth as opposed to maximizing profitability on the basis of current comparative advantage or concerns about welfare: “In other words, market rationality has been constrained by the priorities of industrialization.”

11 See e.g. Buckley and Arner (2011: 36) on this syndrome in troubled developing countries.

which undoubtedly provided some necessary unifying force.¹²

Second, the experience base, the planning tools, and the relationships were already in place from the wartime planning framework. And Japan was already skilled in the necessary industrial arts. For example, while its aircraft industry was abolished by American fiat after the war, Japan retained the engineering and manufacturing capabilities to participate in the aerospace sector. It was thus able to gain a partnership deal with Boeing in the 1960s which it developed to become Boeing’s largest overseas parts supplier. In this undertaking, the Japanese aerospace industry was supported by an infusion of USD 1.6 billion over the years by the Japanese government. Half a century later Mitsubishi is now about to re-enter the aircraft manufacture business, in the regional jet market.¹³

Third, the Japanese model tempered competition by encouraging consolidation, but it did not eliminate it, in part because of the rivalry amongst the *keiretsu*. Moreover, because it was a large economy and also focused on exports, Japan did not suffer the loss of dynamic gains of foregone economies of scale or from collapse of internal competition through the emergence of monopolies as other economies that used ISI-type strategies.

It is fair to label Japanese industrial policy as a distinct “model” because (a) historical cases of industrialisation (e.g., Bismarckian Germany; see e.g. Bagchi 2004) have since been identified that conformed to some extent to that model; and (b) many elements of it appear to have been successfully adopted by choice by other economies worldwide, including in Northeast Asia, Southeast Asia, Latin America, and Africa, despite differences in initial conditions.¹⁴

While there are few arguments concerning the status of some

12 Chalmers Johnson emphasized the role of nationalism as the motivating force behind the Japanese developmental state. See Johnson (1982, 1999).

13 “Japan jets into regional plane market, eyes more Boeing business,” Reuters, 13 March 2013.

14 See in particular Amsden (1989) on Korea, Wade (1990) on Taiwan, and Woo-Cumings (1999) for a more general overview in a very large field.

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economies as good examples of developmental states – in particular Korea and Taiwan, whose experience closely echoed that of Japan – the template fits less clearly for highly successful East Asian states such as Singapore and Hong Kong. Singapore started with the developmental state model but subsequently adopted reforms to conform more closely to the neoliberal consensus model, although elements of the developmental state remain embedded resulting in what has been termed a hybrid neoliberal-developmental state (Liow 2012). As regards Hong Kong, Johnson (1999) states unequivocally that it fits the mould of the developmental state, while Williamson (2012) classifies it as the most *laissez faire* state other than the Baltic economies. Moreover, the major ASEAN economies – Malaysia, Indonesia, Thailand and the Philippines – which are classed as following the developmental state model (e.g., Doner et al. 2005) have clearly been much less successful in the long run than the Japanese role model and there is considerable variation within the group (Malaysia for example being a far better long-term performer than the Philippines). The lesser degree of success in the ASEAN economies has been attributed to the fact that the conditions were not as conducive to success: for example, the government bureaucracy had less autonomy and corruption appears to have been more of an issue (Routly 2012).

China of course represents today the closing argument in the development state hypothesis. Yet its experience is enigmatic in many respects when held up to the mirror of Japan. China has accomplished in the past three decades an unprecedented – taking into account scale as well as speed – degree of convergence towards advanced economy levels of industrial capabilities, quite apart from its extraordinary advance in terms of per capita GDP and poverty reduction. Yet most of the movement in China was away from state intervention to allow more private sector activity (see e.g. Williamson 2012: 10). While China shared in common with Japan a powerful bureaucracy, unlike Japan it had a dominating political leadership. Whereas Japan had a pre-existing industrial skill set, China started with a peasant skill set, which explains China's singular focus over the years on acquiring technology and developing its own innovation capabilities.

For the present purposes – informing Eastern African policy on manufacturing – what is noteworthy is not so much the contrasting trajectories of China and Japan as the convergence towards a middle ground between a microeconomic model based on the private sector and one based on the state. In this sense, the successful application of the developmental state approach is determined less by enabling conditions as many writers have emphasised,¹⁵ as on policies that subordinate considerations such as profit or consumer surplus to the primary goal of growth.

This is what makes it particularly interesting for Eastern Africa at this stage.

15 For example, Musamba (2010) lists a development-oriented political leadership, an autonomous and effective bureaucracy, a production-oriented private sector, and performance-oriented governance as the defining features of a developmental state.

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