EAC INDUSTRIAL COMPETITIVENESS REPORT 2017

Harnessing the EAC Market to Drive Industrial Competitiveness and Growth

In association with UNIDO

외교부
Ministry of Foreign Affairs

Main Report

EAC Industrial Competitiveness Report 2017

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Harnessing the EAC Market to Drive Industrial Competitiveness and Growth

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ABBREVIATIONS AND ACRONYMS

AEC	Association of Southeast Asian Nations Economic Community
AfDB	African Development Bank
AGOA	African Growth and Opportunity Act
CAGR	Compound Annual Growth Rate
CEMAC	Economic Community of Central African States CET Common External Tariff
CIP	Competitive Industrial Performance
CLRI	Central Leather Research Institute
CSLP II	Cadre Stratégique de Croissance et de Lutte contre la Pauvreté (Burundi)
DRC	Democratic Republic of Congo
EAC	East African Community
EAC-RPMPOA	EAC Regional Pharmaceutical Manufacturing Plan of Action
EAP	East Asia and Pacific
ECOWAS	Economic Community of West African States
EIA	Ethiopian Investment Agency
EVAD	Export in Value-Added Database (World Bank)
FDDI	Footwear Design and Development Institute
FDI	Foreign Direct Investment
FTA	Free Trade Area
FYDP	Five-Year Development Plan
GDP	Gross Domestic Product
GERD	Gross Expenditure on Research and Development
GFCF	Gross Fixed Capital Formation
HDI	Human Development Index
ICT	Information and communications technology
ICT (Ethiopia)	Institute of Chemical Technology (Ethiopia)
IDR	Industrial Development Report (UNIDO)
IIDS	Integrated Industrial Development Strategy (Tanzania)
IMF	International Monetary Fund
INDSTAT	UNIDO Industrial Statistics database
IPR	Intellectual Property Rights
ISO	International Organisation for Standardization
JICA	Japan International Cooperation Agency
LAC	Latin America and the Caribbean
LIDI	Leather Industry Development Institute (Ethiopia)
LTPP	Long-Term Perspective Plan 2025 (Tanzania)
MENA	Middle East and North Africa
MHT	Medium and High Technology (UNIDO classification)
MNC	Multinational corporations

MS	Market share
MVA	Manufacturing Value Added
M&E	Monitoring and Evaluation
NAFTA	North American Free Trade Agreement
NES	Not Elsewhere Specified
NTD	Neglected Tropical Diseases
NTQF	National TVET Qualifications Framework
ODI	Overseas Development Institute
OECD	Organization for Economic Co-operation and Development
OEM	Original Equipment Manufacturer
OSBP	One Stop Border Post
PPP	Purchasing Power Parity
REC	Regional Economic Community
RIDMP	Regional Infrastructure Development Master Plan
RISDP	Regional Indicative Strategic Development Plan
RSDIP	Regional Spatial Development Initiatives
R&D	Research and Development
SADC	Southern African Development Community
SAPP	Southern African Power Pool
SC Asia	South and Central Asia
SIRESS	Integrated Regional Electronic Settlement System
SITC	Standard International Trade Classification
SME	Small and Medium Enterprise
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
TFTA	Tripartite Free Trade Area
TIDI	Ethiopian Textile Industry Development Institute
TNZ	Tanzania (United Republic of Tanzania)
TVET	Technical and Vocational Education and Training
UAE	United Arab Emirates
UK	United Kingdom
UN COMTRADE	United Nations Comtrade Database
UNIDO	United Nations Industrial Development Organization
US	United States (of America)
USAID	United States Agency for International Development
USD	United States Dollar
VC	Value Chain
VETA	Vocational Education and Training Authority (Tanzania)
WDI	World Development Indicators (World Bank)

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More specifically, the team that compiled the report consisted of experts from partner states as follows; Republic of Kenya (Marion Wanjiku Muriithi, Office of the Attorney General and Anne Ndung'u, Kenya Association of Manufacturers); Republic of Rwanda (Fred Mugabe, Ministry of Trade, Industry and EAC Affairs and Alphonse Kwizera, Rwanda Association of Manufacturers); United Republic of Tanzania (Valency Mutakyamirwa and Esther Mkenda, Ministry of Industry, Trade and Investment);and Republic of Uganda (Tonny Bbale, Ministry of Industry, Trade and Cooperatives and Michael Oketcho, Uganda Manufacturers Association). The team also included EAC Secretariat staff (George Ndira; Jennifer Gache and Johansein Rutaihwa); and University of Dar es salaam staff (Neema Robert).

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FOREWORD

FOREWORD BY CHAIRPERSON OF THE EAC COUNCIL OF MINISTERS

This publication of the first East African Community Industrial Competitiveness Report 2017 (EAC-ICR 2017) happens coincidentally as the EAC winds up its first Industrialisation Action Plan (2012-2017). It therefore marks an encouraging achievement for the EAC as it begins further steps towards attaining another five (5) year plan envisioning the implementation of the EAC Industrialisation Policy 2012-2032.

This report enables us to assess the current performance of the industrial sector in the EAC region, particularly its competitiveness in the domestic and global markets. By this analytical output, we are well positioned to set more informed actions in the forthcoming Action Plan for the effective implementation of the industrialisation policy in the region. In this report, industrial competitiveness is understood as the capacity of countries to increase their industrial presence in domestic and international markets while developing industrial structures in sectors and activities with higher value added and technological content.

All East Africa Community Partner States have resolved to transform their respective economies into middle income status in the coming decades. Industrialisation has been identified as an overarching strategy towards the EAC goal of economic transformation and the betterment of living standards of the people. It thus behoves all of us to put in place systems and tools to help us track our progress and continuously evaluate the impact of our integration on the transformation vision and more crucially, on the manufacturing performance.

The EAC-ICR 2017 is one of the analytical outputs stemming from the capacity building activities under the EAC-UNIDO programme on 'Strengthening Capacities for Industrial Policy Formulation and Implementation' in the East African Community, funded by the Republic of Korea. The report aims at positioning the region`s industry in the international scene by benchmarking its performance and capability against other comparators; and providing a compass to policymakers, the private sector (in particular manufacturing associations), and generally a wider audience of stakeholders interested and/or involved in industry on the broad direction of the industrial development trajectory of the EAC as a whole and of the internal dynamics among Partner States.

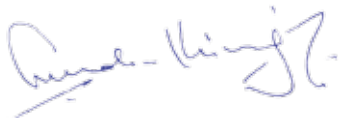
In view of the focus of the report on the EAC as a whole and on the five EAC Partner States, the report has analysed the progress towards the attainment of the goals set in the EAC Industrialisation Policy 2012-2032; and provides diagnostics of manufacturing sector performance in the EAC and individual Partner States. It benchmarks Partner States' performance against each other as well as selected comparators and complements this macro-level analysis with in-depth assessments of strategic value chains in the region and case studies of success stories outside the region. Although in absolute terms, the EAC industrial

performance, as measured by Manufacturing Value Added (MVA) and manufacturing trade growth rates, remains well above the global average, in relative terms it falls short of some of the targets set in its Industrialisation Policy; below similar regional economic communities in Sub-Saharan Africa such as Economic Community of West African States (ECOWAS), and more strikingly, it registered some signs of slowdown in recent years. MVA growth has slowed down in recent years, from 5.3% between 2005 and 2010, to 4.6% between 2010 and 2015, thus falling short of the 10-15% annual growth rate mentioned in the EAC Industrialisation Policy and Strategy and below Sub Saharan Africa (SSA) average. Furthermore, analysis of the cotton and leather sectors shows missed opportunities at the level of high-value added products in the value chain, such as for cotton apparel and leather footwear. Meanwhile, the analysis of industrial drivers has pointed to a number of key constraints to industrial competitiveness.

There are also several encouraging messages stemming from the findings of the report. First of all, the past 10-15 years have shown a process of upward convergence among Partner States both in terms of MVA and manufacturing trade values. Secondly, the EAC dynamic regional context provides probably the greatest opportunity for the region's firms to expand their production capacity (across several dimensions) and to test their ability to compete in the international markets. Thirdly, the EAC market for manufactured goods has been growing at a rate of 16% per annum between 2010 and 2014, significantly higher than other RECs in SSA and offering attractive opportunities for firms to continue exploiting the market. Nonetheless, although EAC's exports of the top regionally demanded products generally grew since 2010, it did not happen at the pace and extent needed to match the EAC demand growth, thus allowing firms from outside the region to gain larger market shares. As a result, EAC firms lost market share in twenty two (22) out of the twenty five (25) most demanded manufactured goods, including cement, pharmaceuticals, iron/steel products, and fertilisers.

I therefore urge the EAC Partner States, the private sector and other stakeholders to make the best use of the findings of this report. The regional trends, while positive, alert us to the need to shift into a higher gear to increase international competitiveness for the long-run. This report aims at enhancing stakeholders' understanding of the manufacturing sector's performance and untapped investment opportunities. It is my expectation that such rich and unbiased information will help the public and private sectors participate in the domestic and regional industrialisation process dynamically and by sub sector approach to ensure stable and sustainable industrial growth. Let me conclude by exhorting the private sector and other key stakeholders to read this report and ultimately take advantage to invest and support our region's development.

We sincerely thank the Republic of Korea and UNIDO for their continued support.



Chairperson of the EAC Council of Ministers

HON. DR. ALI KIRUNDA KIVENJIJA

Second Deputy Prime Minister and Minister for EAC affairs, Uganda

FOREWORD BY EAC SECRETARY GENERAL

The East African Community Industrial Competitiveness Report 2017 (EAC-ICR 2017) is a joint initiative of the EAC and the United Nations Industrial Development Organization (UNIDO), aimed at tracking industrial development performance in the region. It has been developed to provide a compass to help the region navigate its way towards the industrialisation goals of the Community. The East African region through its industrialisation policy and strategy set the target of growing the share of the manufacturing sector contribution to GDP to 25 per cent by 2032, increasing the growth in manufacturing employment and promoting diversification of the export base to realise structural transformation and sustainable growth.

Since the launch of the EAC Industrialisation Policy and Strategy by the EAC Heads of State in 2011, the Community has been involved in a number of initiatives geared towards expanding the market opportunities for the industrial sector in the region as well as improving the competitiveness of the region. These initiatives include the COMESA-EAC-SADC Tripartite Free Trade Area, the EAC-EU Economic Partnership Agreement (EAC-EU EPA), and a couple of other bilateral engagements with the USA, among others countries. Internally, the Community has made progress in reducing transaction costs to doing business, through improvements in customs administrative procedures, lowering of trade taxes, harmonisation of standards, while at the same time pursuing infrastructure development programmes in an effort to lower the cost of production within the region, thereby boosting industrial competitiveness. Similarly, efforts have been made to remove policy and regulatory impediments in priority value chains through preparation of action plans, while at the same time supporting public-private sector engagement platforms as a way to showcase and provide investment information for potential business partnerships. The preparation of the ICR therefore comes at an opportune time as it provides a reality check on the state of the industrial sector and its performance amid these recent developments. It provides a mirror to view the state of the sector in the Community, reflect on the findings of the report and to help inform the possible course of action to restore or accelerate the pace of industrial growth in the region.

The development of this report is part of the on-going efforts in the implementation of the EAC Industrialisation Policy. In 2014, the EAC entered into a partnership with UNIDO and the Government of the Republic of Korea, implementing a joint programme aimed at "Strengthening Capacities for Industrial Policy Formulation and Implementation in the East African Community". The overall objective of the programme is to enhance the region's capacity for industrial policy design, monitoring and evaluation and assist the region attain the targets and outcomes envisaged in EAC Industrialisation Policy. The EAC Industrial Competitiveness Report 2017 (EAC-ICR 2017) is the result of the partnership and contributes to the on-going debate, raising important policy issues of the industrial sector based on rigorous analysis of market data. During the preparation of the report the EAC Secretariat and Partner States

were trained in a number of modules covering application of UNIDO Competitive Industrial Performance Index (CIP); Sectoral Competitiveness and Value Chain Analysis; Industrial Performance Drivers and Manufacturing Employment; and Designing an Effective Industrial Policy all focused on the manufacturing sector. Using UNIDO's methodology and indicators, the report assesses EAC's industrial performance vis-à-vis other regions and role models in Asia and sheds light on strategic short- and long-term industrialisation paths for EAC. The methodology considers the importance of benchmarking; the use of UNIDO's technological classification for manufactured trade and manufacturing value added (MVA); use of quantitative and transparent data; use of international data sources and classifications for cross-country comparisons; analysis of levels and trends; and macro and sectoral analysis.

The EAC-ICR 2017 highlights several areas of policy focus: the effect of regional integration on Partner States industry and the challenges ahead, the domestic and international opportunities that emerge in the new global market for manufacturers, the key role of modern skills for industrial development, and the likely 'quick win' scenario of a resource-based industrialisation process. Further, the report aims at enhancing stakeholders' understanding of the manufacturing sector's performance and untapped investment opportunities.

It is my expectation that this information will help the public and private sectors participate in the domestic and regional industrialisation process more effectively. I would like to express my appreciation to everyone who was involved in the preparation of the EAC Industrial Competitiveness Report. I hope that the collaboration and commitment which had been forged will be sustained in the implementation of the report's recommendations. Finally, I sincerely hope that the EAC-ICR 2017 will be deemed a valuable contribution to the existing debate on industrialisation in EAC, as well as a useful document for policymakers in the formulation of evidence-based industrial and trade policies.

EAC Secretary General

AMB. LIBERAT MFUMUKEKO

EXECUTIVE SUMMARY

1. Using historical data and benchmarking methodologies, the first EAC Industrial Competitiveness Report provides a powerful tool in contextualising the industrial performance of the region as a whole and Partner States as individual entities, identifying the main development patterns and assessing them in view of targets set in the EAC Industrialisation Policy and Strategy 2012-2032.

2. Although in absolute terms the EAC's industrial performance as measured by MVA and manufacturing trade growth rates remains well above the global average, in relative terms it falls short of some of the targets set in its Industrialisation policy, below similar regional economic communities in Sub-Saharan Africa such as ECOWAS, and more strikingly registered some signs of slowdown in recent years.

3. The report illustrates that MVA growth has slowed down in recent years, from 5.3% between 2005 and 2010, to 4.6% between 2010 and 2015, thus falling short of the 10-15% annual growth rate mentioned in the EAC Industrialisation Policy and Strategy and below the SSA average.

4. A similar pattern was also tracked when looking at manufacturing trade data. The excellent trend observed between 2000 and 2005 with manufactured exports per capita increasing at 22.5% per annum proved to be unsustainable in the long term, slowing down to 1.7% per annum between 2010 and 2014, as it was mainly driven by sectors that experience strong fluctuations in demand and price, such as base metals (manganese ore/concentrate), heavy petroleum and base metal waste.

5. More importantly, the growth rates registered so far for the EAC manufacturing sector cannot impress a sufficient acceleration to achieve the structural change targets set in the regional and in most national industrial policies and overarching development plans.

6. As MVA is growing slower than GDP, the share of manufacturing in GDP has in fact been contracting from 9.8% in 2000 to 8.4% in 2015, thus not leading to the desired structural change towards manufacturing, falling short again of the regional target of 25% by 2032.

7. This performance is in part due to, and has translated also into weak backward and forward linkages among manufacturing sectors and with the other non-manufacturing sectors of the economy, where the largest benefits from manufacturing expansion are targeted.

8. The above should call for renewed efforts to boost the manufacturing sector in the region and in Partner States and should not discourage the latest emphasis placed by many Partner States in this important common endeavour. The next EAC ICR report will be in a better position to track the outcome of these latest efforts from 2015.

9. There are also several encouraging messages stemming from the findings of the report. First of all, the past 10-15 years have shown a process of upward convergence among Partner States both in terms of MVA and manufacturing trade values. Kenya leads the way in most indicators, however Tanzania, Uganda, and Rwanda (and Burundi to a lesser extent) have in most cases been able to reduce their gap with Kenya somewhat between 2010 and 2014.

10. Secondly, the EAC dynamic regional context provides probably the greatest opportunity for the region's firms to expand their production capacity (across several dimensions) and to then test their ability to compete in the international markets. All countries, apart from Rwanda, exported larger shares of manufactured goods and of medium and high tech products to the EAC than to the rest of the world, and the region boasted a more diversified manufactured export basket.

11. Thirdly, the EAC market for manufactured goods has been growing at a rate of 16% per annum between 2010 and 2014, significantly higher than other RECs in SSA and offering attractive opportunities for firms to continue exploiting the market. All top demanded 25 products, which include resource-based and low tech products, as well as medium and high tech ones, grew annually at double digit rates.

12. Nonetheless, although EAC firms' exports for most of the top demanded products regionally grew since 2010, it did not happen at the pace and extent needed to match the EAC demand growth, thus allowing firms from outside the region to gain larger market shares. EAC firms lost market share in 22 out of the 25 most demanded manufactured goods, including cement, pharmaceuticals, iron/steel products, and fertilisers.

13. Analysis on the cotton and leather sectors show similar stories in terms of missed opportunities at the level of high-value added products in the value chain, such as for cotton apparel and leather footwear.

14. Coordination of industrial policies and related instruments under the regional aegis of the EAC, while ensuring their harmonisation with other policies and in particular trade, becomes the overarching policy recommendation of this report, setting down favourable conditions for EAC firms to exploit their own regional market. This way, they stand to enhance their industrial capabilities and produce the economic structural transformation envisaged by the EAC Secretariat and Partner States.

15. Formalising industrial development as a key priority across the region supported by the highest level of leadership and by allocating the budget required by approved action plans, would be of course a preliminary condition to streamline the above. This should come along the strengthening of national capacity to implement, monitor and redress approved industrial development action plans and policy instruments.

16. The analysis of industrial drivers has pointed to a number of key constraints to industrial competitiveness. In particular, the need for reforming skills training programmes and curricula to reduce the skills gap and mismatches. Second, the involvement of the private sector alongside vocational training institutions appears critical, especially considering the need for very sector-specific skills profile development and more production and technical training facilities. Public-private partnerships in this area could offer opportunities for aligning interests and resources towards more skills, better skills, and higher level skills.

17. The attraction of investments in the non-extractive sector becomes a key priority in the region, alongside supporting domestic investors willing to expand the manufacturing capacity and target the emerging regional market demand. This demand is today largely captured by importers introducing products in the region, even in areas where countries would have a natural comparative advantage. Making sure that this comparative advantage is properly exploited calls for reforms and enforcements of tariff systems, as well as favouring access to land, long-term finance and other industrial infrastructure.

18. The limited public resources should be concentrated in applied research and various forms of specialised extension services. The coordination of these services and public technology intermediaries in the region – technology, extension and demonstration centres – could play a very important role, especially for those medium enterprises already able to compete in the domestic market, and operating as OEM or second tier suppliers in various sectoral value chains.

CHAPTER A: INTRODUCTION

The principal role of the industrial sector in transforming economies and setting them on a path to growth is widely accepted due to theoretical arguments and strong evidence from countries which prioritised the development of the sector. Although differences exist on the best approach to developing the industrial sector (manufacturing industries in particular), and the role of the state in the industrialisation process, manufacturing industries are often considered the main engine of economic growth. This argument is based on their unique characteristics which include but are not limited to its potential for promoting technological innovation and learning economy-wide, for creating jobs across a range of skill levels, reaching on average higher levels of productivity than in other sectors and fostering linkages with other sectors in the economy. It is therefore unsurprising that there has been an emphasis on industrial development in past and contemporary development plans for many low and middle income countries, specifically development of the manufacturing sector.

In acknowledgement of the need to develop industry to stimulate economic development, the EAC developed an industrialisation strategy for 2012 to 2032. The strategy, which was launched in 2011, is designed to promote structural transformation in the five Partner States with the manufacturing sector as the linchpin for the strategy's success. The objective is 'to enhance industrial production and productivity and accelerate the structural transformation of the economies of the EAC for attainment of sustainable wealth creation, improved incomes and a higher standard of living for the Community' (EAC, 2010). Ambitious targets were set drawing from the EAC Industrialisation Policy including: diversification of the manufacturing base, increase in local value-added in resource-based exports to at least 40% by 2032, expansion of manufacturing exports as a share of total exports to 60% and intra-regional manufacturing exports relative to total manufactured exports to at least 25% by 2032 and strengthening of research and development and technological capabilities towards transformation of the sector through industrial upgrading. Expected long-term outcomes include MVA contributing to 25 % of GDP and MVA per capita reaching 258 USD by 2032.

The EAC Industrial Competitiveness Report assesses progress towards the attainment of these goals through multiple diagnostics of manufacturing sector performance in the EAC and individual Partner States. It benchmarks Partner States' performance against each other as well as selected comparators. Finally, it complements this macro-level analysis with in-depth assessments of strategic value chains in the region and case studies of success stories outside the region. The analysis utilises SITC Revision 3 Data at the 3-digit level which enables product-level analysis and adds depth to the industrial analysis in the report. By adopting a multi-level approach and drawing from the findings in the report, policymakers can develop targeted responses to tackle the multi-layered constraints impeding the growth of the industrial sector. An analytical report of this scope is intended as a rich resource for policymakers, development practitioners, and other interested parties given the detailed analysis of key indicators and policy recommendations on improving performance.

OBJECTIVES OF THE REPORT

The general objectives of the report are:

- Providing a compass to policymakers, the private sector (in particular manufacturing associations), and the wider audience of stakeholders interested and/or involved in industry, on the industrial development trajectory of the EAC as a whole and of the internal dynamics among Partner States;
- Provide evidence-based, shared and implementable policy recommendations for the EAC and Partner States' policymakers who can use them for different purposes, including review of industrial policies, strategies, action plans, instruments and for M&E purposes;
- Generate further awareness on the importance to coordinate economic development activities in the EAC around a common goal to enhance industrial/manufacturing development.
- Provide an example of analytical report that can be produced through the collaboration of EAC Secretariat with Partner States, and as the fruit of public/private sector dialogue, with minimal intervention of external/international consultants;

The specific objectives of the report are:

- Provide a useful diagnostic tool for the EAC Secretariat as an important input to monitor and assess progress of its industrialisation policy, action plan and/or related policy documents;
- Act as a monitoring tool to assess progress against EAC and national industrial development targets and present a list of agreed indicators for EAC harmonised industrial performance assessment (Annex 3);
- Provide useful market information to the private sector to reassess their market/trade expansion strategies and to the EAC to calibrate trade agreements in concordance and not in conflict with industrial development targets;
- Provide an important platform for public/private sector dialogue.

SCOPE AND LIMITATIONS OF THE REPORT

The analysis in this report aims for depth and breadth of coverage and there is a concerted effort to accomplish this; however, it is important to mention the limitations of the report and areas beyond the scope of this analysis.

i. The report is set at macro-level with selected investigations at sectoral (meso) level for particular value chains. Its main goal is indeed, as described in the objectives, to provide a regular, biennual, compass on the general direction of industrial development for policymakers. As a consequence, policy recommendations are pitched at this level and don't go too much into the detail of each sector or value chain, which would then require dedicated technical meetings and reports, as already occurring at EAC level[1]. Therefore, the report provides a solid starting point for further investigations at sectoral level and for more specific policy recommendations stemming from the general scenario herewith described.

ii. The report is mostly focused on describing the performance of the EAC manufacturing sector[2] (sections B-D), particularly in trade, given the availability of data across time and their comparability across countries, while describing the drivers of this performance in Section E. The analysis does not adopt econometrics techniques to asses causality relationships between performances and drivers, rather it offers some explanations on the mechanisms linking them..

iii. The policy recommendations' section does not attempt to provide advice on specific industrial policy instruments that could be derived as these are not deterministically drawn from the analysis of a certain performance or driver. However, the report should provide the basis for substantiated discussions at EAC level, including public/private sector dialogue, for discussing and determining such policy instruments, based also on the analysis of current initiatives at EAC and Partner State level.

iv. The report is based on quantitative analysis in order to ensure an unbiased assessment of the industrial sector and hence, a fair comparison across economies and over time. However, quantitative analysis should be supported and complemented by qualitative information. This would make it possible to triangulate the various data sources and thus strengthen the conclusions from the analysis. While the report incorporates such information to the extent possible, in-depth qualitative research goes well beyond the scope of this report. The findings of this research mainly provide a robust and reliable overview of key trends and issues of industrial development in the EAC, and guide the

[1]The final section on policy recommendations provides some suggestions in this direction.

[2]As explained in the next paragraphs, it is the central assumption of this report, corroborated by plenty of evidence, that the manufacturing sector, among the industrial sub sectors, can contribute most to employment and productivity at the initial stages of development.

analyst in the identification of areas where additional qualitative research would be useful, depending on the reader's interest.

v. In view of the report's focus on the EAC as a whole and on all five EAC Partner States, the review of manufacturing competitiveness and export performance on an individual country basis is confined mainly to the examination of broad aggregates of indicators such as manufacturing value added and the share of manufactures exports. Analysis does take place at the product level utilising SITC Revision 3 data at the 3-digit level; however, much of the analysis is of a comparative nature as Partner States are measured against each other, rather than an in-depth analysis of individual country performance.

vi. As the analysis relies on quantitative methods, it is confined to available data. While production data is available at aggregate level (MVA) for all EAC Partner States, Uganda, Rwanda and Burundi lack data on value added at sectoral level, making it impossible to observe actual production in the different manufacturing industries. As a consequence, the report builds more heavily on export data. Export data can give an indication of the level of domestic production of the same good, although it is not always a reliable proxy. The reason for this is that the export value of a good could be largely the result of production which took place outside and prior to entering the exporting country. Nonetheless, taking into consideration its limitations, export analysis can provide a wealth of relevant information on industrial competitiveness, and data is available at a very disaggregated level (up to five digits in SITC rev 3)[3,4].

vii. *UNIDO's technology classification is based on several assumptions that do not always accurately reflect the technological content of specific activities.* Technologically sophisticated processes can occur in so called lower-technology sectors, while some activities in high-tech industries can be rather unsophisticated. The use of computer-aided design in the clothing industry (low tech sector) and the basic assembly operations in the manufacture of semiconductors (high tech sector) are good examples. UNIDO's methodology aggregates sectors and consequently categorises industries, disregarding these anomalies. Second, the technology classification fails to discern upgrading within sectors – technology upgrading thus only occurs when a country shifts from one industry to another. This is a major limitation that can only be overcome by sector and product-specific analysis. Indeed, Chapter D is an exception to this as it uses unit values to examine upgrading within two specific value chains.

[3] Missing data for the EAC Partner States need to still be pointed out: For Kenya, export data for 2011, 2012 and 2014 are missing, while Rwanda does not report data for 2000. In these cases values from the closest year available were used as proxies (e.g. 2001 data for 2000 in Rwanda, and 2013 data for 2014 in Kenya). These were also taken into consideration for the aggregated analysis of the EAC as one economy. Estimations were also used to substitute for missing data in other RECs included in the analysis.

[4] All data in this report has been downloaded latest in February 2017. Please note that databases update their data regularly and this can cause discrepancies between values found in the report and figures downloaded more recently. Due to the previous lack of data for Rwanda from 2005 in regards to domestic credit to private sector by banks, Figure 5.16 was, as an exception, updated in October 2017

STRUCTURE OF THE REPORT

The report is structured around six chapters:

Chapter A begins with an introduction to the report, stating the objectives and laying out the report structure. The theoretical foundations for the analysis of data and key concepts discussed in the report are also included. Theories of structural transformation across economic sectors and within the manufacturing sector as countries move from less to more sophisticated products are discussed. Attention is given to current debates on comparative versus competitive advantage and the role of regional integration in improving manufacturing competitiveness. The methodological considerations and limitations of the report are also mentioned at the end of the chapter.

Chapter B is an analysis of industrial performance in the region[5]. Section B1 of this chapter compares manufacturing value added and manufactured export performance of the EAC region as a unit against comparators selected by well-defined parameters. Section B2 takes this analysis to a lower level by evaluating individual EAC Partner State performance against each other. At this level of analysis, manufactured exports and market destinations are assessed to a higher level of detail. Movement towards product and market diversification and development of production linkages to the rest of the economy are included in the analysis.

Chapter C reviews the trends in intra-regional trade in manufactured exports in the EAC. By assessing the destinations of manufactured exports from the region, key trading partners and the level of demand for manufactured exports from within the region, the potential to diversify exports and increase trade is evaluated. As in prior sections, performance is measured against comparators. A more detailed examination of market opportunities within the EAC forms the final part of this chapter.

Chapter D focuses on the cotton and leather value chains based on their strategic importance in the region. It includes a comprehensive analysis of export trends, market demand and progress towards diversification and functional upgrading in both value chains.

Chapter E provides an overview of trends for a set of drivers for the earlier analysed industrial competitiveness performance, with a somewhat stronger focus on production and organisational capabilities, as well as production capacity expansion and technological capabilities. This chapter is particularly important as the one dedicated to the “drivers” of industrial competitiveness, and thus the performance outlined in the previous chapters.

Chapter F concludes the report by proposing policy recommendations for addressing the constraints and bottlenecks holding back the manufacturing sector in the EAC based on the analysis in the previous chapters.

[5]Industry references only manufacturing and not other industrial activities such as construction, mining, utilities etc.

A1 THEORETICAL UNDERPINNINGS OF THE REPORT

Industrialisation and the Role of the Manufacturing Sector

The emphasis heads of state around the globe place on industrialisation does not come unfounded, nor is the fact that more developed countries are often referred to as 'industrialised'. As Cambridge economist Ha-Joon Chang claimed: "History has repeatedly shown that the single most important thing that distinguishes rich countries from poor ones is basically their higher capabilities in manufacturing, where productivity is generally higher, and, most importantly, where productivity tends to (although does not always) grow faster than in agriculture and services" (Chang, 2007:213; see also, Andreoni and Gregory, 2013; Andreoni and Chang, 2016).

He is not alone in finding supporting evidence and advocating the development of the manufacturing sector as a key driver for economic growth. Some arguments in favour of industrialisation are listed below:

- Industrialisation is linked with economic growth; generally, the faster the MVA of a country grows, the more rapidly GDP develops (there is globally a strong, positive and linear relationship with an R^2 of 0.42[6]). Similarly, industrial competitiveness is also linked with a country's level of human development. Figure 1.1 illustrates a positive relationship between the CIP Index (UNIDO's measure of industrial competitiveness) and the Human Development Index, by plotting 112 countries' 2010 values. This hints towards the fact that higher levels of industrialisation are associated with higher levels of overall development (including measures of education, health and income). Nonetheless, the relationship here is not linear, suggesting that improvements in the industrial sector at early stages tend to go hand in hand with larger achievements in terms of human development than for countries at already higher levels of development. The figure does not show causality, however, outliers such as Norway, Australia and China suggest that good governance plays an important role in terms of whether industrialisation will have the desired positive spill-overs on other aspects of a nation's development.

- Secondly, manufacturing accounts for the bulk of world exports (77 per cent in 2014), and is less exposed to external shocks, price fluctuations, climatic conditions and unfair competition policies. The price of manufactured goods tends to be more stable than that of commodities. Unfair competition policies have distorted prices around the world, limiting the potential for export growth in some commodities;

- Third, manufacturing generates externalities in technology development, skill creation and learning that are crucial for competitiveness. For instance, manufacturing is the main vehicle for technology development and innovation, representing the hub of technological progress. Industry uses technology in many forms and at different levels

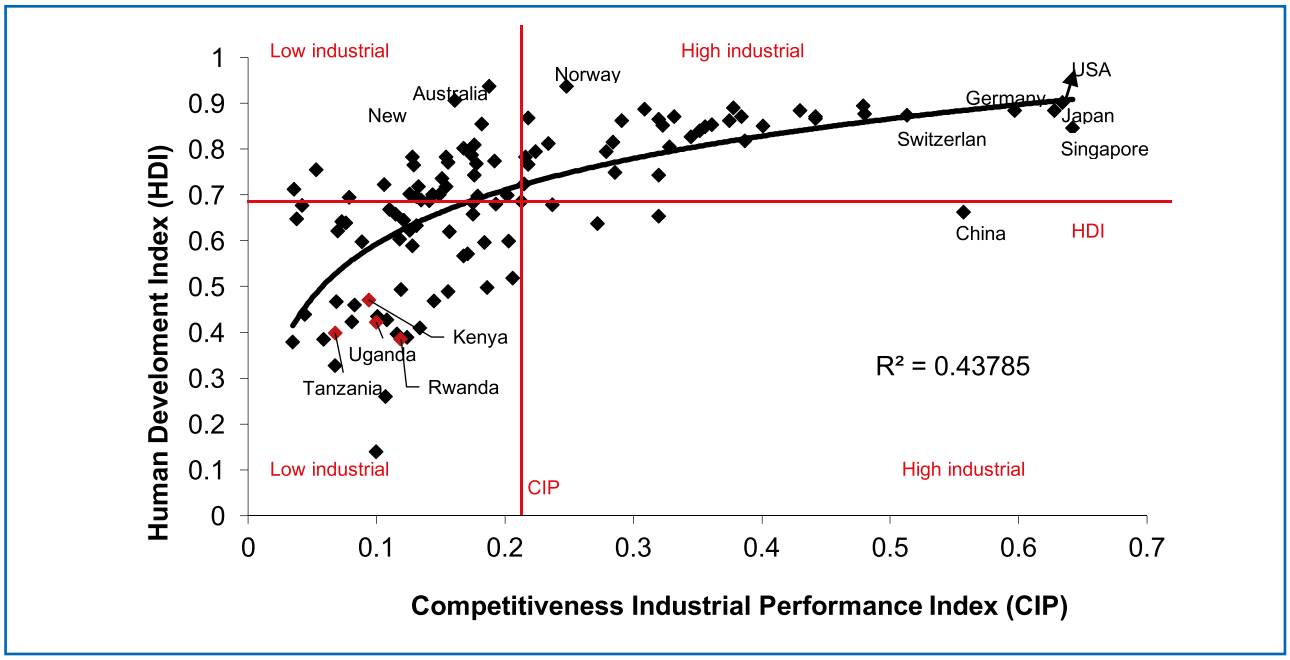
[6] See for example Training manual on indicators of industry and trade competitiveness, UNIDO, 2012

to increase returns to investment by shifting from low to high productivity activities. Globally, 95% of firms' R&D expenditure is undertaken within the manufacturing sector. Manufacturing also offers great potential for informal innovation activities such as ad hoc incremental improvements to products and processes;

- Fourth, manufacturing has the potential to create strong forward and backward linkages with other sectors of the economy. The development of the manufacturing sector stimulates demand for agricultural products and more and better services, especially those with higher productivity and wages such as banking, insurance, communication and transport;

- Finally, the internationalisation of production has spread the benefits of manufacturing. The geographical distribution of the activities of multinational corporations (MNCs) has benefited manufacturing in the developing world more than other sectors of the economy. The trend towards the vertical disintegration of production activities means that developing countries have higher chances of integrating into global value chains.

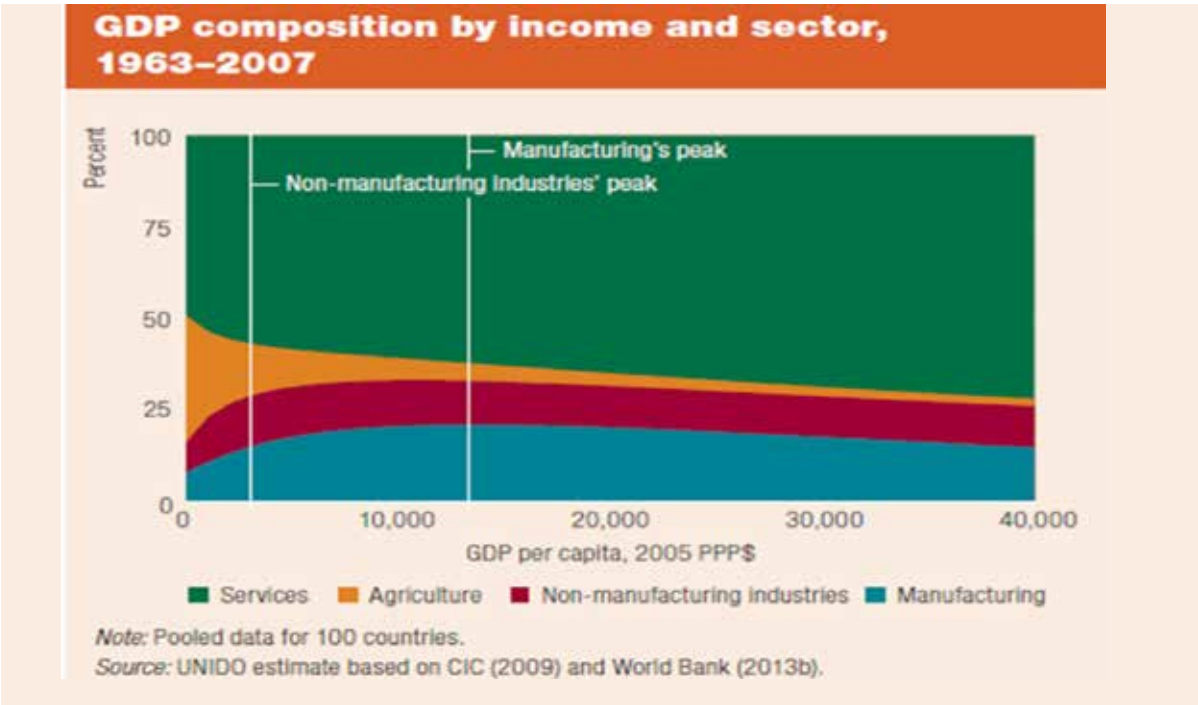
Figure 1.1: Relationship between CIP and HDI indexes, 2010



Source: Author's calculations from HDI and CIP ranking

The UNIDO Industrial Development Report of 2013 provides empirical evidence illustrating that countries are able to increase their share of manufacturing in GDP until they reach upper middle-income levels (Figure 1.2). Countries generally undergo structural change by shifting resources from low-productive activities in the agricultural or informal sector into manufacturing, and the Figure illustrates that this shift happens until countries have a GDP per capita level of roughly 13,000 USD (PPP) on average. After this point high-productivity services (particularly manufacturing-related services) gain larger shares in GDP, at the expense of the manufacturing sector.

Figure 1.2: GDP composition by income and sector (1963-2007)



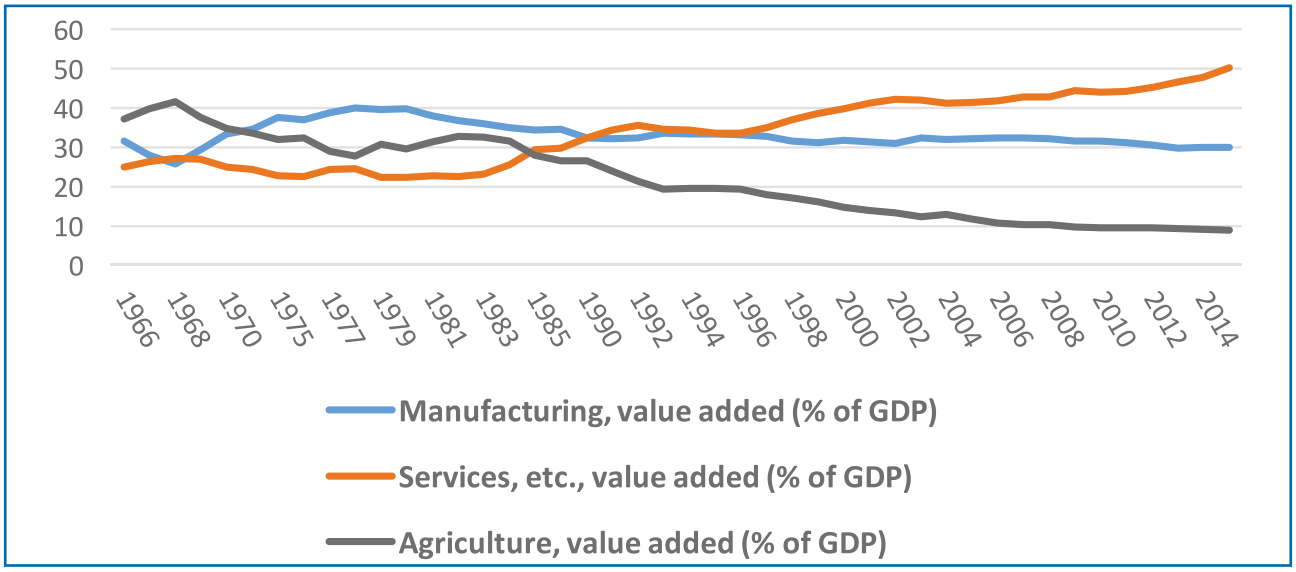
As mentioned earlier, the EAC has recognised the importance of the manufacturing sector for the region's development and has an Industrialisation Policy and Strategy in place, which spells out a set of precise targets. The first expected long-term outcome is to increase the share of manufacturing in GDP to 25% by 2032, reflecting the idea of structural change towards more productive sectors, albeit being a very ambitious target considering countries on average reach just under 20% at their peak, as indicated in Figure 1.3.

Does Manufacturing Still Matter?

In an interesting turn of events, recent headlines and statements about the dominant role of the manufacturing sector in economic development, with emphasis on its job creating potential, are now attributed to policymakers and politicians in mature, high-income economies. Theories and stylised facts on structural transformation predicted these economies, which began as agrarian societies and transitioned to manufacturing powerhouses would eventually experience a movement of labour and capital into high productivity services as they mature. Although many high-income economies are experiencing this transition, it is apparent that despite the growth of the service economy, the loss of manufacturing jobs to low-cost locations due to increased trade liberalisation and as predicted by these theories has serious implications for political and economic stability. Thus, within the current political climate, manufacturing is now more important than ever as mature economies are making concerted efforts to recapture 'lost manufacturing jobs' (Andreoni and Uppadhaya, 2013).

These new trends are taking place in a global economy where China, the world's manufacturing hub, is undergoing gradual structural transformation as services are becoming more important as a share of GDP (Figure 1.3). As wages rise in China and pressures increase from relatively onerous tax requirements there is potential for manufacturing jobs, especially low skill activities to shift to even more accommodating low cost locations (ODI, 2016). At the same time, the Chinese economy is shifting from a largely export-led strategy towards a focus on its large domestic market, thus creating opportunities for new producers to enter the export market for manufactures. As China continues to innovate and climb up to more complex activities along production value chains, points of entry are becoming available for less skilled tasks. Although these changes are gradual and the Chinese economy is still expected to grow by a respectable 6.5% in 2017 (IMF, 2017) it adds support to the need to place discussions on the nature of structural transformation and the role of manufacturing at the top of the global agenda.

Figure 1.3: Structural Transformation in China as percentage of GDP (1966-2014)[7]



Source: World Development Indicators

The Changing Nature of Manufacturing

Prior to the emergence of these new globalisation trends, it became apparent that low and middle income economies seeking to transform their manufacturing sector would do so under circumstances different from that in which the most recent transformations in East Asia and China took place. As manufacturing production becomes more fragmented and value chain approaches become more widespread, firms can gain entry at various points along the value chain. The EAC is taking advantage of this opportunity in several resource-based manufacturing products; however, without a commitment to continuous functional upgrading to rise to higher levels of the value chain where more value is captured, producers could become trapped in low level activities.

[7]2013 manufacturing value added data was adopted for 2014 and 2015.

These phenomena point towards the need for a deeper understanding of structural transformation. At low income levels, most economic activity is concentrated in the agricultural sector. As the economy grows, labour and capital resources tend to move from low-productivity activities in the agricultural sector into high-productivity manufacturing and services. Wages in the manufacturing sector are relatively higher due to greater levels of productivity and this leads to an increased demand for manufactured goods which in turn spurs productivity. Greater opportunities for economies of scale, increasing returns to scale and rapid technological change and innovation are also present in the manufacturing sector and contribute to its increased competitiveness. At even higher productivity levels, a similar transition, but now from the manufacturing to high value services is expected to occur; however, given the capital and knowledge-intensive nature of services there is less potential for the absorption of labour into services. This progression is demonstrated in empirical studies of many high-income countries but for most countries in Africa, manufacturing sector productivity remains low and premature de-industrialisation is taking place as labour moves from agriculture and out of a declining manufacturing sector into low value-added services.

Beyond the changes which take place at the sectoral level, structural transformation also takes place within sectors as producers move from simple to more complex activities. It has been found that the proportion of resource-based, labour intensive and skill/capital intensive industries in a country's manufacturing sector vary at different income levels (UNIDO, 2013). This points towards structural transformation within the manufacturing sector as more efficient technology and knowledge-intensive methods of production are adopted. This is evidenced by a transition from low to medium and subsequently high technology manufacturing. Low technology activities are usually labour intensive with limited application of technology, medium technology activities tend to be more capital intensive in nature with greater use of technology while high-technology activities are very capital and technology intensive. As expected, greater value is captured as the level of technology intensity increases thus reiterating the need to encourage structural transformation within and across economic sectors.

Related to these transitions is the rise in manufacturing-related services where ancillary services essential to the production process are not only moving out of manufacturing into the service sector but are being captured by producers in high-income countries. These services include transportation, distribution, logistics, finance, design, marketing, supply chain management and research and development. Contingent on the extent of the application of knowledge and technology in delivering these services, many are high value-added in nature. Due to the sophisticated skill levels required to develop and deliver these services, many low and middle income countries have not made significant inroads into these sectors. The limited job creation potential in these sectors in countries where unemployment figures are high and skill levels are low means that developing capabilities in these service areas is not a priority. However, it is important that manufacturing-related services are kept in view in the development and implementation of industrialisation and development strategies.

The role of manufacturing in facilitating economy wide linkages is highlighted by the emergence of manufacturing-related services. It harks back to the seminal work of Hirschman (Hirschman, 1958, 1977) which laid the theoretical foundation for understanding how linkages are developed and how important they are to the development process. The study of fiscal, organisational, technological and most notably, production (forward and backward) linkages developed from this work. In his conceptual framework, through the creation of linkages from sectors with potential for strong forward and backward linkages, such as the manufacturing sector to low productivity sectors, growth can be catalysed economy-wide. Unlike the manufacturing sector, resource-based sectors such as agriculture have weak potential for backward linkages and tend to serve as a supplier of inputs to other sectors. The implementation of resource-based industrialisation in the EAC derives from this theory as Partner States are focused on ascending the production value chain through beneficiation of primary commodities such as cotton and leather to capture additional value. This strategy entails developing one's comparative advantage as a pathway to developing competitiveness. It spurs productivity in the resource-based sectors and provides a feasible path for developing capabilities and creating jobs for low skill workers.

Comparative versus Competitive Advantage – Same Difference?

The classical theory of comparative advantage as developed by David Ricardo shows how a country without an absolute advantage in any industry may experience gains from trade by specialising in those industries in which it is least bad (Lin & Chang, 2009). In the present day, low and middle income countries tend to interpret a recommendation to focus on their comparative advantage as synonymous with primary commodity dependence. On the other hand, the development of a competitive advantage is characterised as a defiance of one's comparative advantage to develop competence in the production of sophisticated products.

An oft-cited example is the East Asian experience where countries like Singapore with high initial poverty levels and minimal natural resources developed capabilities in electronics, chemicals and financial services among others. However, a more nuanced interpretation recognises that the development of comparative advantage lies on the path to improving one's competitive advantage as natural resources are exploited, the environment is harnessed through the development of infrastructure, skill and education levels of the labour force are improved, and innovation and technological capabilities are developed (Lin & Chang, 2009). One does not preclude the other and both require state intervention to mobilise the resources needed for provision of public goods in areas such as infrastructure, research and development and education which are required to build and maintain industrial competitiveness. The extent of intervention is still the subject of debate but there seems to be consensus in acknowledging a central role for the state (Noman and Stiglitz, 2016).

Regional Economic Communities and Manufacturing Convergence

Participation in regional trade blocs seems a logical decision for many Sub Saharan Africa (SSA) countries given the small size of their markets, the landlocked nature of many countries on the continent and infrastructure challenges. Regional integration seems to offer a means to overcome these limitations by providing opportunities for exploiting economies of scale and access to larger markets through the lowering of tariff and non-tariff barriers. Countries are expected to exploit the gains of trade through intra-regional trade among members of the same REC and by so doing "learning by exporting" in preparation for entry to foreign markets. It should also facilitate investment in cross-border infrastructure which would otherwise be impossible for individual countries. Convergence among member states is also an expected outcome as smaller countries gain access to and piggyback on capabilities already developed in larger Partner States. However, the expected gains from regional integration are not guaranteed and there can be winners and losers in the process.

Advances in international trade theory, such as Paul Krugman's (1991) New Economic Geography which analyses how the spatial location of production centres can affect development have implications for RECs. Certain interpretations of this theory advocate against South-South cooperation as the presence of one country with greater manufacturing capabilities can lead to the relocation of manufacturing to that country from less endowed countries, resulting in greater divergence. Trade diversion rather than trade creation is also a possibility as tariff levels fall and countries with less developed manufacturing sectors may be compelled to trade with higher cost producers in member states and forgo trade with lower cost producers outside the region (Draper & Nene, 2015). In many RECs in Africa, overlapping membership of RECs, which hinder full commitment to membership treaties, is a real concern. The fact that many REC member states in Africa tend to specialise in the same products could also limit the benefits from specialisation and development of one's comparative advantage (Geda & Kebret, 2008).

These potential drawbacks must be considered to ensure convergence takes place and the gains from integration outweigh the losses so countries with either less developed capabilities or markets reap benefits from the relationship. Some theorists recommend that the development of sound macroeconomic policy and accumulation of physical and human capital should be the focus of regional arrangements (Fine & Yeo, 1997). Others suggest that fostering cooperation in national resource and infrastructure development, building trans-border institutions and complying with trade agreements would yield great gains (Robinson, 1996; Ansu et al, 2016). The possibility of convergence in manufacturing productivity arising from free trade agreements is an important one for the EAC and other RECs in Africa given that industrialisation and increased trade in manufactured exports is a central goal of most development plans. Success on this front is minimal and in some cases, non-existent for most African RECs.

In the case of the North American Free Trade Agreement (NAFTA), there is empirical evidence indicating that Mexico increased its Total Factor Productivity (TFP) between 1993 to 1999. This is ascribed to factors such as competitive pressures, greater access to inputs and capital and knowledge spill-overs arising from preferential access to markets in the United States of America and Canada (López-Córdova, 2002). A more compelling and recent example is the case of the Association of Southeast Asian Nations Economic Community (AEC). At inception, there was limited trade among member states due to similarities in export composition and the largest countries, Singapore and Thailand dominated trade (Cheewatrakoolpong et al, 2013; Chia, 2013). This is gradually being overcome with the rise of the vertical integration of global production networks. Trade in machine parts and components among member states is slowly growing and smaller countries are exploiting production opportunities arising from wage differentials.

In the case of the EAC, it was discovered that although the EAC intra-regional market is an important one for all Partner States, it is more important for some countries than others. Trading among Partner States seems to provide an opportunity to diversify exports; however, it was found that firms in the region can do more to take advantage of latent global demand for specific goods manufactured in the region. These and other findings are further developed in the report. The Southern African Development Community (SADC) is reaping greater benefits from intra-regional trade and a case study drawing out lessons for the EAC is included in the report. However, experiences from outside the continent can also provide examples which demonstrate how best to foster manufacturing productivity among member states.

As discussed earlier in this chapter, pressures from globalisation and the changing political landscape worldwide are placing free trade agreements under increasing scrutiny. This is coupled with global economic challenges putting strain on manufacturing productivity. Regardless of the uncertainty this brings, regional integration provides an opportunity for low and middle income countries to address structural impediments to manufacturing productivity such as poor infrastructure, low skill levels and weak institutional arrangements while developing technological capabilities and building strategies to enter and advance along global value chains. Thus, there is the need to develop adaptive solutions that acknowledge external pressures while ensuring gains from integration are evenly distributed among Partner States.

A2 METHODOLOGY AND SCOPE

Competitive Industrial Performance Indicators and Conceptual Framework

In this report, industrial competitiveness is understood as "the capacity of countries to increase their industrial presence in domestic and international markets while developing industrial structures in sectors and activities with higher value added and technological content" (UNIDO, 2002-2003 and UNIDO 2012-13). UNIDO's Competitiveness Industrial Performance methodology is aimed at measuring, to the extent possible, the above statement through a combination of eight indicators.

The Competitiveness Industrial Performance Index and its indicators is a benchmarking tool, which allows any economy to compare its industrial growth to that of other countries and regions globally and throughout time. This is possible, as the indicators use publicly available data from international databases (such as World Bank's World Development Indicators, UNCOMTRADE's trade database and UNIDO's Industrial Statistics, INDSTAT, database). The use of such data makes cross-country comparisons and time-series analysis possible. The benchmarking exercise of this methodology means that it becomes possible to identify and track the developments of economies identified as role models, and current or future competitors, to better understand where the country or region in question is positioned. Box .1.1 below summarises the different dimensions and indicators of the CIP Index.

While these indicators measure the performance of the industrial – and more specifically, the manufacturing – sector, industrial competitiveness is embedded in a conceptual framework presented in Figure 1.4. The figure depicts how the industrial system of an economy is affected by national and international factors. International factors which have an impact on national industrial performance include changing dynamics and results of globalisation, trade regimes, and the fast pace of technological change causing rapid shifts both in demand and production. Domestically, a range of factors matters substantially, such as the overall business environment and the extent to which this is conducive for manufacturing in particular, the availability of reliable intermediary institutions providing services and support required by manufacturers and inputs available and capabilities of the national industry itself. Whereas a national government will be in a weak position to influence international factors, it is its role to ensure that national factors can encourage, rather than hinder, industrial development, taking into consideration the global trends.

Box 1.1: Dimensions and indicators of the CIP index

Industrial capacity. MVA per capita is the basic indicator of a country's level of industrialisation adjusted for population size. It shows a country's capacity to add value in the manufacturing process. Yet MVA is not always exposed to international competition – inward-oriented policies and trade barriers can limit the exposure of domestic industries to global competition. MVA analysis may show distorting results for countries that have undergone a long period of protectionism and import substitution. It is therefore important to combine MVA with export orientation, which places the competitiveness of industrial activity in the international scene.

Manufactured export capacity. In a globalising world, the capacity to export is a key ingredient for economic growth and competitiveness. Manufactured export per capita is the basic indicator of trade competitiveness: it shows the capacity of countries to meet global demand for manufactured goods in a highly competitive and changing environment. Manufactured exports indicate whether national MVA is in fact competitive internationally. MVA also adds to trade analysis as it shows the extent of value that domestic companies contribute to exports. Trade analysis on its own can cause distortions in the case of countries with low domestic capabilities, but is used by multinational corporations (MNCs) as export platforms.

Impact in world MVA. The impact of a country in world MVA production is measured by its share in world MVA, which indicates the relative performance and impact of a country, taking into account total volumes of manufacturing production. It indicates the position of a country relative to others in terms of its contribution to world MVA.

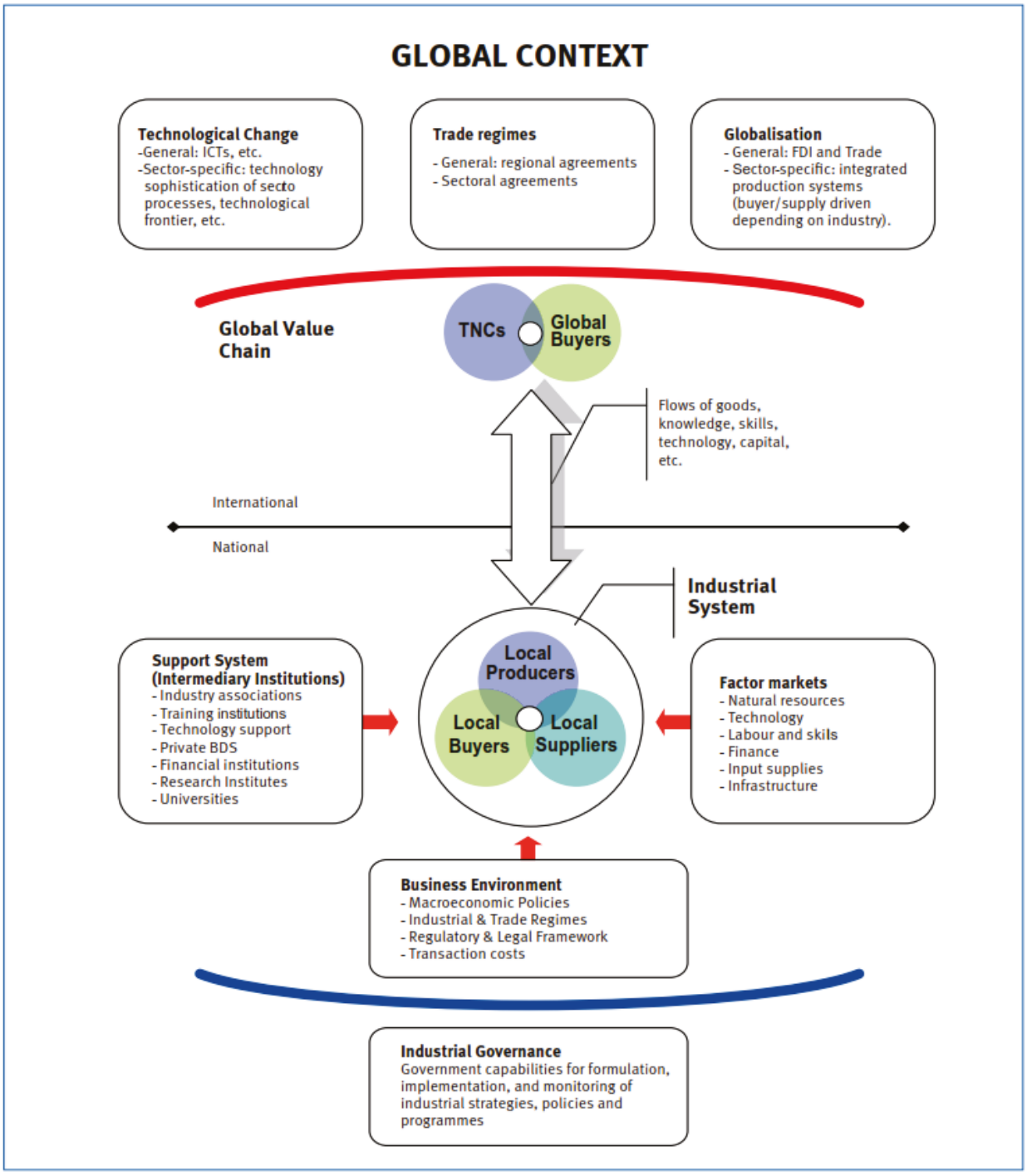
Impact in world manufactured trade. The impact of a country in world manufactured exports is measured by its share in world manufactured exports. It reveals the competitive position of a country relative to others in international markets. Gains in world market shares reflect improved competitiveness, while losses signal a deterioration of a country's competitive position.

Industrialisation intensity. The intensity of industrialisation is measured by the arithmetic average of the share of MVA in GDP and the share of medium and high technology activities (MHT) in MVA. The former captures the role of manufacturing in the economy and the latter the technological complexity of manufacturing. The latter variable also adds positive weight to complex activities on the grounds that these are desirable for competitive performance: a more complex structure denotes industrial maturity, flexibility and the ability to move into faster growing activities. However, the measure only captures shifts across activities and not the upgrading within them, and it overlooks an important aspect of technological improvement. It is also fairly aggregate and cannot capture fine technological differences within the categories (some low-technology activities may have segments of high technology, and vice versa). These deficiencies reflect the nature of the data, but the broad findings appear to be sound and plausible.

Export quality. The quality of exports is measured by the simple formula of the share of manufactured exports in total exports and the share of medium and high technology products in manufactured exports. The reasoning is similar to that of industrialisation intensity. The share of manufactured products in total exports captures the role of manufacturing in export activity. The share of medium and high technology products captures the technological complexity of exports, along with the ability to manufacture more advanced products and move into more dynamic areas of exports.

Source: UNIDO Training manual

Figure 1.4: Analytical and conceptual framework for industrial competitiveness



Source: UNIDO

The conceptual framework aids the analyst to comprehend how industrial performance of a country is embedded in a complex and closely intertwined reality, keeping in mind that these are by far not all the factors influencing competitiveness. While the framework seen in Figure 2.1 is used for the macro-level CIP analysis, it becomes even more relevant to use this when sub-sectors or value chains are examined. Each value chain, sector, product and firm will be affected in distinct ways by national and international circumstances.

Methodological Considerations

The report has considered the following in its methodology:

i. ***The importance of benchmarking.*** A comparison of blocs/countries in terms of performance and industrial capacities is intrinsic to this methodology. Benchmarking is necessary because industrial competitiveness is a relative concept; hence, comparisons are essential for determining whether a regional/country is more or less competitive in relation to other countries. The report benchmarks EAC against three regional blocs (SADC, ECOWAS, CEMAC) and four countries (South Africa, Vietnam, Egypt and Ethiopia) based on several criteria: *immediate competitors, future competitors, role models and neighbouring economies;*

ii. ***The use of UNIDO's technological classification for manufactured trade and manufacturing value added (MVA).*** The report uses UNIDO's technological classification to shed light on the evolution of production and export structures in EAC and its comparators. It distinguishes between resource-based, low-technology, medium-technology and high-technology products both in manufactured exports and MVA *(see Annex 1);*

iii. ***Use of quantitative and transparent data.*** The report does not rely on business perceptions to assess EAC's industrial competitiveness; rather, it exploits international databases where national data is collected and harmonised regularly. This allows for an unbiased analysis of industrial performance, along cross-country and longitudinal dimensions.

iv. ***Use of international data sources and classifications for cross-country comparisons.*** Although national data can be rich, discrepancies in the classifications, collecting and reporting of data is common across countries. In order to carry out cross-country analysis, as done in this report, it is therefore necessary to rely on international databases where methods are aligned to the extent possible.

v. ***Analysis of levels and trends.*** The report assesses EAC's industrial performance in the latest year for which data is available (2015 for MVA, and 2014 for export data), as well as the overall trends for a specific period (since 2000). Such an analysis is particularly useful for regional/countries experiencing high levels of growth, which have not yet achieved the rates of development typical of industrialised countries; and

vi. ***Macro and sectoral analysis.*** Macro analysis provides a general overview of a regional/country's industrial competitiveness vis-a-vis other regional/countries, and between Partner States. It does so particularly by using different indicators of UNIDO's Competitive Industrial Performance (CIP) Index. However, while analysis at the macro level shows current levels of industrial development and the direction it is taking, it is of limited use when designing policies, as they usually overlook sectoral dynamics. Many reports lack sectoral analysis, leading to overly generalised policy recommendations.

This report combines macro with sectoral analysis, enabling policymakers to establish realistic and applied parameters. The depth of sectoral analysis depends on various factors, including data availability and the objective of the study. The report uses sectoral and product level data in different ways, such as to identify trends of EAC's main exports, to observe linkages of different manufacturing sectors, and to identify market opportunities for manufactured products within the region. In addition, Chapter D is fully based on data at product level, as it examines the cotton and leather value chains.

CHAPTER B: EAC INDUSTRIAL PERFORMANCE

In this chapter, manufacturing production and export trends in the EAC between 2000 and 2014/15 are examined utilising the CIP methodology[8]. The methodology focuses on the capacity to produce and export, measured by MVA and manufactured exports per capita. Structural change, which in this case entails the transition from an agriculture-based economy to manufacturing, is also assessed. Lastly, an examination of sectoral composition within the manufacturing sector is included in the analysis. In the first section the EAC is evaluated as an entity and its performance compared to other regions and countries. A comparative analysis of the five EAC Partner States is undertaken in the second section while the final section provides insight into the robustness of industrial development trajectories in the region through an assessment of diversification and domestic linkages.

Benchmarking is an important aspect of the UNIDO CIP methodology. By comparing industrial trends across economies rather than a narrow focus on a single economy's performance over time, it is possible to better assess a country's industrial competitiveness. Furthermore, the methodology considers the influence of exogenous factors such as globalisation, competition, regional integration and technological change on national industrial performance. This increases the significance of international comparisons when defining national industrial targets and strategies. The use of appropriate comparators also provides an opportunity to identify best practices and lessons learnt from higher-performing economies.

B1: EAC'S INDUSTRIAL PERFORMANCE – A COMPARATIVE ANALYSIS

Several factors are considered in the selection of comparator countries for benchmarking the EAC's industrial performance. ECOWAS, CEMAC, SADC, Ethiopia, Vietnam, South Africa and Egypt were selected based on the following criteria and following discussions during the workshops that validated this report:

- **Immediate competitors** that, given similar factor endowments, specialise in the same or related industrial sectors;
- **Neighbouring economies** that share the same geographical advantages and have similar production structures;
- **Future competitors** that are likely to pose a competitive threat in sectors of comparative and competitive advantage;
- **Role models** that suggest obtainable goals for industrial development.

[8]Export data (from UNCOMTRADE) is available until 2014, while production data (from WDI) until 2015.

Table 2.1: Economies selected as comparators[9]

Criteria	Countries
Immediate competitors	ECOWAS, CEMAC & SADC (excluding South Africa & Tanzania)[10]
Neighbouring countries	SADC (excluding South Africa & Tanzania)
Role models	South Africa, Vietnam & Egypt
Future competitors	Ethiopia

Countries acting as role models share the fact they all managed to build up a solid industrial base, in particular strengthening agro-industry which is a priority sector for the EAC. In particular, Vietnam provides a more recent and relevant case study. Following a difficult transition phase in the period 1986-1990, seeing the role of manufacturing collapsing due to the dismantling of state-owned enterprises, it managed to slowly recover and set strong foundations for manufacturing-led structural change, with the first visible results in the mid-1990s and particularly after 2003. This was initially driven by the expansion of the food and beverage sector, still dominating Vietnam's MVA (20-25%), though latest trends indicate early signs of the country moving towards a second stage of structural transformation, from resource-based and low-tech to medium-tech manufacturing. Having managed successfully the first stage of industrialisation, while still relying on close linkages to agriculture, Vietnam provides a more realistic example to draw some lessons from by the EAC, compared to other successfully developed Asian economies at a different stage of development (e.g. Malaysia).

In the African context, in spite recent setbacks, South Africa and Egypt still provide an advanced example of developed agro-industrial sector, but whose foundations date further back more in the past compared to Vietnam.

In this respect, Ethiopia provides an even closer example as regards the recent development of its agro-industry, especially the leather sector (see Box 4.4 in this report). It registered impressive growth rates across several CIP indicators, projecting it on a fast-track path towards catching up on main industrial performance indicators with main EAC competitors, including Kenya.

[9] Please note the report makes an effort to consistently use the same comparators throughout the different sections. However, when data was lacking or it was not from the same source, in some cases certain comparators are omitted.

[10] Note: South Africa was taken out of the analysis for SADC as it started from a very different stage of industrial development compared to the other countries. Its dominant role in SADC would overshadow the performance of the remaining countries that provide more relevant benchmarks. Tanzania is also excluded from SADC to prevent double-counting.

Manufacturing Value Added Performance

EAC's GDP grew at an average rate of 5.8 % per annum between 2000 and 2015. This is significantly higher than the global average of 2.9 % during the same period and slightly above the 5.1 % Sub-Saharan Africa's average (Table 2.2). Between 2004 and 2013 the EAC was in the top fifth of the distribution of ten-year growth rate episodes measured globally since 1960[11]. Such a growth rate is impressive when the on-going global economic and financial crisis, which began during this period, is considered.

EAC's MVA grew slower than its GDP, at 4.7 % on average per annum since 2000. Its service sector grew by 6.1 % per annum, resulting in it gaining a larger share of GDP, while agriculture grew at 3.4 %. Furthermore, MVA growth slowed down since 2010, dropping to 4.6 % per annum in the 2010-2015 period, versus 5.3 % per annum between years 2005 and 2010. Since 2010 the region's manufacturing sector grew slower than the Sub-Saharan Africa average of 5.5 %.

In the Sub-Saharan African context, it is interesting to compare EAC performance with other RECs on the continent. The ECOWAS manufacturing sector is growing relatively faster at an average annual growth rate of about 9 % and recorded double-digit growth rates since 2010. Neighbouring Ethiopia, although at an earlier stage of industrialisation, recently boasted MVA growth rates exceeding the ECOWAS average, thus suggesting that the EAC has the potential to further accelerate its growth as well. The need for accelerated manufacturing sector growth in the EAC is further amplified considering that present MVA growth is insufficient to drive needed structural change in the region. The contraction of the share of manufacturing in the economy is hampering the extent to which the sector can have positive impacts on economic development and improvement of living standards in the region. To reverse this trend the EAC will need to accelerate manufacturing sector growth in the coming years. By studying best practices and implementing lessons learnt from similar well-performing economies this process can be supported.

Table 2.2: GDP and MVA growth rates for the EAC and selected countries and country groups

	GDP growth (constant 2010 USD)				MVA growth (constant 2010 USD)			
	2000-2005	2005-2010	2010-2015	**2000-2015**	2000-2005	2005-2010	2010-2015	**2000-2015**
China[12]	9.8%	11.3%	7.8%	**9.6%**	.	.	.	**.**
Ethiopia	6.4%	10.9%	10.1%	**9.1%**	5.3%	9.5%	14.0%	**9.6%**
Mozambique	8.9%	7.4%	7.0%	**7.8%**	14.7%	1.3%	3.1%	**6.2%**
ECOWAS	8.4%	6.6%	5.0%	**6.7%**	7.3%	7.0%	11.8%	**8.7%**

[11] http://voxeu.org/article/growth-east-africa-real, 30 Aug 2016
[12] Note: MVA data for China is not available

Vietnam	6.9%	6.3%	5.9%	**6.4%**	11.7%	2.4%	9.6%	**7.8%**
EAC	5.4%	6.1%	5.9%	**5.8%**	4.3%	5.3%	4.6%	**4.7%**
SADC (excl. SA & Tanzania)	3.5%	7.6%	5.1%	**5.4%**	-7.6%	-3.5%	2.5%	**-2.9%**
SSA	5.7%	5.6%	4.1%	**5.1%**	3.8%	3.7%	5.5%	**4.3%**
CEMAC	7.0%	3.3%	3.5%	**4.6%**	3.5%	1.7%	4.4%	**3.2%**
EAP	4.2%	4.9%	4.3%	**4.5%**	.	.	.	**.**
Egypt, Arab Rep.	3.5%	6.2%	2.5%	**4.1%**	3.3%	6.0%	1.9%	**3.7%**
South Africa	3.8%	3.1%	2.1%	**3.0%**	3.1%	1.7%	1.1%	**2.0%**
Latin America & Caribbean	2.7%	3.8%	2.1%	2.9%	3.3%	2.0%	0.5%	1.9%
World	**3.1%**	**2.6%**	**2.6%**	**2.8%**	**2.6%**	**1.7%**	**1.8%**	**2.0%**

Source: WDI

Slow Developments in MVA Per Capita

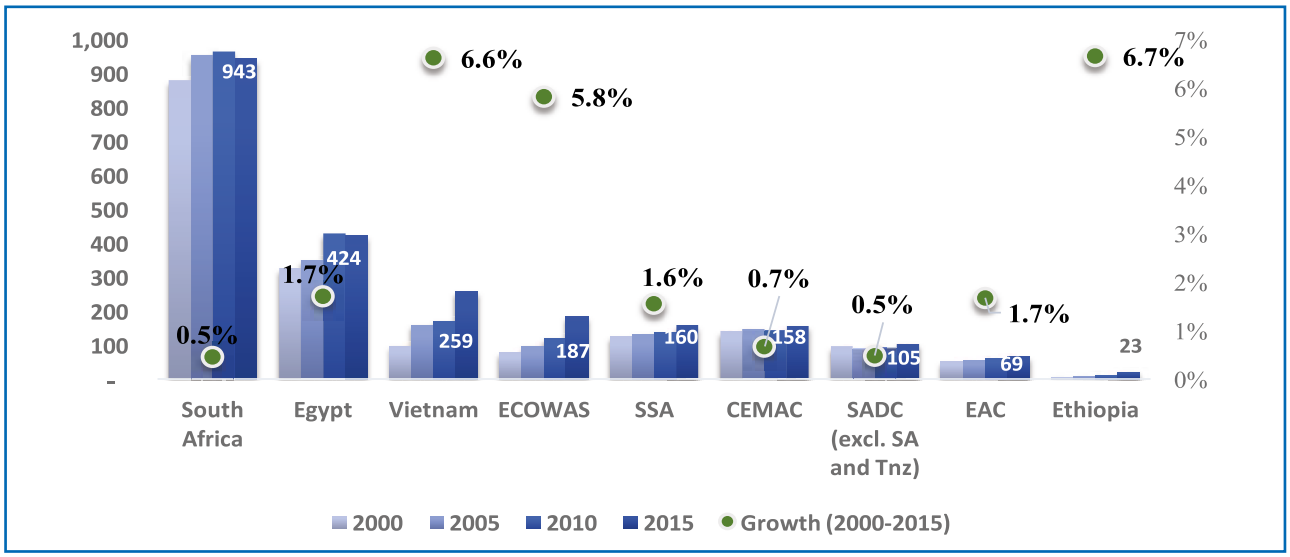
By discounting MVA by population size it is possible to objectively assess manufacturing productivity measures in the EAC with comparators. After Ethiopia, EAC has the lowest MVA per capita level of 68.9 USD in 2015 among all comparators. In addition, it also exhibited a relatively sluggish increase of 1.5 % per annum since 2010, or 1.7 % on average since 2000. This suggests that EAC MVA growth is decelerating and is less impressive when population size is discounted. Countries starting from a similar level of industrialisation as the EAC but which succeeded in further industrial deepening mostly experienced a faster rate of MVA per capita growth at initial stages[13].

One of the key targets of the EAC Industrialisation Strategy is to achieve MVA per capita of 258 USD by 2032. Projections based on the current growth rate imply that the region would only attain an MVA per capita level of about 87 USD in 2032. To realise this ambitious goal, average annual MVA per capita growth must be kept as high as 8.1% for the next 16 years. None of the economies observed managed to achieve such a high growth throughout a 15-year period, although Vietnam, Ethiopia and ECOWAS achieved similar or higher growth rates since 2010.

To meet this target, it is apparent that there is a pressing need for the EAC to emphasise the importance of prioritising strategies, action plans, interventions and activities towards facilitating and boosting industrial production within the region. This will require the attention of top-level decision makers and the actions of a wide range of stakeholders in the public and private sector working on private sector and industrial development.

[13] See for example Vietnam, in UNIDO Industrial Development Report 2013.

Figure 2.1: MVA per capita (constant 2010 USD) for EAC and comparators



Source: WDI

Static Structural Change Towards Manufacturing

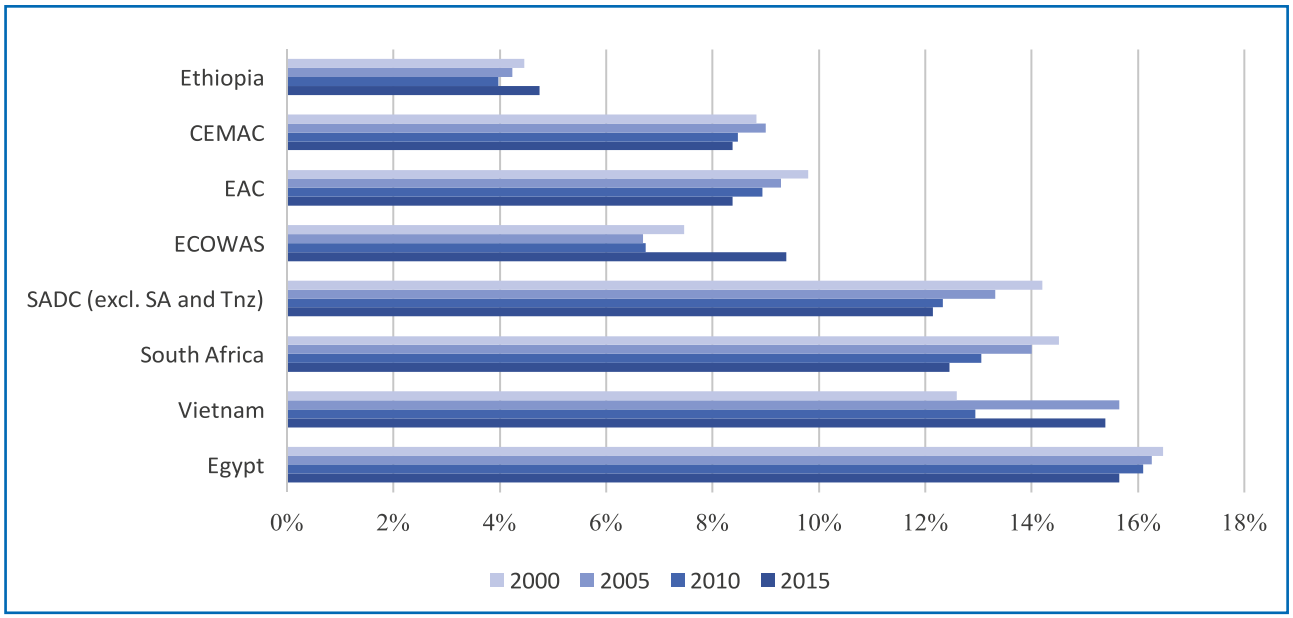
Structural change of the economy towards manufacturing is a prominent element in the national and industrial development strategies of many developing countries. It is perceived to enhance productivity, broaden the employment base and ultimately achieve economic development and poverty reduction. Structural change refers to long-term changes in the relative importance and shares of the major economic sectors, namely agriculture, industry and service. This includes changes in the shares of production, capital and labour in the sector. This can be achieved through diversification, upgrading and industrial deepening, subject to the country's current stage of development among other factors. Structural change can occur across sectors, for example a transition from primary production to manufacturing, although also within a sector, as occurs in moving from low technology to medium or high technology manufacturing.

If discounting by population size already demonstrates the limited impact of MVA growth, structural change in manufacturing uncovers even more the fragile foundations of MVA growth in the EAC. MVA expanded slower than GDP, causing the manufacturing sector to contract as a share of GDP. MVA contribution to GDP was 9.8% in 2000, declined to 8.9 % in 2010 and further to 8.4% in 2015. The downward trend falls short of the objectives envisioned in the EAC Industrialisation Policy and Strategy, setting the ambitious target of a 25% MVA contribution to GDP by 2032. The EAC is not the only region struggling to generate structural change, (Figure 2.2); however, there are some successful cases, such as Vietnam, Ethiopia and ECOWAS which recorded high and/or increasing MVA shares in GDP since 2010. Particularly remarkable is the case of ECOWAS, rising to 9.4 % in 2015.

A key objective of the region is to increase the share of manufacturing in GDP and this can be achieved through the processing of agricultural or other primary products, given the natural endowments of the region. This should ensure higher and more stable revenues as well as the creation of new jobs. The benefits of undergoing structural change towards production processes with higher value added was addressed in Chapter A. UNIDO's Industrial Development Report of 2013 finds that countries at similar stages of development to the EAC tend to have higher shares of MVA. Additionally, countries are generally able to increase their MVA shares as they develop further, until they reach upper middle income to high income levels. This gives support to the belief that the structural shift towards manufacturing envisaged for the EAC can take place at a faster pace if strong support is given to the sector.

The faster growth of EAC's GDP compared to its MVA stems from relative increase in value added from the service sector (6.1% per annum since 2000), whose contribution rose to almost half of GDP in recent years. It needs to be acknowledged that the service sector is largely non-tradable and therefore less affected by international competition. Nonetheless, research shows that it needs backing by a strong and solid manufacturing sector to ensure it can sustain positive performance in the long term. The manufacturing sector creates demand for services, thus developing potential business opportunities and indirectly creating jobs. Furthermore, many jobs in the service sector attract lower wages than the manufacturing sector, especially low-skilled activities, such as retail (see UNIDO IDR 2013). For these reasons, sidestepping the manufacturing sector is not a recommended approach to long-term development in economies where the service sector is largely based on low-skilled and low-wage activities.

Figure 2.2: The contribution of the manufacturing sector to GDP (2000-2015)



Source: Author's calculations, WDI

Box 2.1: ECOWAS industrial performance

The analysis so far indicated a relatively stronger performance of the ECOWAS manufacturing sector. This was observed by considering its MVA growth rates, higher levels of MVA per capita and positive structural change developments compared to the EAC. Further investigation shows this performance is mainly driven by the dominant role of the Nigerian economy in the region. Taking Nigeria out of the analysis, we find that MVA growth in the remaining ECOWAS countries stood at 3.2% between 2010 and 2015, lower than the 4.6% in the EAC. Furthermore, the manufacturing capacity of the region excluding Nigeria decreased rather than increased since 2000, and stands below that of the EAC (60 USD vs. 69 USD in 2015), see Figure 2.3). Finally, without Nigeria, the region is experiencing a continuous decline in the contribution of the manufacturing sector to GDP, from 13% in 2000 to 9% in 2015 (Figure 2.4)), although the share is still slightly higher than in the EAC.

Figure 2.3 ECOWAS MVA per capita and Figure 2.4 MVA as a share of GDP, with and without Nigeria - (2000-2015)

Figure 2.3: ECOWAS MVA per capita (2000-2015)

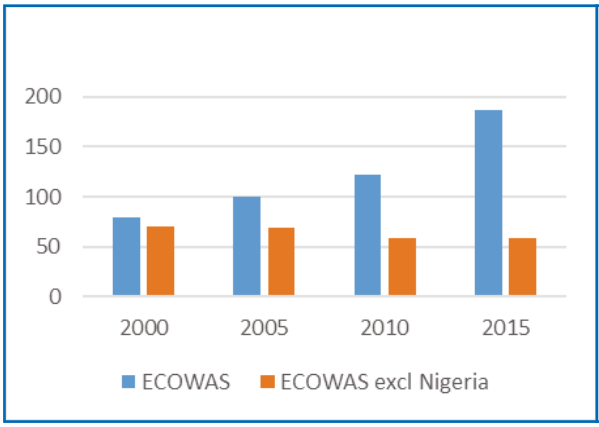
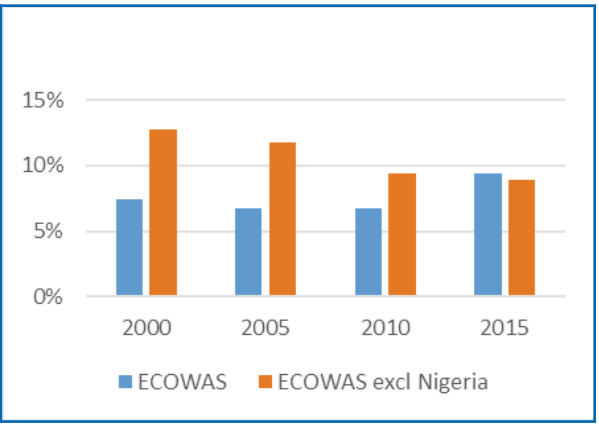


Figure 2.4: MVA as a share of GDP, with and without Nigeria (2000-2015)



Source: WDI

MANUFACTURED EXPORTS PERFORMANCE[14]

Rapid improvements in manufactured export performance slowing down

Industrial competitiveness entails the ability to compete and succeed in securing market share on a global scale. Assessing MVA data alone does not reveal whether there may be protectionist interventions in place, which shield domestic firms from external competition. These interventions allow them to survive even when they do not operate efficiently. Measuring

[14] Note EAC exports refers to the sum of exports of each Partner State, whether the exports are destined to another EAC country or to any other economy.

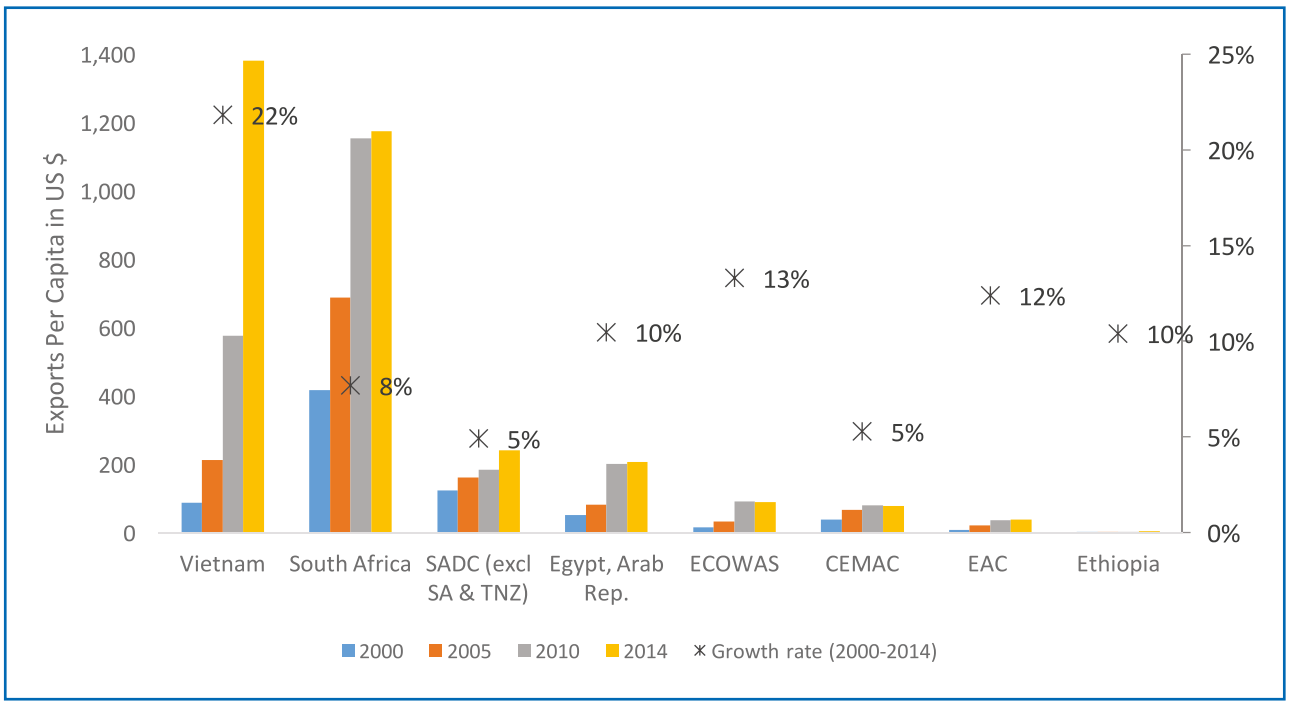
the export competitiveness of manufactured goods will provide some insights into whether EAC firms can compete globally.

Countries can enjoy a range of benefits by exporting their products. Selling to external markets offers the opportunity to cater for a large, diverse and dynamic demand and creates opportunities to interact with international buyers. This also pushes firms to become more productive, expand, and improve their products to match international requirements and demands. Furthermore, interacting with international actors creates positive spill-overs such as increasing know-how and skills and having access to more advanced technology (AfDB, 2014). However, the domestic market should not be neglected as national needs should be met, and by so doing firms have ready buyers, particularly if the domestic market is relatively large or firms are not ready to export. More importantly, domestic and regional markets usually provide the opportunity for firms to grow and learn before they confront international competition.

EAC's capacity to export manufactured products is just above half of its capacity to produce such products, implying that most of its production is catering for its own markets[15]. All other comparators have higher capacities to export manufactured goods, apart from Ethiopia (Figure 2.5). More striking is the extent to which EAC's manufactured export capacity declined since 2000. Although manufactured exports per capita increased at 22.5 % between 2000 and 2005 which was the highest rate among all comparators at that point, it slowed down to 11.6% in the following 5-year period. It grew at the sluggish rate of 1.7% per annum between 2010 and 2014, a further drastic slowdown which should be a source of concern. While other comparators also witnessed little to no growth in manufactured exports between 2010 and 2014 (such as South Africa, Egypt, ECOWAS and CEMAC), SADC, Ethiopia and Vietnam succeeded in ensuring further growth.

[15] In addition, it is important to remember that the export value is the price of the entire product, even if only a small part of the production process was undertaken in the country from which it is exported. Trade in value added would provide a much more precise picture of the phenomenon under observation.

Figure 2.5: Manufactured exports per capita (2000-2014)[16]



Source: UN Comtrade

Table 2.3: Growth rates of manufactured exports per capita:

	Value (USD)		Compound Annual Growth Rates		
	2014	**2000-2014**	2000-2005	2005-2010	2010-2014
Vietnam	1,380	**21.8%**	19.5%	22.1%	24.4%
ECOWAS	89	**13.3%**	16.2%	22.8%	-0.8%
EAC	**38**	**12.4%**	**22.5%**	**11.6%**	**1.7%**
Egypt, Arab Rep.	206	**10.5%**	9.8%	19.7%	0.7%
Ethiopia	4	**10.4%**	3.8%	18.6%	9.0%
South Africa	1,175	**7.7%**	10.5%	10.9%	0.5%
CEMAC	78	**5.3%**	11.6%	4.0%	-0.7%
SADC (excl SA & TNZ)	241	**4.9%**	5.4%	2.7%	7.0%

Source: UN Comtrade

[16] Note A: trade data for 2015 is not yet available for all countries at the time of writing this report.
Note B: Kenya does not report values for 2014, so 2013 values for Kenya were added to the 2014 EAC total. Interpretation should therefore be made with caution.
Note C: Exports refers to exports to any country, and includes intra-regional exports.

Box 2.2: Why did EAC export growth decrease so dramatically since 2010?

Further analysis indicates that EAC's slowdown in manufactured export growth is largely due to a decrease in exports of three of the top 10 exported manufactured goods in 2010. These are: base metals (manganese ore/concentrate), heavy petroleum and base metal waste, more specifically copper waste and scrap. Other products which saw their exports fall include cut paper (-4%), manufactured fertilizers (-23%), alcoholic beverages (-24%), medicaments (-42%), articles of apparel (-30%), sugar confectionary (-60%), and footwear (-26%).

Table 2.4: Top 10 manufactured exports of EAC in 2010 and their trends

Top 10 manufactured exports in 2010	Export value in 1000 USD		Growth (CAGR)	Share of total mnf exp	
	2010	2014	2010-2014	2010	2014
1 Precious metal ore/conc.	461,459	566,530	5%	9.3%	9.5%
2 Base metal ore/conc nes	443,290	212,392	-17%	9.0%	3.6%
of which: Manganese ore/conc.	357,571	1,684	-74%	7.2%	0.03%
3 Heavy petrol/bitum oils	210,290	52,700	-29%	4.3%	0.9%
4 Lime/cement/constr matl	195,561	233,295	5%	4.0%	3.9%
5 Nf base metal waste nes	153,681	36,699	-30%	3.1%	0.6%
of which: Copper waste and scrap	149,176	33,928	-31%	3.0%	0.6%
6 Soaps/cleansers/polishes	146,980	171,114	4%	3.0%	2.9%
7 Articles nes of plastics	144,076	158,998	2%	2.9%	2.7%
8 Made-up textile articles	128,370	128,204	0%	2.6%	2.1%
9 Tobacco, manufactured	125,565	257,972	20%	2.5%	4.3%
10 Metal salts of inorg acd	111,085	116,835	1%	2.2%	2.0%

Source: UN Comtrade

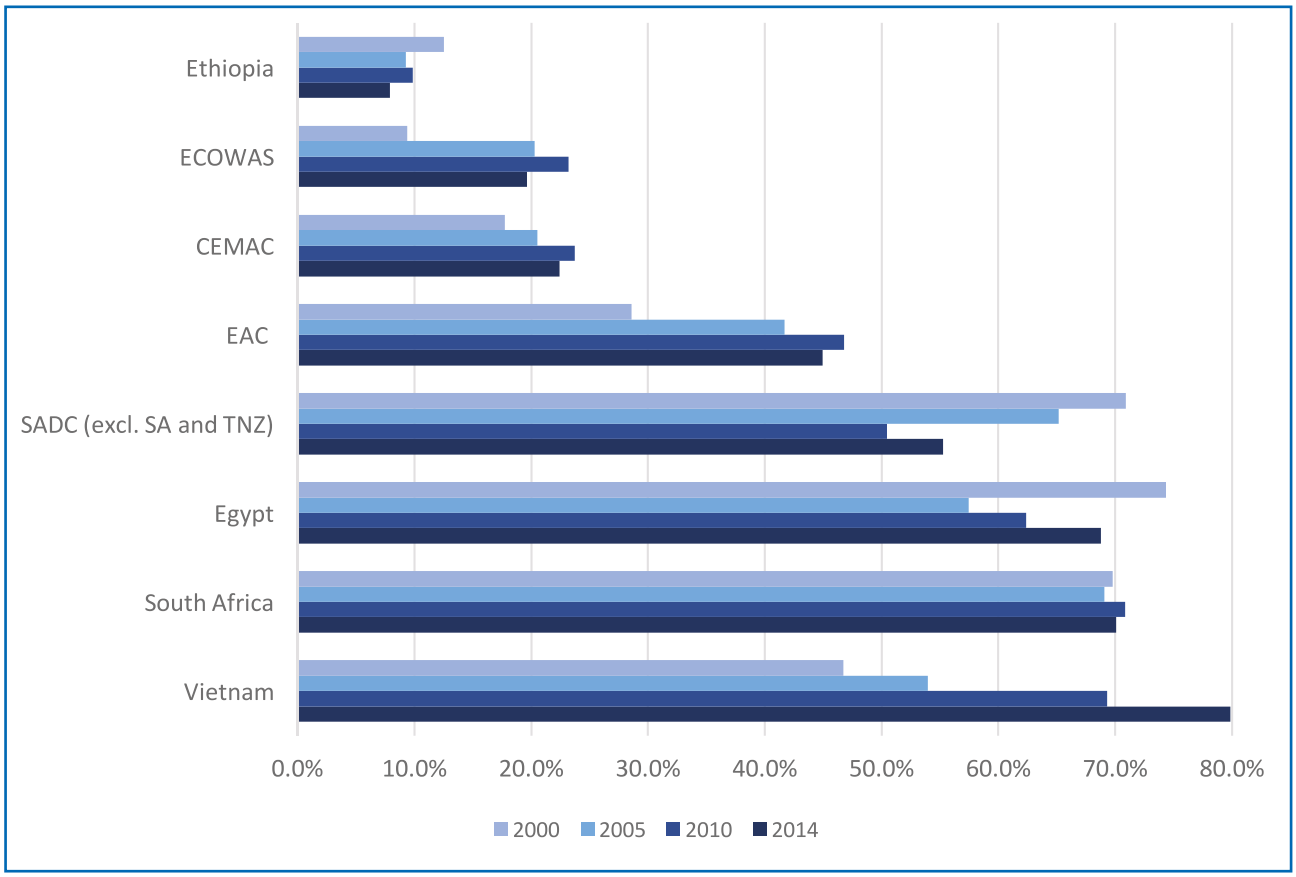
Heavy reliance on the extractive industries makes exports more vulnerable, particularly due to strong fluctuations in global prices (the price of manganese has been decreasing rapidly, for example). Developing capabilities in other sectors which have more value addition potential throughout the production processes will minimize the effects of such changes on overall manufactured exports and on the economy as a whole. The modest improvements in the cement, soaps and articles of plastic, for example, were unable to revert the negative trends of the extractive sectors and the large declines in exports of manufactured fertilisers, alcoholic beverages, medicaments, articles of apparel footwear and others need to be addressed.

Furthermore, there is a lack of diversification in terms of export markets. Both exports of manganese ore/concentrates and copper waste and scrap were largely destined to one country only, which in both cases essentially stopped imports from the EAC by 2014. The manganese ore/concentrates were mainly exported to China (65% in 2010), and declined at an annual rate of -74% since 2010. Copper waste and scrap were sold almost exclusively to Switzerland (93%), and this trade completely vanished by 2014.

Heavy petroleum from the EAC had a larger number of markets, with the top five destinations combined (Uganda, UAE, Rwanda, Oman, DRC), generating 71% of export revenue for the EAC in 2010. However, trade with the four largest markets since 2010 dropped between -21% per annum to completely disappearing.

The fact that the main exports of the region are destined to very few markets means that they are particularly vulnerable to demand shocks. The latest experience of the EAC shows that such market concentration, even if for a specific product group, can significantly impact overall (manufactured) exports of the economy. Finding new markets and accessing these will help create new opportunities for the firms in future as well as ensure more stability in demand and exports.

Figure 2.6: Share of manufactured products in total exports



Source: UN Comtrade

The slow growth of manufactured exports since 2010 impacted on the structural change trajectory of exports in the region. There were strong positive developments until 2010, with manufactured products as a share of exports of 29% in 2000 and 47% in 2010. Thereafter the region experienced a contraction in the share of manufactured goods, settling at 45% in 2014. Between 2010 and 2014, exports of primary products accelerated faster than the 4.8% growth of manufactured exports. This indicates that since 2010 the region is experiencing structural changes away from manufacturing, both in terms of production and exports.

A 45% share of manufactured products in a region's export basket is considered low compared to global averages. With more than half of exports being primary goods, and these recently gaining more of the share, the economy is vulnerable to negative shocks from both the demand and the supply side. Such shocks are more common and stronger in the trade of commodities or other primary products, rather than in products which have a higher level of value added, and which require more skills and technology, as explained in Chapter A. Advanced economies tend to exhibit much higher shares of manufactured goods in their export baskets, often above 70%.

Most comparators are able to demonstrate larger contributions from the manufacturing sector; however, CEMAC and ECOWAS shares of manufactured products are in fact smaller than the EAC's. However, as the export values of their manufactured goods are higher than the EAC's, it indicates that they have more primary goods in their export baskets.

Types of manufactured products exported by the EAC

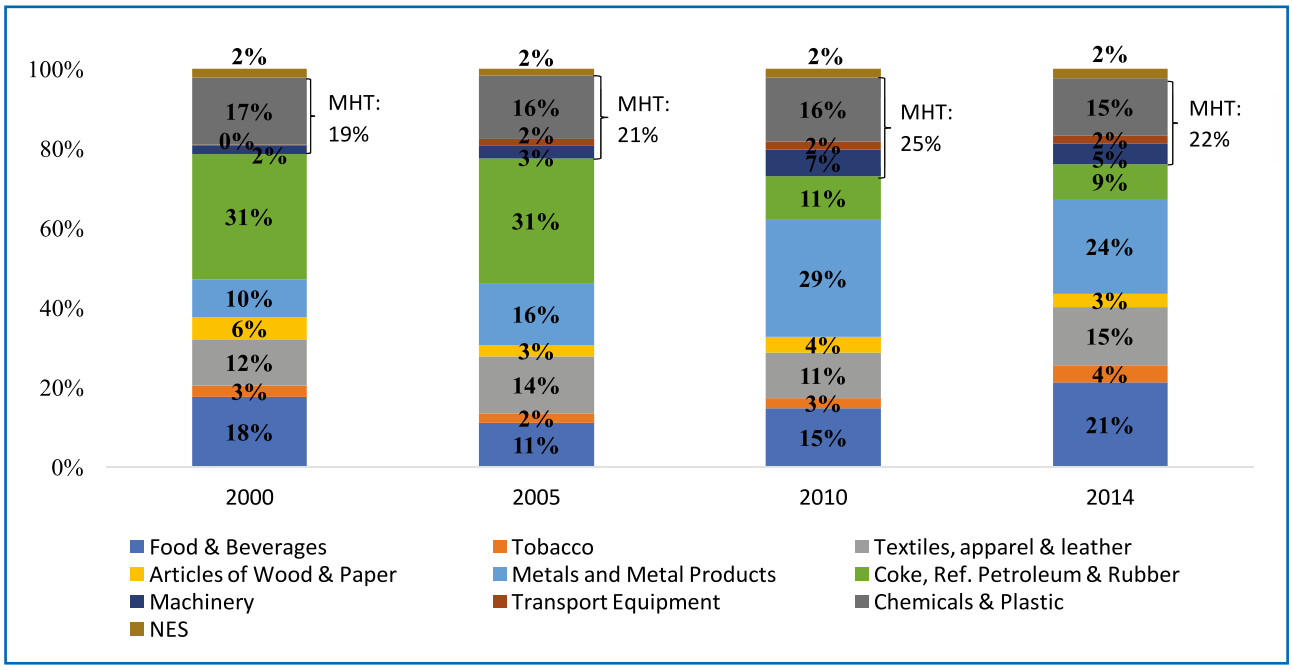
The type of manufactured goods produced and exported matters for the competitiveness of an economy. Structural change does not occur only in moving from primary activities to manufactured ones, but also takes place within the manufacturing sector. This arises when moving from resource-based products with low value addition to medium- and high- tech goods or products which require more sophisticated production processes[17]. Engaging in such activities is indeed important, as it can positively impact economic development in several ways: 1) technologically sophisticated products grow faster as a share of trade and account for a higher share in total manufactured trade, 2) they are less vulnerable to entry by competitors and ensure more sustainable margins, 3) they are less affected by global commodity prices or climatic changes and 4) they offer higher learning and productivity potential.

For economies like the EAC, however, second-tier structural change, of the sort described for the manufacturing sector above, may not be the immediate priority. Countries tend to identify their sectoral priorities based on the importance placed on certain criteria. Examples of these can be: sectors which have a large contribution to economic growth, great potential for employment generation or improving regional equality, strong forward and backward linkages, selective import substitution, dynamism in world demand and many others. With a relatively low contribution of manufacturing to GDP and exports, an abundance of natural resources in the region, and a large and young labour-force, the region is likely to continue focusing on labour intensive, resource-based and low-tech sectors, while building the required capacities to start developing more complex products.

The EAC stated a list of strategic sectors in its EAC Industrialisation Policy and Strategy for 2012-2032. These reflect a preference for making use of natural endowments, creating employment and improving regional equality while ensuring industrial growth is sustained through the production of more sophisticated goods. The strategic sectors selected by the region are iron-ore and other mineral processing; Fertilisers and agrochemicals; Pharmaceuticals; Petro-chemicals and gas processing; Agro-processing; and Energy and Bio-fuels.

[17] As explained in Chapter A, this classification follows UNIDO categorisation. The full product list can be found in the annex.

Figure 2.7: EAC manufactured exports by sector (2000-2014)



Source: UN Comtrade

The share of manufacturing sub-sectors in total exports of manufactured goods in the region is illustrated in Figure 2.7. Food & beverages together with tobacco, as well as the metals sector represent the largest EAC exports in 2014. While food, beverages and tobacco are large generators of employment and usually support creating a regional balance in manufacturing, exports of iron and steel make use of the available natural resources. There is an increase in the share of all three of the sectors, in line with their strategic role in the EAC Industrialisation Policy and Strategy 2012-2032 and Vision 2050.

The labour-intensive textiles, apparel and leathers sector contributed to 15% of manufactured exports in 2014, an upward trend from previous years, though fluctuating over time. Together with food, beverages and tobacco, these two agro-processing sectors now make up 40% of total exports. Since 2010 both sectors, which grew at double digit rates, are the only ones that grew faster than the 5% average growth of all manufacturing sectors.

Chemicals and plastics, which comprise fertilizers, agro-chemicals, petrochemicals and pharmaceutical products contribute to the largest group of medium and high tech products. Their share in manufactured exports has not increased, and in 2014 accounted for 15% of the total. The sector grew by 2% per annum since 2010, below the average of total manufactured goods. Meanwhile, exports of heavy petroleum declined since 2005, causing the share to shrink from 31% in 2005 to 9% in 2014.

Based on the UNIDO classification of manufacturing, the sectors presented in Figure 2.7 are broadly categorised into resource-based (food, beverages, tobacco, textiles, apparel and leather and articles of wood and paper) low-tech (metals and coke, refined petroleum and rubber), and medium and high-tech (machinery, transport equipment and thus such categorisation is useful for analysts and policy-makers. Resource-based and low tech sectors, for example, usually act as entry points for developing countries in their industrialisation process, while medium and high tech sectors generally bring higher and more stable earnings, are less vulnerable to the entry of competitors and create better opportunities for learning and innovation.

While the share of medium and high tech products exported increased since 2000, growth is marginal and the share remains low (from 19% to 22%). Between 2010 and 2014 there was a contraction in the share in manufacturing exports, as the three medium and high tech sectors grew at an average rate of 1% per annum, compared to 5% growth of manufactured products on average. Therefore, the region is making limited progress in restructuring its manufactured export basket. In comparison, during the same period, Vietnam increased its share of medium and high tech from 21% in 2000 to over 45% in 2014. While the EAC may not be ready for such a leap, and Vietnam is at a more advanced stage of industrialisation, a faster growth in exports of the more sophisticated sectors in the EAC should generally have a positive impact on economic growth.

To conclude, while focus was placed on accelerating growth of the strategic sectors, there was greater success in doing so for the sectors which require less skills and technology while the more sophisticated priority sectors are struggling to increase growth rates.

In addition to ensuring the right infrastructure and enabling environment is in place to allow businesses in the EAC to flourish, each of the selected priority sectors should receive individual and tailored support. In the short run, attention should remain on labour-intensive, resource-based and low-tech activities, such as agro-processing, food, beverages and tobacco, iron and steel and cotton and textiles, which currently create most jobs and generate relatively high revenues from manufacturing. There are indications of sufficient capacity to continue developing these sectors and by doing so, create more employment opportunities for the population. However, it would be important to observe if the increase in agro-processing leaves a positive impact on society and contributes to rural development by observing trends in employment in these sectors.

While focusing on the former may be most pertinent in the short run to help eradicate poverty across the region, it will be necessary to work on upgrading production processes and activities within a specific value chain. The diversification of goods produced within the same sector would create opportunities for cost efficiency and higher income generation. These need to be undertaken to help build EAC's industrial competitiveness and ensure the region is undergoing a positive and sustained industrial and economic growth trajectory.

A shift to the production of high-tech goods, such as in the chemicals sector, requires immediate attention due to the need to gradually acquire the necessary skills, technology and level of innovation necessary to become more competitive in the medium to long term. The fast-growing regional demand for manufactured goods of all types due to a growing middle class and a large and youthful labour-force, implies there is potential to further boost manufacturing production in the EAC.

B2: INDUSTRIAL PERFORMANCE OF EAC PARTNER STATES

The previous section demonstrated that high GDP growth in the EAC is not accompanied by equal improvements in MVA, resulting in a diminished share of the manufacturing sector in economic output. This indicates movement away from the desired structural change towards manufacturing and may lead to adverse effects on the overall economic growth of the region. The manufacturing sector can be considered the backbone of an economy, due to its strong forward and backward linkages with agriculture and services. It can also impact positively on employment in other sectors and contribute to boosting productivity. The manufactured export capacity of the region, whose growth significantly slowed since 2010, is half that of its production, meaning that it is not sufficiently competitive on the international market.

Section B2 evaluates the industrial performance of the individual EAC Partner States to identify trends and better understand regional dynamics. Such analysis is of paramount importance not only for each country individually, but also for the development of the region. With awareness of its current industrial development trajectory, each Partner State is enabled to assess which sector development strategies best suit its objectives. This will aid in ensuring joint EAC industrialisation objectives are met by all.

MANUFACTURING VALUE ADDED PERFORMANCE

EAC Partner States' growth rates vary significantly

Kenya had the highest manufacturing value added in the region at 5.4 billion USD in 2015. The other Partner States are ranked in the following order: Tanzania (3 billion USD), Uganda (2.1 billion USD), Rwanda (402 million USD) and Burundi (204 million USD). From 2000 to 2015, MVA in Tanzania grew fastest at 7.7% per annum followed by Rwanda (6.9%), Uganda (5.7%) and Kenya (3.4%). Only Burundi showed a declining trend of 1.2% (Figure 2.8). Tanzania, Uganda and Rwanda's growth rates allowed them to further bridge the gap with Kenya's level of production, denoting some convergence in manufacturing performance between Partner States.

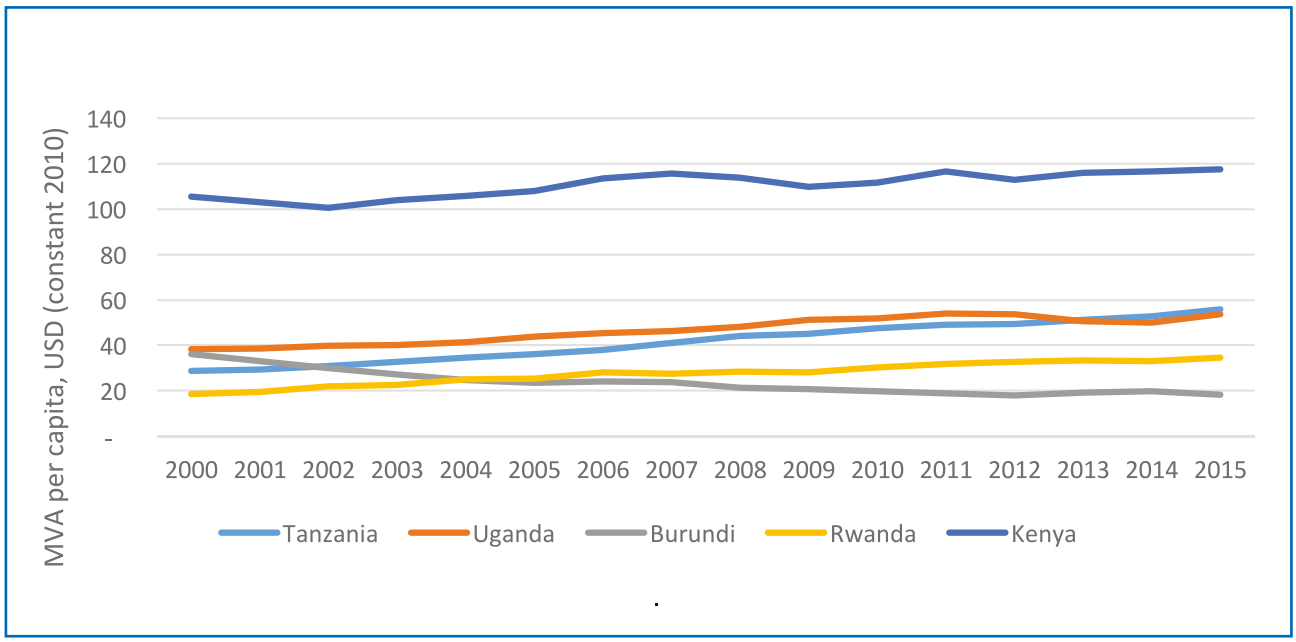
While the three fastest growing economies (Tanzania, Rwanda and Uganda) experienced a slowdown in their growth performance in the past five years (2010-2015), they were able to obtain higher growth in 2015 again. Kenya's growth remained quite stagnant whereas Burundi suffered from political instabilities in the recent years, hampering its growth as a result.

Table 2.5: MVA and MVA growth rates for EAC Partner States (2000-2015)

	Value (USD)	MVA Growth rate				
	2015	2000-2015	2000-2005	2005-2010	2010-2015	2014-2015
Kenya	5,413,528,416	3.4%	3.1%	3.4%	3.8%	3.5%
Tanzania	2,988,029,222	7.7%	7.5%	9.0%	6.7%	9.0%
Uganda	2,101,899,669	5.7%	6.1%	6.9%	4.1%	11.0%
Rwanda	402,361,853	6.9%	9.0%	6.3%	5.3%	7.6%
Burundi	204,028,823	-1.2%	-5.4%	0.3%	1.7%	-5.4%

Source: WDI

Figure 2.8: MVA per capita of EAC Partner States



Source: WDI

Table 2.6: MVA per capita growth rates

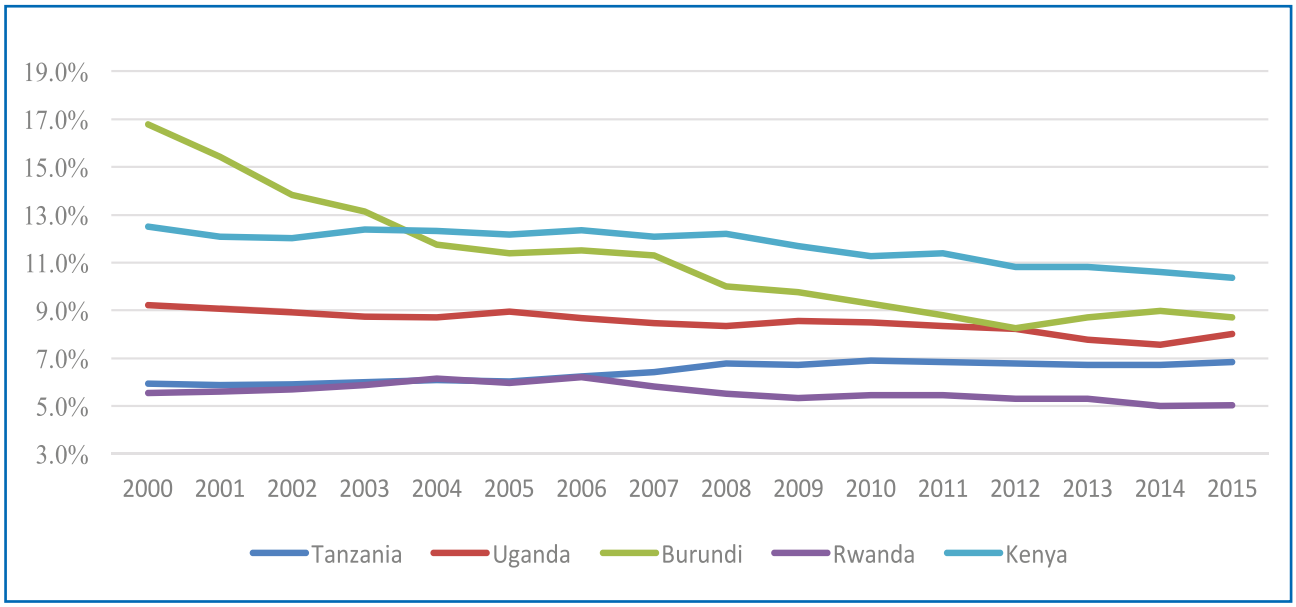
	2000-2015	2000-2005	2005-2010	2010-2015
Tanzania	4.5%	4.6%	5.6%	3.3%
Uganda	2.3%	2.6%	3.4%	0.8%
Burundi	-4.5%	-8.4%	-3.2%	-1.7%
Rwanda	4.3%	6.5%	3.5%	2.8%
Kenya	0.7%	0.4%	0.7%	1.0%

Source: WDI

Figure 2.8 above confirms that Kenya has the highest capacity to produce manufactured goods in the EAC, a level comparable to countries in SADC (excluding South Africa) and CEMAC, though still lower than other comparators observed in Section B1. Discounting for population size places Uganda and Tanzania at the same level of MVA per capita in 2015, both at a value just under half that of Kenya. Rwanda and Burundi have the lowest MVA per capita of the Partner States. Even when accounting for population growth, Tanzania and Rwanda made the fastest development in MVA per capita during the entire period. Uganda's MVA per capita grew at roughly half the rate largely due to its recent growth slowdown. Kenya's MVA per capita grew slowly, at less than 1% over the period. Finally, Burundi, which had the same production capacity as Uganda in 2000, fell behind the group, with a negative growth rate of -4.5% on average.

No Partner State is on a sustained and solid path of structural change towards manufacturing

Figure 2.9: MVA share in GDP for EAC Partner States[18]



Source: Author's calculations, WDI

[18] MVA share in GDP was calculated by the authors themselves using data from WDI on MVA and GDP, rather than taking the pre-calculated indicator from the same database. This is common practice and recommended when possible as it ensures the values do not include estimations or have undergone other data manipulation the user is not aware of.

The relatively modest size and growth of manufacturing production in the EAC Partner States resulted in most of them experiencing a shift away from desired structural change. None of the Partner States has an MVA contribution to GDP of 15% and four of the five countries experienced a contraction in the share of manufacturing in GDP since 2000, with the exception being Tanzania. In 2015, 10.4% of Kenya's GDP originated from the manufacturing sector, whereas the contribution was almost 13% in 2000. Burundi experienced the most significant drop, from just under 17% in the first year observed here to 9% in 2015. However, even Uganda and Rwanda, with relatively fast growing MVA per capita values were unable to significantly drive structural change, and currently have an MVA share of 8% and 5% respectively. Tanzania, with the highest growth rate of absolute MVA and MVA per capita in the region, increased its share of manufacturing though only marginally from 6.2% of GDP in 2006 to 6.8% in 2015.

Not only are these shares low compared to other economies, as seen in Section B1, but these developments occurred at a time when the EAC Partner States set ambitious industrialisation targets. Table 2.7 compares national industrialisation targets with performance in 2015[19]. To meet these targets and undergo structural change, significantly higher MVA growth rates are required in each of the Partner States.

Table 2.7: National targets for structural change (contribution of manufacturing or industry in GDP) vs. performance in 2015

	National Target	Contribution in 2015 (Source: WDI)
Burundi	18.4 % by 2015 (Industry, CSLP II) *(No specific target for manufacturing contribution to GDP)*	15.6% (Industry)
Kenya	>20% by 2030 (Manufacturing, Vision 2030)	10.4% (Manufacturing)
Rwanda	26% by 2020 (Industry, Vision 2020) *(No specific target for manufacturing contribution to GDP)*	14.4% (Industry)
Tanzania	18% by 2025 (Manufacturing, LTPP 2025) 12.9% by 2015 (Manufacturing, FYDP 2011-2015)	6.8% (Manufacturing)
Uganda	25% by 2018 (Manufacturing, Industrial Policy)	8.0% (Manufacturing)

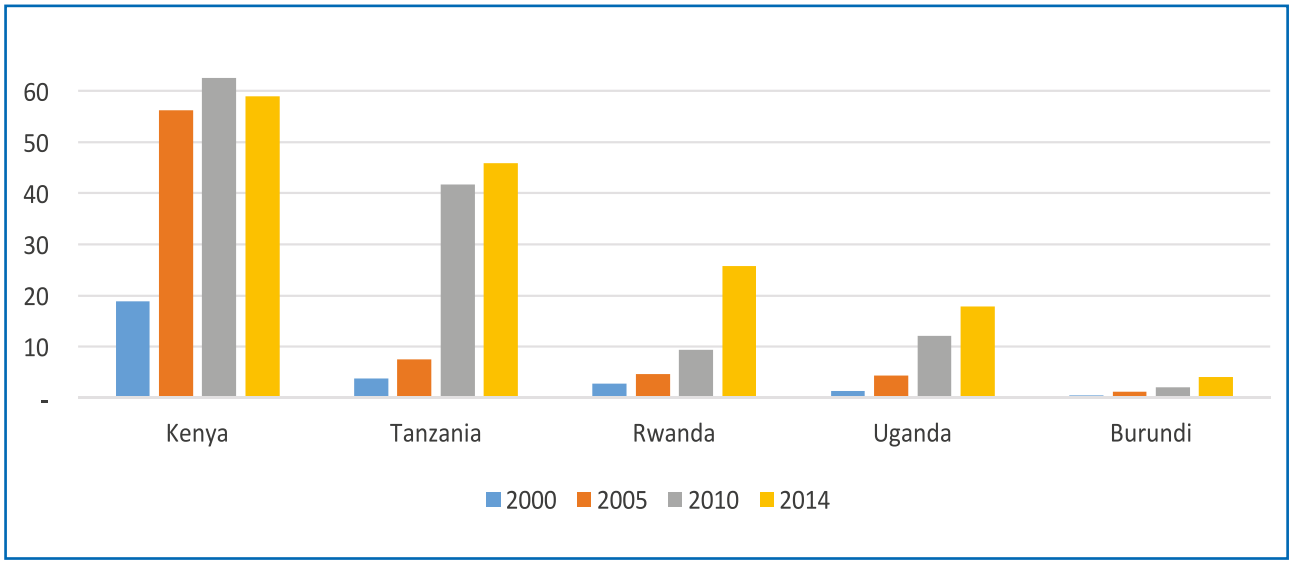
[19] This is true for Uganda, Kenya and Tanzania. Rwanda and Burundi only measure industry as a share of GDP, not manufacturing.

MANUFACTURED EXPORT PERFORMANCE

EAC's export capacity shows a mixed performance

In terms of manufactured exports, we find that much like the EAC as a whole, each of the Partner States have a higher capacity to produce manufactured goods than to export them. This signals that the EAC countries' industries are catering predominantly for their domestic markets and/or their industries have not entered the manufactured export business due to an inability to compete at the global level.

Figure 2.10: Manufactured exports per capita (USD)



Source: UN Comtrade

While Kenya has the highest capacity in this respect (manufactured exports per capita of 59 USD in 2014), the gap between Kenya and the other EAC countries is significantly smaller than for production capacity. This is due to Kenya's capacity to export is significantly lower (roughly half) than its capacity to produce manufactured goods. Tanzania, with a capacity of 46 USD in 2014, was almost able to catch up with Kenya, but the process would still require a faster growth in the coming years. Rwanda boasted the best export growth in the last period considered, 2010-2014, reaching a capacity of 26 USD in 2014, largely driven by the metals sector, as it will be revealed later in the chapter. While Uganda had a similar production capacity to Tanzania, its ability to export manufactured goods is only a third of its capacity to produce, and is therefore significantly lower than both that of Tanzania and Rwanda (18 USD). Finally, Burundi shows a similar small manufactured exports per capita value (4 USD), as that of Ethiopia in the last reported year.

Despite values being low, the manufactured export growth is more pronounced than that for production, with rates ranging between 8.5% (Kenya) and 20.8% (Uganda) when observing the entire period.

Convergence in industrial performance between the EAC countries is also apparent in the case of manufactured exports. Kenya experienced its fastest growth between 2000 and 2005 and was followed by Tanzania and Uganda, having their largest increases between the years of 2005 and 2010 (when looking at absolute values), and finally Rwanda and Burundi showing their highest growth rates in manufactured exports between 2010 and 2014.

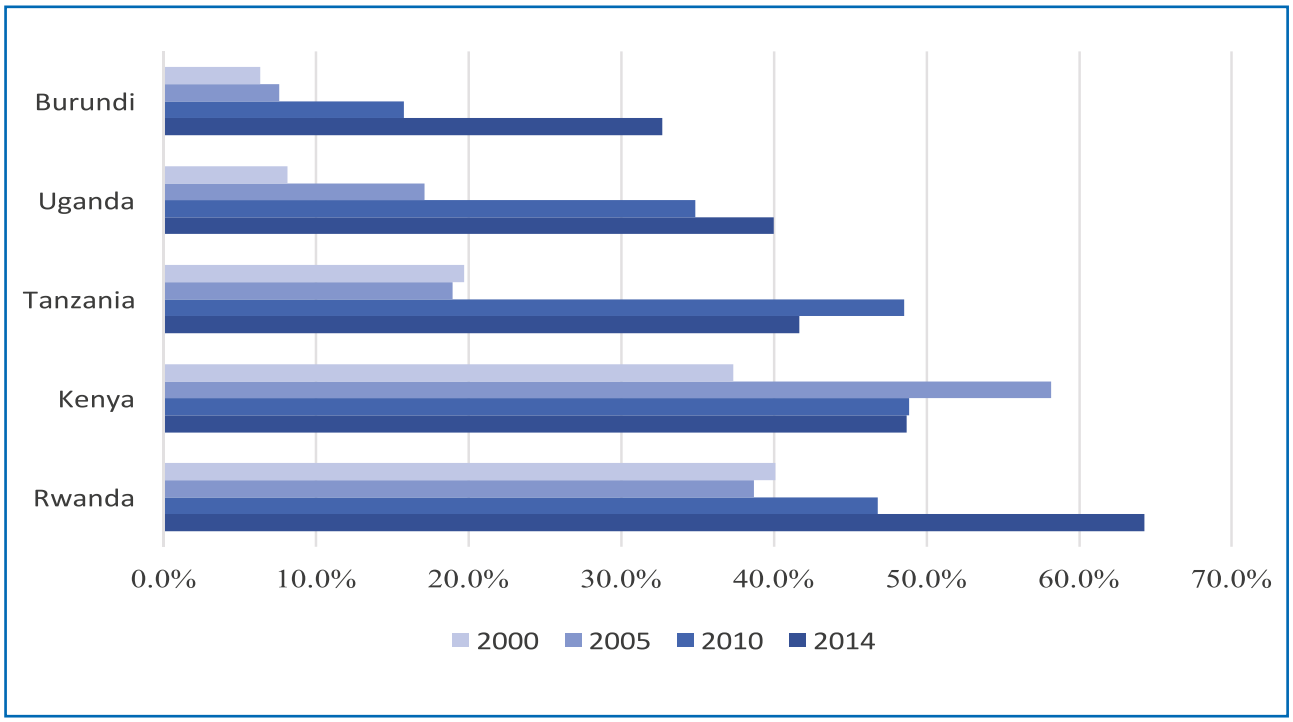
After these periods of heightened growth, developments in manufactured exports per capita slowed down significantly. Kenya witnessed an actual decline in manufactured exports per capita since 2010, Tanzania grew at only 2.4% between 2010 and 2014 and Uganda's growth dropped by half from 23 % between 2005 to 2010 to 10% thereafter Rwanda and Burundi are the exceptions, as they only most recently experienced their period of high growth. Monitoring developments in the future will shed more light on the sustainability of their growth.

Table 2.8: Manufactured exports per capita growth rates per Partner State (2000-2014)

	Value (USD)	Compound Annual Growth Rates			
	2014	2000-2014	2000-2005	2005-2010	2010-2014
Kenya	58.95	**8.48%**	24.42%	2.17%	-1.49%
Tanzania	45.86	**19.47%**	14.48%	41.03%	2.40%
Rwanda	25.71	**17.48%**	11.57%	14.95%	28.75%
Uganda	17.87	**20.79%**	27.42%	23.20%	10.23%
Burundi	4.10	**18.07%**	22.16%	12.52%	20.19%

Source: UN Comtrade

Figure 2.11: Manufactured exports as a share of total exports



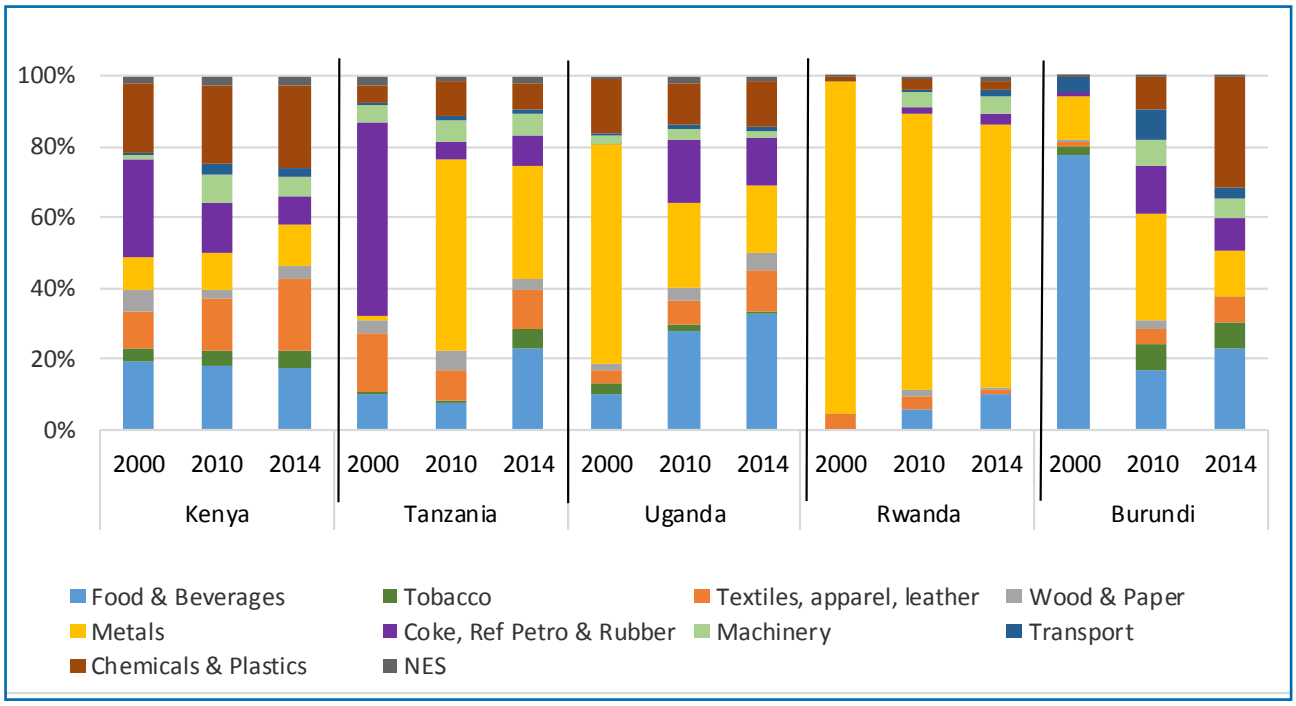
Source: UN Comtrade

In the case of MVA, individual growth rates have not resulted in the desired path of structural change. When considering manufactured export capacity, the high growth rates indeed succeeded in increasing the share of manufactured goods in the total export basket of each country between 2000 and 2014. Rwanda boasted the highest share both in 2000 and in 2014, in addition to a remarkable increase from 40% to 64%, mostly experienced since 2010. The shares of manufacturing in total exports for Rwanda, Kenya and Tanzania were almost identical in 2010. Kenya was unable to increase its share beyond 2010 while Tanzania experienced an actual decline to 42%. On the contrary, Uganda and Burundi witnessed a continuous increase in the share of manufactured products in their export basket, reaching 40% and 33% respectively.

With only Rwanda having more manufactured exports than primary products– and that only most recently- there is an urgent need to increase manufactured exports faster in each of these economies. This is particularly important for Tanzania and Kenya, although they also have large domestic markets capable of absorbing manufactured goods.

TYPES OF PRODUCTS EXPORTED

Figure 2.12: Types of manufactured products exported by Partner State



Source: UN Comtrade

While Section B1 examined the main products exported by the EAC, an examination of the types of manufactured goods exported by each Partner State is important. The main export categories are food and beverages; metals, chemicals and plastics but individual Partner States show significant differences. Changes to the composition of exports by each country depend on its priorities. Most EAC Partner States have fairly diversified manufactured export baskets except for Rwanda.

Burundi and Kenya have similar export structures, exporting mostly products from the chemicals and plastics sectors, followed very closely by food and beverages. Both countries also have a certain level of manufactured tobacco exports. In the case of Burundi, exports in earlier years were very strongly concentrated in the food and beverages sector. This situation switched to a more diversified distribution of product groups, with an increased share of textiles, apparel and leather sector, as well as the machinery sector and the chemicals and plastic sector. Kenya recently witnessed a reduction in the share of coke and refined petroleum.

Tanzania and Uganda also present similar export structures to one another. In both countries, metal products, and food and beverages are the top exported manufactured sectors. The textiles, petroleum and chemicals sectors follow. Like Kenya, Tanzania also reduced its share of petroleum throughout the years, giving more space to food and beverages, as well as

tobacco and metals. In this period, Uganda experienced the opposite trend, with a reduction in the contribution of metals-related exports and an increase in food and beverages as well as petroleum, to a lesser extent. Both countries also had the opposite trend in the tobacco sector. Its share in Uganda's manufactured exports has diminished to almost zero, while the sector has been gaining importance in Tanzania by 2014.

Rwanda's manufactured exports structure stands out from the rest of the EAC, as manufactured metals dominate the export basket (74% in 2014). Nonetheless, other product groups gained some importance, such as food and beverages, while refined petroleum, machinery, chemicals and plastics did too, though to a more limited extent.

The share of medium and high tech is generally low in the region, though Burundi outperformed its neighbours, increasing its share from 4% to 40% in the 15-year period. This is due to its fast-developing chemicals and plastic sector. This is the main sector contributing to the region's medium and high tech industry. Kenya's share of medium and high tech goods was 31%, while those of the remaining countries were significantly smaller.

To conclude, the country specific analysis of the EAC reveals that its growth performance is a result of the combined contribution of the Partner States rather than one large economy driving performance, as observed with South Africa in SADC or SACU. Convergence seems to characterise the period under examination with some exceptions. Whereas Kenya holds the highest values both in terms of production and export performance, its growth rates have not kept pace with other Partner States. Indeed, the four other EAC members made significant improvements in manufactured export competitiveness, with Burundi even succeeding in continuously increasing its share of medium and high tech exports. Tanzania, Rwanda and Uganda managed to increase production capacity, despite a recent slowdown. None of the states succeeded in significantly achieving structural change towards manufacturing in GDP which suggests that the manufacturing sector has not grown at pace with other sectors. Only Tanzania experienced an increase in its share, but not to the desired extent, whereas the remaining economies experienced a contraction of the sector share in recent years.

PRODUCT AND MARKET DIVERSIFICATION

After providing an overview of the types of manufactured products exported by the EAC in general and by each Partner State, it is crucial to understand the extent of diversification of the economies. This subsection will provide a comparative examination of product and market diversification for a more complete picture.

Diversification of a country's productive and export structure is an important element of industrial competitiveness and economic development more broadly. Empirical studies show a positive relationship between industrial diversification and country income levels, especially at earlier stages of economic development (see for example Imbs and Wacziarg, 2003).

Hausmann and Rodrik (2005) also support this argument, stating that broadening the range of exported products encourages entry or exit of firms depending on market demands thus contributing to a globally competitive economy.

Diversification appears to be particularly pertinent for economies such as those of the EAC, which are resource-based economies, engaged mainly in the production and export of primary goods[20]. Creating a more diversified export structure will reflect the ability of countries to move beyond the confines of their natural resource endowments and build productive capabilities in other sectors. In this sense, it facilitates structural change towards products which require higher levels of technology and skills.

Some of the key advantages of diversifying the export baskets of countries at early stages of industrial development are:

I. Reduced vulnerability to domestic and external shocks (e.g. natural disasters or sudden fluctuations in demand or global prices)

II. Stabilisation of export earnings

III. Movement towards activities with greater potential for value addition

IV. Greater potential for skills development and innovation

Market diversification is equally important, as over-reliance on a single market has greater potential to adversely affect the economy in the event of a reduction in demand than diluted and stable demand in other markets. Exporting to a range of countries can ensure there is less vulnerability to external shocks, decreasing demand and new competition. Moreover, it also indicates the economy's ability to compete internationally.

When taking the EAC as one economy, the five most important manufactured products generate 38% of export earnings, while the five main markets contribute to 48% of the same (Figure 2.13). This indicates a relatively high dependence on products and markets, although when comparing these with the other regions in the graph, the EAC seems to be less vulnerable in terms of diversification of products[21].

Regarding the diversification of products, Figure 2.13 clearly illustrates the mixed performance of EAC Partner States. Kenya, followed by Uganda and Tanzania, display a level of concentration of their respective top five manufactured exports which are below the average of the sample.

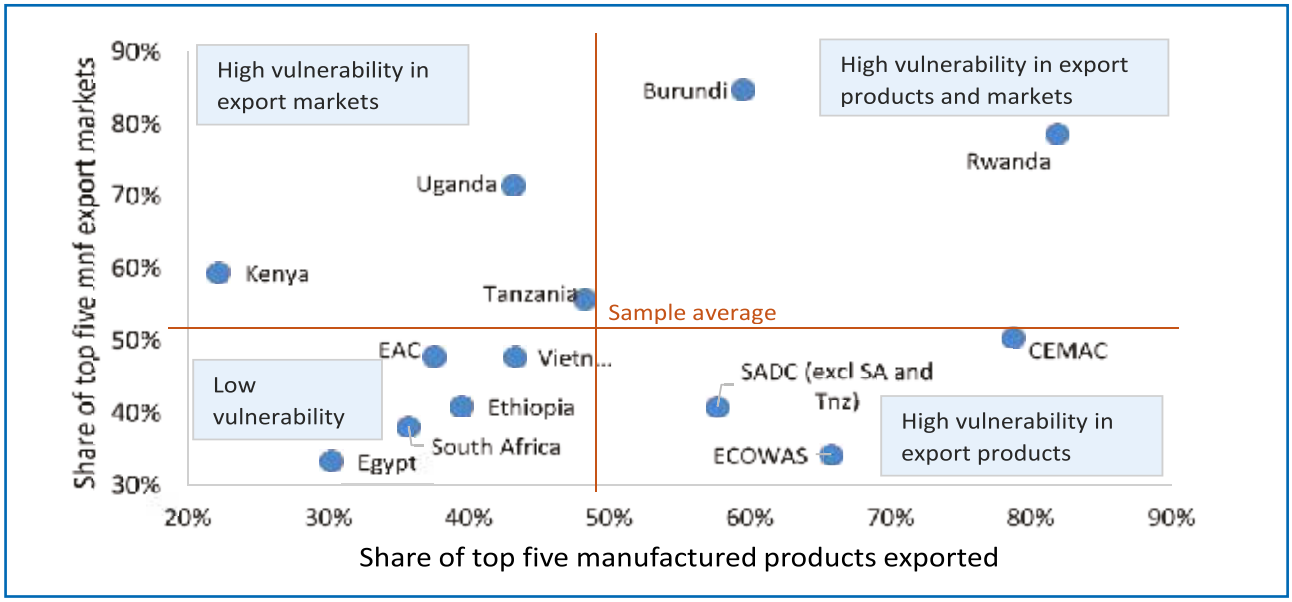
Kenya is rather exemplary in this regard, as its top five products contribute to only 22% of manufactured exports. This is a figure well below any other comparator, and it is remarkable even at international level. This contrasts with Rwanda, where 80% of its exports earnings derive from its five top products. Base metals (Nb/ta/va ore/concentrate and tin ores/

[20] For some countries (mostly at significantly more advanced stages of industrial development) specialisation, for example in niche markets, may be a more beneficial strategy.
[21] Note that in Figure 2.13 it is only correct to compare the RECs with RECs, and the countries with countries.

concentrates) alone contributed 69% in 2014. This overreliance on one product can contribute to an increased vulnerability in Rwandan foreign exchange earnings.

Burundi is also experiencing a high concentration of export products, with almost 60% of its export earnings generated from the top five products. The difference in the extent of diversification (or lack of) observed here compared to Figure 2.12 above, is evident when we compare the level of concentration between Burundi and Kenya – two countries with relatively similar export structures.

Figure 2.13: Concentration of manufactured export products and markets (2014)[22]



Source: UN Comtrade

In respect of market diversification, all EAC countries show vulnerability, with the top five destinations absorbing more than 50% of overall manufactured exports. The obvious policy recommendation in this respect is for each country of the region to widen the range of export countries to minimise risks. This is particularly pertinent for Burundi, Rwanda as well as Uganda. Tanzania relied less on its top five destinations, thus is less vulnerable to market shocks.

In the case of Burundi, the DRC is the main destination for its manufactured exports and is responsible for 59% of Burundi's manufactured export earnings in 2014. Should demand suddenly drop in DRC, Burundi's entire economy would be hit strongly. A similar scenario already occurred in the case of Rwanda which had France as main trading partner in 2011, with export earnings from manufactured goods worth 47 million USD, contributing to a quarter of its total manufactured exports. In 2014 this shrank to a mere 14,000 USD. The simultaneous increase of Tanzanian demand from Rwanda protected its manufactured exports from experiencing a shock.

[22] This chart illustrates both product and market diversification by presenting the share of the top five manufactured products and markets per Partner State, for the EAC and for comparator countries and regions. The average values of all economies presented is used as a cut-off point for the analysis, to help identify the extent of concentration on either front.

Strong fluctuations in the trade of small economies, particularly at early stages of industrial development are very common and are largely due to reliance on a limited number of trading partners and group of export products. Although this is a more difficult challenge for such economies to overcome than larger ones, they need to strategically reduce such vulnerabilities to ensure stable growth for the future. Table 2.9 below presents the top five manufactured products exported and the main five markets for each country.

Table 2.9: Top five manufactured exports and markets per EAC Partner States and shares of total (2014)

	Burundi	Kenya	Rwanda	Tanzania	Uganda
Top five manufactured exports	Soaps/ cleansers/ polishes (17%)	Tobacco, manufactured (4.7%)	Base metal ore/ conc nes (69%)	Precious metal ore/conc. (24%)	Lime/cement/ constr matl (13%)
	Articles nes of plastics (12.4 %)	Articles nes of plastics (4.6%)	Flour/meal wheat/ meslin (6%)	Fixed veg oils not soft (9%)	Leather (11%)
	Alcoholic beverages (12.1 %)	Metal salts of inorg acd (4.5%)	Rolled plated m-steel (3 %)	Copper ores/ concentrates (6 %)	Animal/v eg oils procesd (7.4 %)
	Flour/meal wheat/meslin (10 %)	Soaps/cleansers/ polishes (4.2%)	Cereal meal/ flour n.e.s (2.5 %)	Tobacco, manufactured (5 %)	Rolled plated m-steel (6.9%)
	Glassware (8%)	Lime/cement/constr matl (4.1%)	Telecomms equipment nes (2%)	Cereal meal/ flour n.e.s (4%)	Iron/steel bars/rods/etc (5%)
Top five markets	Congo, Dem. Rep. (59%)	Uganda (21%)	Tanzania (44%)	China (17%)	Rwanda (30 %)
	Rwanda (9.1%)	Tanzania (14%)	Congo, Dem. Rep. (17%)	Congo, Rep. (12 %)	South Sudan (16%)
	Italy (5.8%)	United States (11%)	Austria (8%)	Congo, Dem. Rep. (11%)	Congo, Dem. Rep. (15%)
	Tanzania (5.7%)	Congo, Dem. Rep. (7%)	United States (4.9 %)	Kenya (9%)	Hong Kong, China (5.2 %)
	Sudan (5.2%)	Serbia (6%)	Uganda (4.8%)	Germany (8%)	Burundi (5.1 %)

Source: UN Comtrade

FORWARD AND BACKWARD LINKAGES OF MANUFACTURING SECTORS

A strongly interlinked economy in which the different sectors are interdependent for inputs and demand is fundamental for sustained industrial and economic growth. Diversification of production across a range of sectors and ensuring these grow hand-in-hand is therefore a key requisite.

The manufacturing sector is linked to other productive sectors through various relationships, including interdependencies in production among complementary sectors as well as in vertical value chains. This positions the sector to create domestic demand, spur technological development across other sectors (such as agriculture and resource-based sectors) and create direct and indirect employment effects.

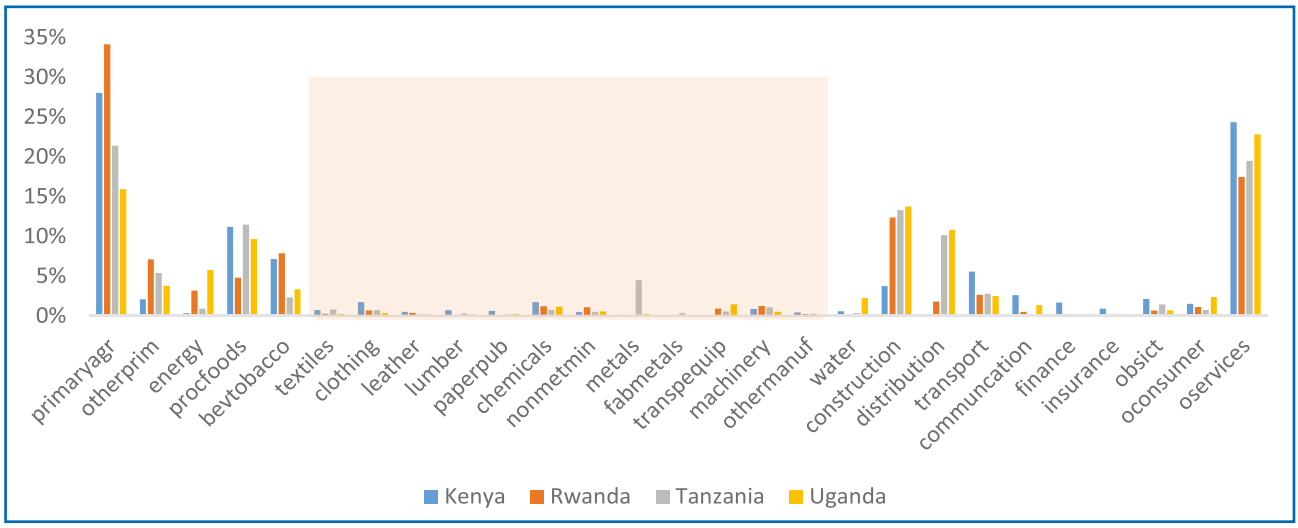
Strong supply and demand relationships between different sectors help create a resilient and dynamic economy but the degree of such interlinkages will depend on the current stage of development, amongst other factors (Kay 2009). At the early stages of structural transformation, industrial systems tend to exhibit similar features across different countries (Andreoni, 2017):

- Foreign owned enterprises produce relatively independently from the local economy. This is due to their struggle to find suppliers with the level of capabilities required to ensure quality and process standards. They tend to import materials required at suitable quality and price.
- There are few large domestic firms which generally face similar challenges as foreign firms in terms of domestic supply. Hence they rely heavily on imports and are unable to create the linkages (particularly backward linkages) required to develop a healthy and robust economy. This also minimises the potential to boost the development of local capabilities and technological growth.
- Such economies tend to suffer from 'the missing middle', referring to the lack of medium-sized manufacturing firms. These usually play the role of generating strong forward and backward linkages within an economy, sourcing from some and supplying to other sectors.
- Micro and small scale enterprises are ill-equipped to produce and supply reliably to larger firms, due to their small scale, their lack of technology, skills, and certifications.

The charts Figure 2.14 and Figure 2.15 use data from the World Bank's Export Value Added Database (EVAD) to show the extent of forward and backward linkages between 27 different sectors of the economy (where 14 are manufacturing sectors). The database does so by constructing measures of direct and indirect contributions of these sectors to value-added in domestic production. This makes it possible to obtain an understanding of the extent to which manufacturing sectors are interlinked with others in each EAC Partner State[23].

[23] Data for Burundi is not available in the EVAD database.

Figure 2.14: Relative backward linkages in the EAC in 2011

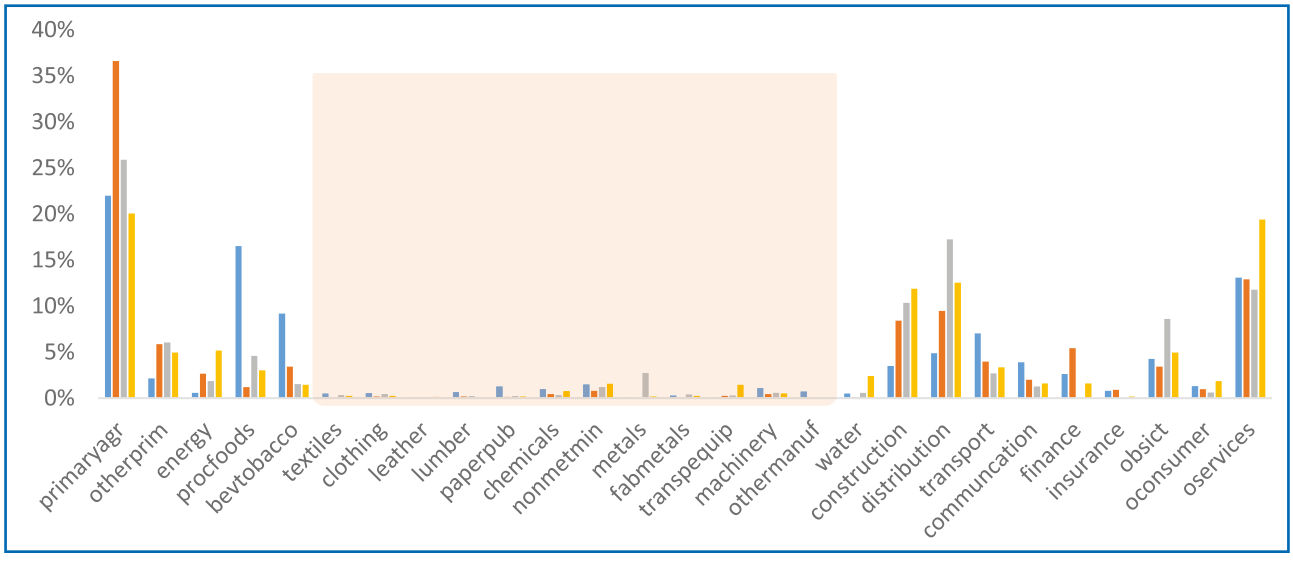


Source: EVAD

The graph shows negligible values of backward linkages in manufacturing sectors for all four of the EAC Partner States displaced. This means that there is little sourcing of domestic inputs for production processes which occur within the national boundaries, in other words minimal local content. Other sectors of the economy demand more from the domestic economy than the manufacturing sector does. The exceptions are the processing of food, and beverages and tobacco, where there is some degree of backward linkages which is comparable to that of non-manufacturing sectors.

This lack of interconnectivity hampers the development of domestic suppliers, making it more difficult for these to grow, particularly as they are faced with fierce competition from international suppliers to provide their products as inputs for further production.

Figure 2.15: Relative forward linkages in the EAC in 2011



Source: EVAD

A graphical representation of domestic forward linkages reveals a similar situation, with very limited contributions of manufacturing sectors to any other sectors of the economy (whether manufacturing or not) (Figure 2.15). The only exceptions were to some extent the processed foods, and beverages and tobacco sectors, where forward linkages were relatively high for Kenya in particular. Generally, very little of what is being produced in any of these manufacturing sectors is used as inputs in other sectors.

Table 2.10: Share of forward and backward linkages of the manufacturing sectors relative to total linkages in each economy (2011)

		Kenya	Rwanda	Tanzania	Uganda	EAC Average
Relative backward linkages	TOTAL	26%	19%	24%	18%	**22%**
	TOTAL excl FBT	8%	6%	10%	5%	**7%**
Relative forward linkages	TOTAL	34%	7%	13%	10%	**16%**
	TOTAL excl FBT	8%	3%	7%	6%	**6%**

Source: EVAD

Table 2.10 summarised the extent of forward and backward linkages created by the manufacturing sectors as a share of total forward/backward linkages of each economy. The lack of interconnectivity of the manufacturing sectors is highlighted here again by the relatively low shares. While manufacturing accounts for half of the sectors observed (14 of 27), the manufacturing sectors as a whole only account for 22% of the backward linkages in the EAC and contribute to 16% of domestic value added used as inputs to other sectors.

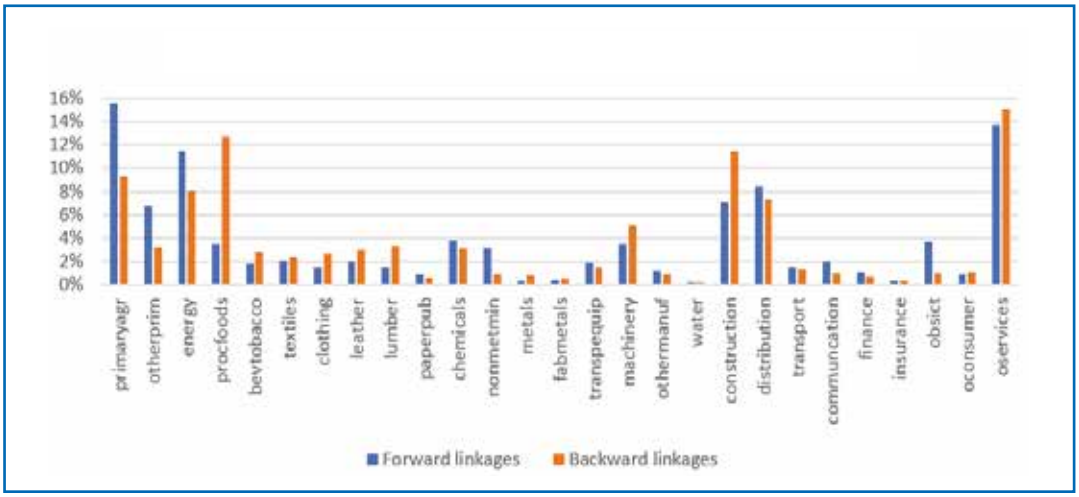
Shares vary across countries, meaning that the issue of disconnect of manufacturing sectors is more pronounced in some countries than in others. Kenya, for example, has the highest relative forward and backward linkages from the manufacturing sector (34%and 26% respectively), while Rwanda has the lowest forward linkages (7%) and Uganda the lowest backward linkages (18%) of manufacturing.

Among manufacturing sectors, the largest linkages are found in processed foods, as well as beverages and tobacco. If these are omitted from the group of manufacturing sectors, then the share of forward and backward linkages drop by more than half, to 6% and 7% respectively. This highlights once more that the grand majority of manufacturing sectors work independently from any other sector in the economy.

Strategies and initiatives to ensure stronger linkages between local SMEs as suppliers to main manufacturing buyers in respective countries would be beneficial. Enhancing forward and backward linkages across manufacturing firms will help create a more robust economy, which relies less on external supply and demand, where sectors reinforce each other, and in which diversification becomes a significantly easier task. Production data at national level would need to be analysed and substantial qualitative information collected to better understand these inter-sectoral dynamics. Box 2.3 presents the extent of interlinkages in Vietnam's economy and compares these with the observations found for the EAC.

Box 2.3: Vietnam's forward and backward linkages

Figure 2.16: Relative forward and backward linkages, Vietnam (2011)



Source: EVAD

The forward and backward linkages of the different sectors in Vietnam are somewhat more equally distributed compared to those in the EAC. Overall, each manufacturing sector contributes to 2% forward linkages and 3% backward linkages on average, while the respective shares are 1% and 2% for the EAC countries, and most of the sectors have significantly lower shares.

Table 2.11 highlights how Vietnam's manufacturing sectors are almost double as interconnected to the rest of the economy than those of the EAC. When disregarding processed food, beverages and tobacco, Vietnam's manufacturing sectors are more than three times more interdependent. It becomes evident that Vietnam has been able to create an economy where one sector relies on the other to a much greater extent than in the EAC, resulting in an upward spiral in industrial and economic growth.

Table 2.11: Relative forward and backward linkages for Vietnam vs. EAC (2011)

		Vietnam	EAC Average
Relative backward linkages	**TOTAL**	**40%**	**22%**
	TOTAL excl FBT	25%	7%
Relative forward linkages	**TOTAL**	**27%**	**16%**
	TOTAL excl FBT	22%	6%

Source: EVAD

CHAPTER C: EAC AS A REGIONAL MARKET: PARTNER STATES' PERFORMANCE AND MARKET OPPORTUNITIES

The previous chapters illustrate how the mostly positive EAC growth figures in MVA and manufactured exports are not yet sufficient to boost the desired structural change direction in the region. While all Partner States experienced a strong growth in manufactured exports, when discounted by population size, their manufactured exports per capita values remain very limited, indeed among the lowest worldwide. Accelerating growth in this sector will require diversifying product lines, moving up strategic value chains and targeting the most attractive markets, among many other things. RECs can provide in many ways the grounds to do so.

This chapter will therefore focus on the EAC as a market. It will explore two questions, the first one being: 'Is the EAC working as a market for manufactured products?'. In responding to this question, we will look at the extent to which EAC Partner States are benefiting from the EAC as a market for manufactured products. As we find out that there are many missed opportunities for EAC countries to export intra-regionally, the second question this chapter will address is 'what are some of the most attractive investment opportunities for Partner States within the EAC?', through which this report will analyse demand trends of specific product groups in the EAC market, and will shed some light on whether the EAC already has the capacity to supply such products.

Being part of a REC should allow Partner States to benefit from specific advantages such as full access to a significantly enlarged market. This results from the alleviation of trade burdens such as customs duties, improvements of cross border regional infrastructure, enhanced cross border investments, minimising non-tariff barriers and others. Access to this enlarged market should in theory allow producers to work more efficiently and enjoy economies of scale. Furthermore, such a REC provides a better ground for competition for countries that are usually less able to successfully export internationally. Competition is on more equal terms in a region and market where the Partner States are roughly at a similar level of industrialisation.

The EAC is working towards achieving some of the above-mentioned benefits, by creating the Common Market in 2010, which came following EAC Customs Union in the process of accelerating the economic growth and development by allowing free movement of goods among other things. Moreover, EAC together with SADC and COMESA took unprecedented and historical steps towards integration within the African continent with the establishment of a Tripartite Free Trade Area (TFTA). It is expected to bring numerous advantages such as increased FDI inflows.

Unfortunately, challenges RECs can face in fully achieving open markets and hence aiding their Partner States to accelerate their economic growth are numerous. As Albaladejo (2006) mentions, intra-regional trade can be weakened by factors such as countries having similar export structures to one another, therefore hampering the movement of goods between the

countries, lack of integrated production networks, poor infrastructure connecting Partner States and failures to significantly reduce or eliminate non-tariff barriers to trade among the members.

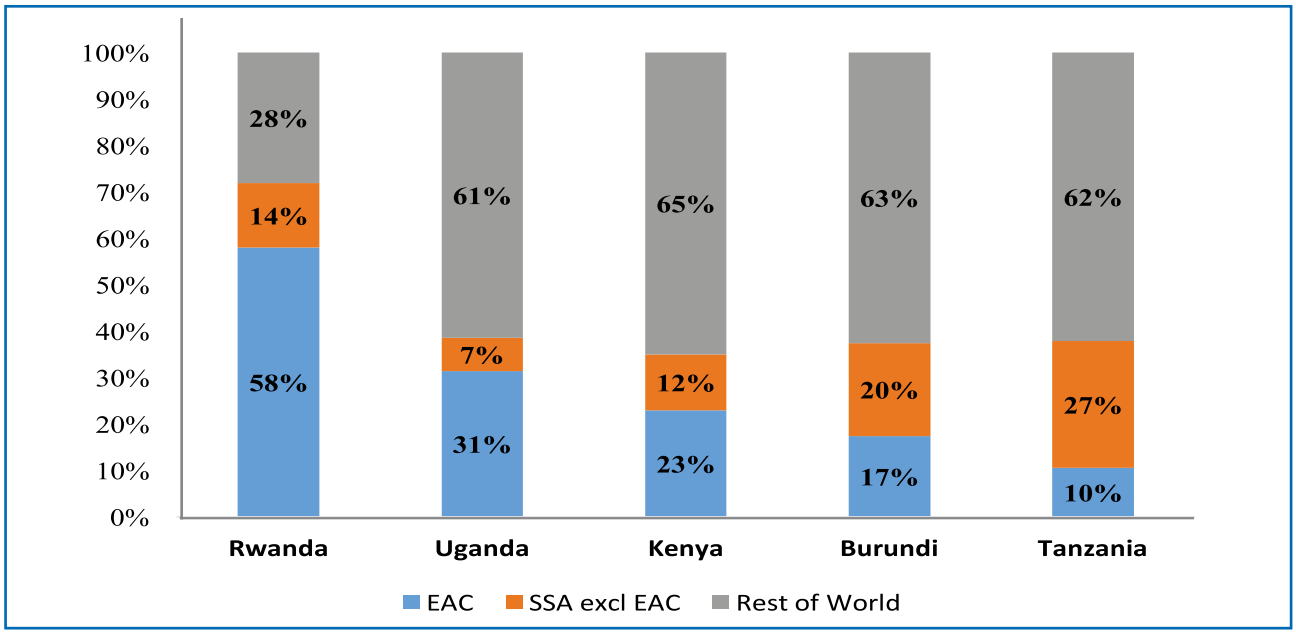
Certain countries within RECs may face more challenges than others. In the case of the EAC, three of the countries are landlocked (Uganda, Rwanda and Burundi), and further compounded by other weaknesses like insufficient road infrastructure to connect to ports, it is more difficult for them to reap the benefits of belonging to a regional market. Multiple memberships in different RECs, such as the case of Tanzania belonging to the SADC as well as the EAC, creates complexities in some situations, making it more difficult to make certain decisions within the Community.

C1 INTRA-REGIONAL TRADE IN THE EAC

Importance of the EAC as a Market for Manufactured Goods

For most of the Partner States, the EAC is not a large destination of their total exports (primary and manufactured), with Uganda, Kenya, Burundi and Tanzania seeing between 10 to 31% of their exports remaining in the region. Countries outside SSA are the main destination of their exports with the top destinations being India, China and the US. Rwanda is the exception, exporting 58% to its fellow Partner States. This is largely due to the high share of primary products exported by Partner States to the rest of the world.

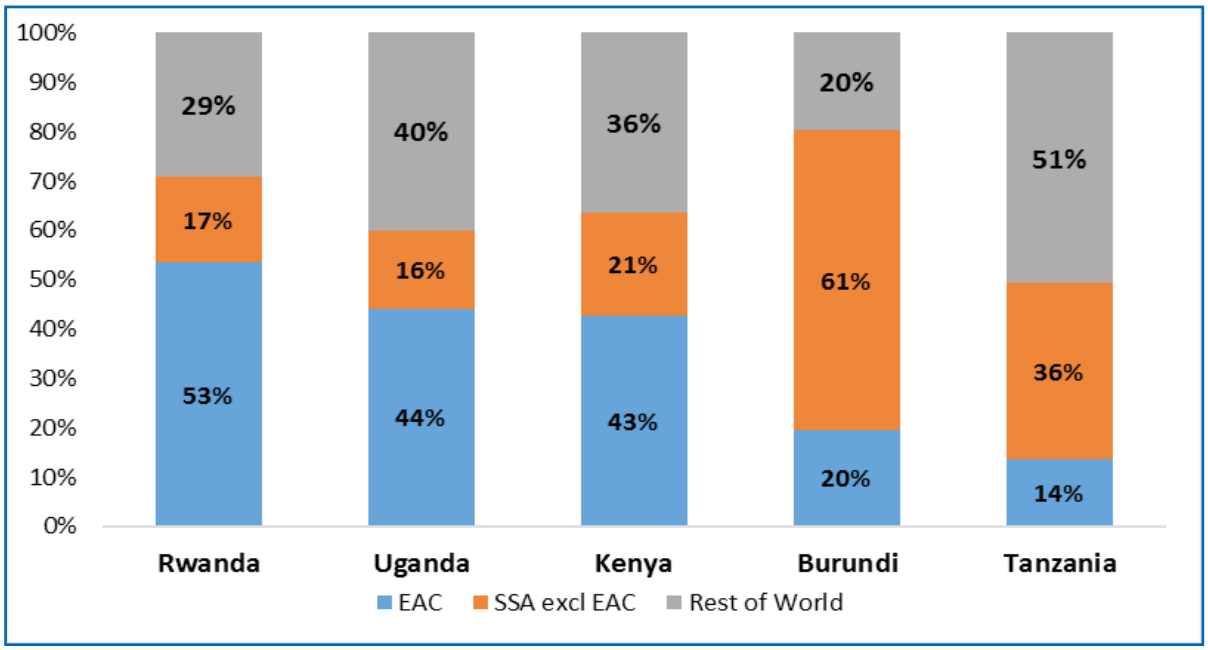
Figure 3.1: Destination of EAC Partner States' exports (primary and manufactured goods), 2014



Source: UN Comtrade

When observing the destinations of manufactured exports in particular, we find that the region is able to benefit much more from its internal market.

Figure 3.2: Destinations of manufactured exports of EAC Partner States (2014)

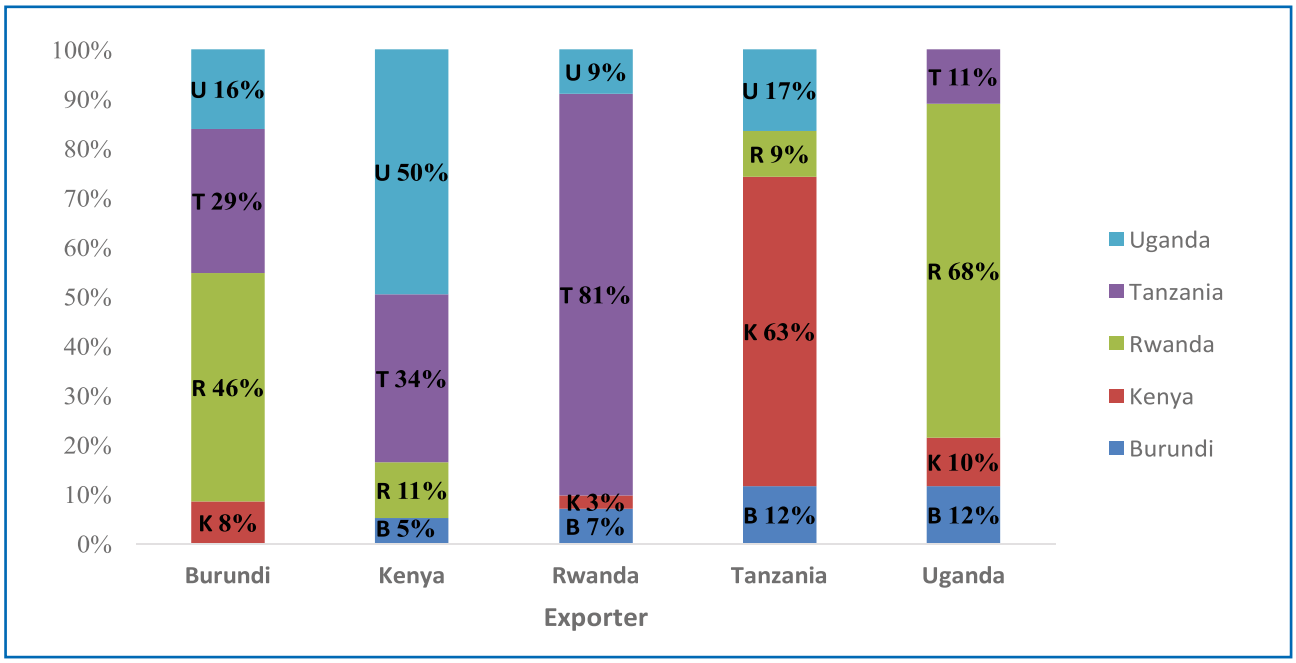


Source: UN Comtrade

On average, one third (32%) of manufactured products exported by Partner States are traded with other EAC countries. While the EAC is particularly important for Rwanda, with 53% of its manufactured exports traded in this regional market, 44% and 43% of Uganda's and Kenya's manufactured exports respectively also remain within the EAC. The region is less significant in the cases of Burundi and Tanzania, with 20% and 14% of their manufactured exports respectively, destined to EAC.

Each Partner State also exports a higher share of manufactured goods to the rest of the continent (SSA excluding EAC), compared to the same share of total exports, where primary products are mainly destined to the rest of the world. Burundi trades its manufactured produce to a very large extent with the DRC, its close neighbour, whereas Tanzania's main exporting partner is China, which contributed to slightly less than half of its exports going to the 'rest of the world' (i.e. countries outside of Sub-Saharan Africa). Still, more than a third of its manufactured exports are sold to SSA other than the EAC. To summarise, the EAC remains an important market for its Partner States, although not the sole interesting one (see Box 3.2 on DRC as a market for manufactured goods).

Figure 3.3: Destination of intra-regional manufactured exports per Partner State



Source: UN Comtrade

Within the regional market, countries are benefitting from the demand of all Partner States. Rwanda is the main destination for Burundi's and Uganda's intra-regional manufactured goods, Uganda is responsible for half of Kenya's manufactured exports to the region, Tanzania buys a vast majority of Rwanda's manufactured goods within the region and Kenya is the main market for Tanzania. Some countries rely quite heavily on a single economy within the region, most notably Rwanda on Tanzania, which may indicate some level of vulnerability. Burundi has the healthiest distribution of markets within the EAC, even if some level of imbalance is natural.

Manufactured Export Trends

The EAC served as a very attractive market for expansion of manufactured exports for all its Partner States from 2000 to 2014, leading to a significant increase in their intra-regional trade ranging between 9% and 31% on average per annum. However, since 2010 we observed a slight contraction from the two biggest actors, Kenya and Tanzania, that diversified their markets more to Sub-Saharan African countries other than the EAC (in the case of Tanzania – mainly Congo, DRC, Zambia), and outside of Sub-Saharan Africa (for Kenya - mainly US, Serbia, India and China). The remaining three countries managed to expand their exports towards the EAC, meaning the region is seeing a slight convergence in terms of regional market shares (see Figure 3.4), as well as overall industrial performance, as was seen in Chapter B. Jointly, Rwanda, Uganda and Burundi's share in intra-regional manufactured trade increased from 11% to 25% between 2010 and 2014, with each country gaining. Uganda almost entirely caught up with Tanzania.

Table 3.1: Manufactured exports to destination (2000, 2014)

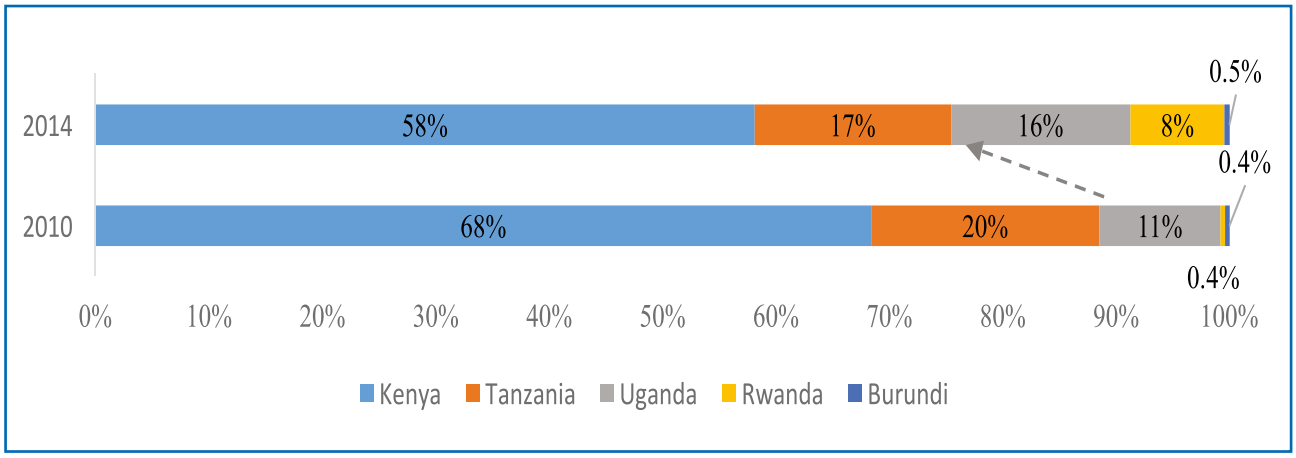
Manufactured Exports to destination (1,000 USD)															
	EAC		Growth rate (CAGR)			SSA (excl EAC)		Growth rate (CAGR)			Rest of World		Growth rate (CAGR)		
	2000	2014	00-10	10-14	00-14	2000	2014	00-10	10-14	00-14	2000	2014	00-10	10-14	00-14
Kenya	343,984	1,095,133	13%	-2%	9%	109,658	541,330	19%	-4%	12%	132,421	939,314	18%	8%	15%
Tanzania	20,370	326,116	33%	-1%	22%	16,880	844,055	35%	25%	32%	91,974	1,206,212	29%	0%	20%
Uganda	6,870	297,948	39%	13%	31%	7,356	107,384	36%	-9%	21%	15,936	269,677	15%	44%	22%
Rwanda	3,718	156,007	7%	114%	31%	6,496	50,428	10%	33%	16%	12,248	85,204	19%	4%	15%
Burundi	2,343	8,706	11%	6%	10%	49	26,876	65%	37%	57%	318	8,778	29%	20%	27%

Source: UN Comtrade

Although the three easternmost Partner States (Uganda, Rwanda and Burundi) expanded their manufactured exports to the EAC since 2010 in terms of absolute values, Uganda and Burundi did in fact recently experience a slowdown in growth. Uganda, similarly to Kenya, witnessed faster developments in exporting to countries outside Sub-Saharan Africa (mainly Hong Kong, Switzerland, China, Italy, US), while Burundi saw its highest growth to Sub-Saharan Africa other than EAC (manufactured exports to the DRC increased by 38% per annum).

Rwanda's outstanding annual growth rate of 114% was predominantly due to the soaring of its base metal exports (particularly Nb/ta/va ore/concentrate and tin ores and concentrates), destined mainly to its largest market, Tanzania, followed by Uganda and Kenya.

Figure 3.4: EAC Partner States' share in intra-regional manufactured exports



Source: UN Comtrade

Table 3.2: Annual growth rate of intra-regional manufactured exports (CAGR)

	Intra-regional manufactured trade - CAGR		
	00-10	10-14	00-14
CEMAC	31%	2%	22%
North Africa (excl Libya)	22%	7%	17%
SADC (excl SA &TNZ)	11%	27%	15%
ECOWAS	12%	15%	13%
EAC	**16%**	**2%**	**12%**

Source: UN Comtrade

The slowdown in intra-regional manufactured trade of four of the Partner States resulted in EAC's intra-regional manufactured trade performance lagging behind other regional economic groupings in Africa. While the EAC experienced a growth rate which exceeded that of SADC (excluding South Africa and Tanzania) and ECOWAS between 2000 and 2010, both these RECs subsequently performed better than the EAC in terms of intra-regional manufactured trade.

Box 3.1: Intra-regional manufactured trade in SADC (excl. South Africa and Tanzania)

The SADC[24] made greater strides than the EAC in increasing trade among its members since 2010. Although trade in manufactured goods among SADC Partner States grew by 6% per annum between 2000 and 2010 in comparison to 17% percent growth in the EAC, annual growth in the SADC since 2010 accelerated to 27% while slowing down to 2% in the EAC. In contrast to the EAC which saw its market share drop from above 9% to about 6%, the SADC members jointly increased theirs from 4% to about 6% from 2010 to 2014. To better understand the relatively stronger performance of the SADC in this four-year period, further analysis of intra-regional manufactured trade is required.

The SADC recorded stronger growth in manufactured exports traded within the region with all member countries growing by high rates, ranging from 5 to 40% per annum between 2010 and 2014 (Table 3.3). In contrast, only Uganda, Rwanda and Burundi in the EAC experienced growth in manufactured exports traded intra-regionally whereas Kenya and Tanzania, the largest economies in the EAC, fell into decline. The top four performing SADC countries, namely Namibia, Zambia, Botswana and Zimbabwe are responsible for 91% of total manufactured exports traded within the region. Namibia, the top performer in the SADC, is solely responsible for 36% of intra-regional manufactured exports in 2014. A similar pattern is observable in the EAC as Kenya accounts for 58% of manufactured exports traded in the region. However, there seems to be a significantly smaller gap between the export value of the first and next largest exporter in SADC compared to the EAC, indicating there is a less skewed intra-regional performance in SADC (although South Africa is excluded from this analysis).

[24] South Africa and Tanzania are excluded from this analysis due to the dominance of the former in trade data in the region and to avoid double counting in the case of the latter in comparisons to the EAC.

Box 3.1: Intra-regional manufactured trade in SADC (excl. South Africa and Tanzania)

Although there is still ample room to broaden the distribution of manufactured exports across all Partner States in both the SADC and EAC, it is apparent that more than one country is responsible for the recent growth in intra-regional trade in the SADC.

Table 3.3: Growth in intra-regional manufactured exports (2010-2014)

EAC					SADC				
Country	Manufactured Exports 2010 (1000 USD)	Manufactured Exports 2014 (1000 USD)	CAGR 2010-14 %	Share of total intra-regional mnf trade 2014 %	Country	Manufactured Exports 2010 (1000 USD)	Manufactured Exports 2014 (1000 USD)	CAGR 2010-14 %	Share of total intra-regional mnf trade 2014 %
Kenya	1,177,578	1,095,133	-1.8	58.13	Namibia	560,080	1,534,868	28.7	36.22
Tanzania	345,658	326,116	-1.4	17.31	Zambia	437,593	997,597	22.9	23.54
Uganda	183,153	297,948	12.9	15.82	Botswana	242,771	717,572	31.1	16.93
Rwanda	7,421	156,007	114.1	8.28	Zimbabwe	215,324	598,303	29.1	14.12
Burundi	6,836	8,706	6.2	0.46	Malawi	98,873	187,038	17.3	4.41
					Mozambique	25,174	96,817	40.0	2.28
					Mauritius	48,606	83,877	14.6	1.98
					Madagascar	16,865	20,860	5.5	0.49
					Seychelles	702	959	8.1	0.02
Total	**1,720,646**	**1,883,910**	2.3			**1,645,989**	**4,237,891**	26.7	

Source: UN Comtrade

Differently from the EAC, exports of the main manufactured goods traded within SADC increased, with only 4 of the top 30 manufactured goods exported intra-regionally declining between 2010 and 2014. Most other products (26/30) generally enjoyed very high growth rates with only 5 of them growing at a rate below 10%. Pearls and precious stones, the top traded manufactured good within the region, represent 34% of total exports in 2014 and grew by more than 600% between 2010 and 2014. However, even when this product is excluded from the analysis, intra-regional manufacturing exports grew at 14% between 2010 and 2014, much higher than in the EAC.

Table 3.4: Top 10 SADC intra-regional manufactured exports (2014)

No.	Product description (SITC Rev. 3, Level 3)	Share of intra-regional mnf exports	CAGR 2010-2014
1	Pearls/precious stones	34%	612%
2	Elements/oxides/halogen salt	7%	62%
3	Pig iron etc. ferrous alloy	6%	96%
4	Sugar/molasses/honey	6%	14%
5	Lime/cement/construction materials	3%	16%
6	Civil engineering plant	3%	36%
7	Goods/service vehicles	2%	15%
8	Alcoholic beverages	2%	3%
9	Heavy petrol/bitumen oils	2%	21%
10	Passenger cars etc	2%	-2%

Source: UN Comtrade

Box 3.1: Intra-regional manufactured trade in SADC (excl. South Africa and Tanzania)

Given the stronger performance of the SADC, insight into the regional and national policies driving this outcome would be beneficial in deriving useful lessons for the EAC. A strong feature of the SADC strategy is its focus on removing obstructions to the free movement of goods and persons across country borders. The importance of addressing this trade deterrent is strengthened by the fact that 6 of the SADC Partner States are landlocked, thus most trade takes place across land borders. In view of this, greater efficiency of transactions at border posts is a key objective of the SADC industrial strategy. The introduction of One-Stop Border Posts (OSBPs) and harmonisation of customs procedures between member countries yielded positive developments in this regard. In comparison to the EAC which launched its first OSBP in 2016, sixteen of the thirty-five most important border posts in the SADC were earmarked for conversion to OSBPs by 2020 with the first, the Chirundu border post between Zimbabwe and Zambia, already operational as of 2009[25] (SADC, 2015). Traffic at the border post more than doubled since its introduction and crossing time decreased from between 4 to 6 days to less than 30 hours on average. Based on recent evaluations, the introduction of the border led to increased capacity to handle larger volumes of traffic, increased revenues, a drop in the cost of doing business in the region and reduction in smuggling among others.

One of the tools for operationalising the SADC development strategy is the Regional Indicative Strategic Development Plan (RISDP) which ran from 2005 to 2010 and its current Regional Infrastructure Development Master Plan (RIDMP) which was adopted in 2012. Both plans place emphasis on the development of regional infrastructure as a catalyst for greater regional integration. The development of associated infrastructure is an important outcome of the introduction of OSBPs. In the case of Chirundu, construction of a new road and bridge linking the Zambian and Zimbabwean sides, separation of passenger and commercial traffic and construction of new commercial and passenger terminals housing freight inspection facilities, and border agency offices accompanied the OSBP (OECD, 2011). Under the Regional Spatial Development Initiatives (RSDIP) within the legal framework of SADC, several development corridors are being implemented. The Maputo Development Corridor linking South Africa and Mozambique was launched in 1996 and is one of the 18 transport corridors in the region. Over $5 billion of infrastructure investment is being put into the corridor since its launch and this includes improvements in the port of Maputo and the development of a toll road and railway line between both countries. It also positively impacted activity at the border post between Mozambique and South Africa (SADC, 2015). In comparison, the implementation of the EAC development corridor is at an incipient stage.

In addition to the above, the introduction of the SADC Free Trade Area (FTA) in 2008 is instrumental in encouraging intra-regional trade. Minimum conditions for the Free Trade Area were met in 2012 with 85% of intra-regional trade among the Partner States attaining zero duty. Although implementation by individual countries varies and is still ongoing and 3 of the 15 member countries of the SADC are not yet within the FTA, some progress has been made. However, the COMESA-EAC-SADC Tripartite Free Trade Area launched in 2015 is set to supersede these arrangements. Other initiatives which contributed to easing intra-regional trade include the development of a

[25] The bilateral agreement between Zimbabwe and Zambia for the Chirundu border post was signed in 2007.

Box 3.1: Intra-regional manufactured trade in SADC (excl. South Africa and Tanzania)

cross border Integrated Regional Electronic Settlement System (SIRESS) by Partner States to settle regional inter-bank transactions and the Southern African Power Pool (SAPP) to address power supply constraints. The SIRESS is being implemented in 9 of the 15 member countries and reduced the clearing time for transactions (SADC, 2015). Almost all countries in the SAPP will be commissioning new generation plants in the next five years with a total of 24,062 MW planned (SAPP, 2015).

SADC made significant progress in increasing intra-regional manufactured trade and it can provide the EAC with some concrete and valuable examples of good practice. Although South Africa is a significant player in the region, its exclusion in the analysis still demonstrates that growth is the result of the success of the different Partner States rather than only a few countries. The increase in intra-regional trade is also not due to a small number of products, but rather there is an increase in the export of most of the top manufactured products traded within the region. Evaluation of policy measures adopted and results achieved give an indication of how these relatively stronger results were realised. Although both the EAC and SADC are adopting similar strategies to promote intra-regional trade, the SADC pioneered many of these strategies and experienced greater success in mobilising resources and engendering cooperation among its Partner States. Deeper scrutiny of the development of synergy between SADC Partner States would provide useful lessons for the EAC as it continues to implement its industrial strategy and seek opportunities to promote intra-regional trade among its members.

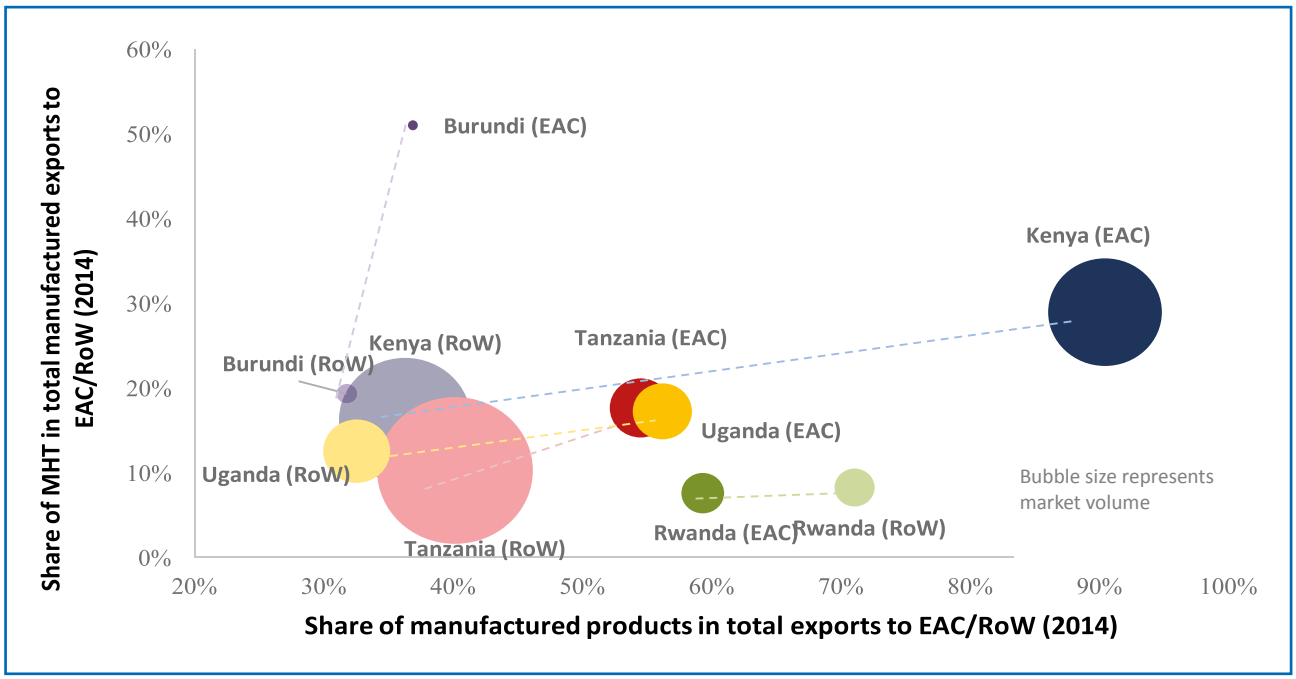
High Potential for Diversification of Exports in the EAC Market

The EAC market provides Partner States with the opportunity to export a larger share of higher value products. All countries, apart from Rwanda, exported a larger percentage of manufactured goods, as well as medium and high tech products to the EAC, than to the rest of the world (Figure 3.5). Hence, the EAC gives the space for Partner States to diversify their exports more so than markets outside the region, and helps them in creating structural change towards manufacturing.

Although the EAC is importing an increasing number of products from countries such as India, China and the MENA region, competition is still less fierce within the regional market, whose dynamics are also better known to local producers, compared to markets of more developed countries. Figure 3.5 shows how almost all of Kenya's exports to its fellow EAC countries are manufactured, whereas only 36% of those going to the rest of the world are processed. Tanzania and Uganda showed similar patterns with the share of manufactured exports being 15 and 23 percentage points higher respectively, when exporting within the EAC, compared to the rest of the world. Burundi benefitted to a lesser extent, with 37% of its products to the EAC being manufactured versus 32% to the rest of the world.

In addition, the same four countries with larger shares of manufactured products in the EAC also exhibit higher shares of medium and high tech, although the difference in percentages is smaller. Rwanda is the exception here.

Figure 3.5: Structure of exports to EAC and the Rest of the World (RoW) in 2014



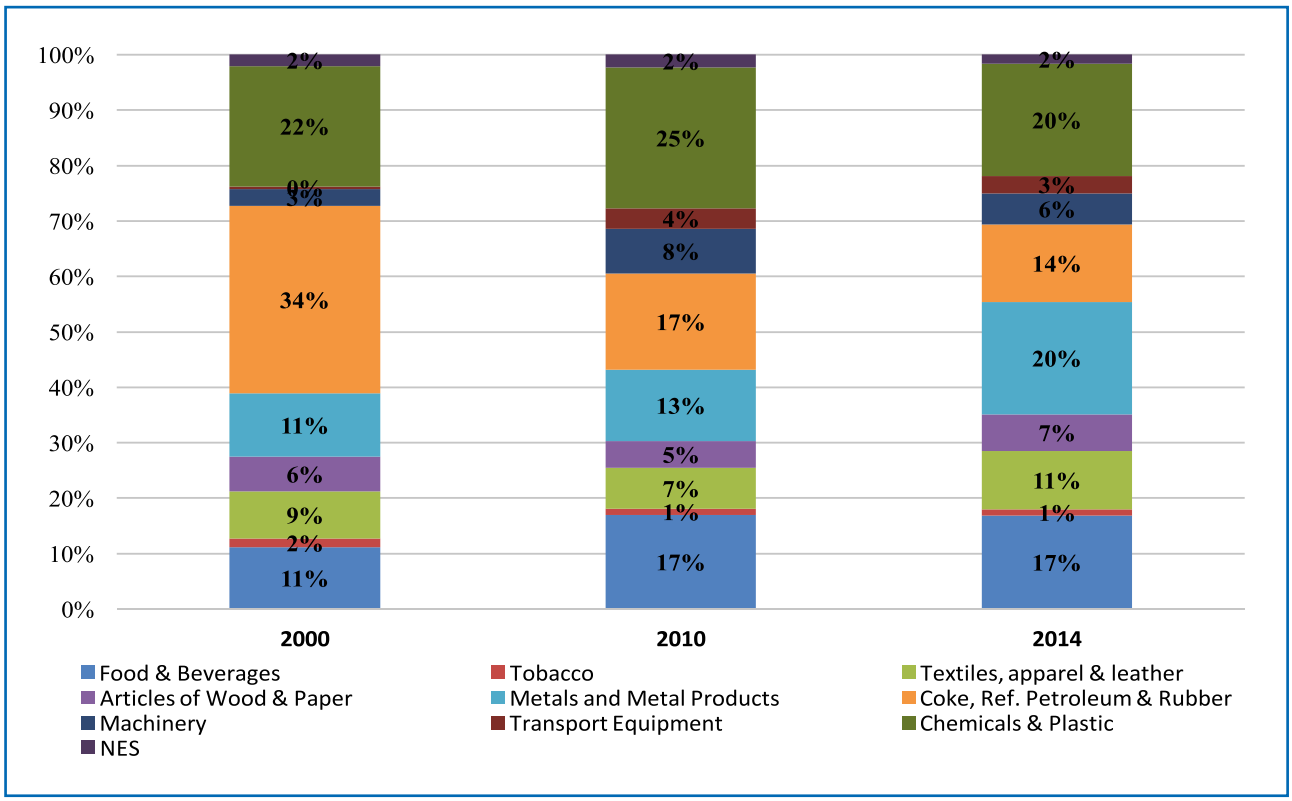
Source: UN Comtrade

What products are the EAC Partner States currently trading with each other?

As discussed extensively in Chapter B, industrial competitiveness commonly requires engaging in a range of manufactured products, rather than specialising only in a few. This is particularly important for low-income countries, whose manufactured exports tend to be dominated by one type of low-value added, resource-based product, with which the country is naturally endowed, such as certain metals or refined petroleum.

In Figure 3.6 we find that there is a healthy level of diversification of manufactured products traded within the region, with no domination of a particular sector. The largest exports come from the chemicals and plastic sector, as well as metals, followed by food and beverages. The sectors are therefore similar to those exported globally, though with even less concentration. Through the years, there was a decrease in dependency on the top three most exported sectors, from contributing 68% in 2000, the top three in 2014 contributed to 58% of manufactured exports. Meanwhile, the top three manufactured export sectors to the rest of the world contributed to 71% of the total in 2014. The upward trend, that is, an increasingly less diversified manufactured export basket heading to the rest of the world, illustrates an undesired trend that is not the case for exports within the EAC. Furthermore, intra-regional manufactured goods trade has a larger share of medium and high tech products compared to EAC's exports to elsewhere, with 29% in 2014 versus 18% to the rest of the world.

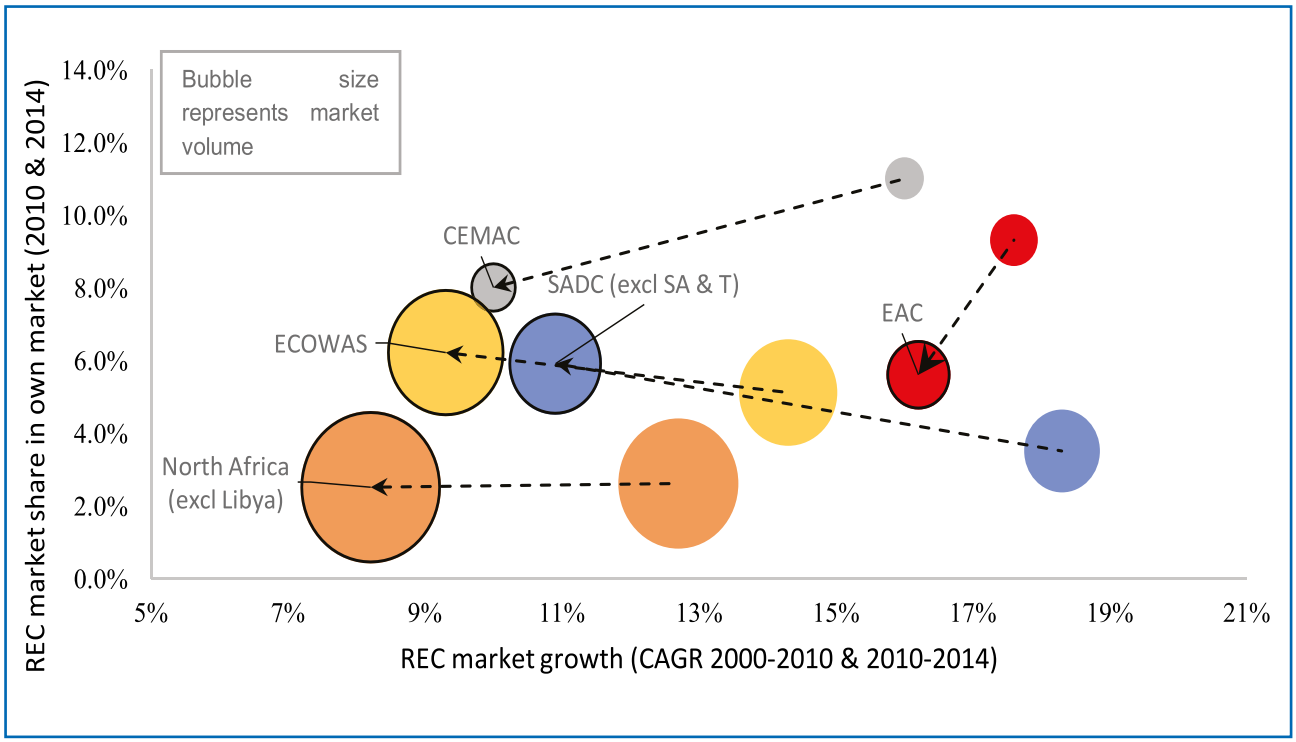
Figure 3.6: Intra-regional manufactured trade by sector (2000, 2010, 2014)



Source: UN Comtrade

Although EAC Partner States export a larger share of medium-high tech products to the EAC than elsewhere, they are not fully exploiting the opportunities the market offers. Figure 3.7 clearly illustrates that regional demand for manufactured goods grew significantly in the past years. Although it was higher in the first period, between 2010 and 2014 demand grew at 16% per annum, proving that the EAC is by far the region with the most dynamic demand among all comparators. However, at the same time, the Partner States' combined market share faced a rather sharp decrease since 2010, from over 9% to below 6%. Such a contraction was not experienced by any other region observed. Putting it differently, we find that the significant growth in demand is being satisfied by firms from outside the region that managed to benefit from EAC's positive trends, while the domestic enterprises are losing out on opportunities which are within their own regional community. This finding should spark significant attention and stress the urgency for local firms to turn to their neighbouring countries and make use of dynamic regional demand.

Figure 3.7: Market shares in own regional markets for manufactured products

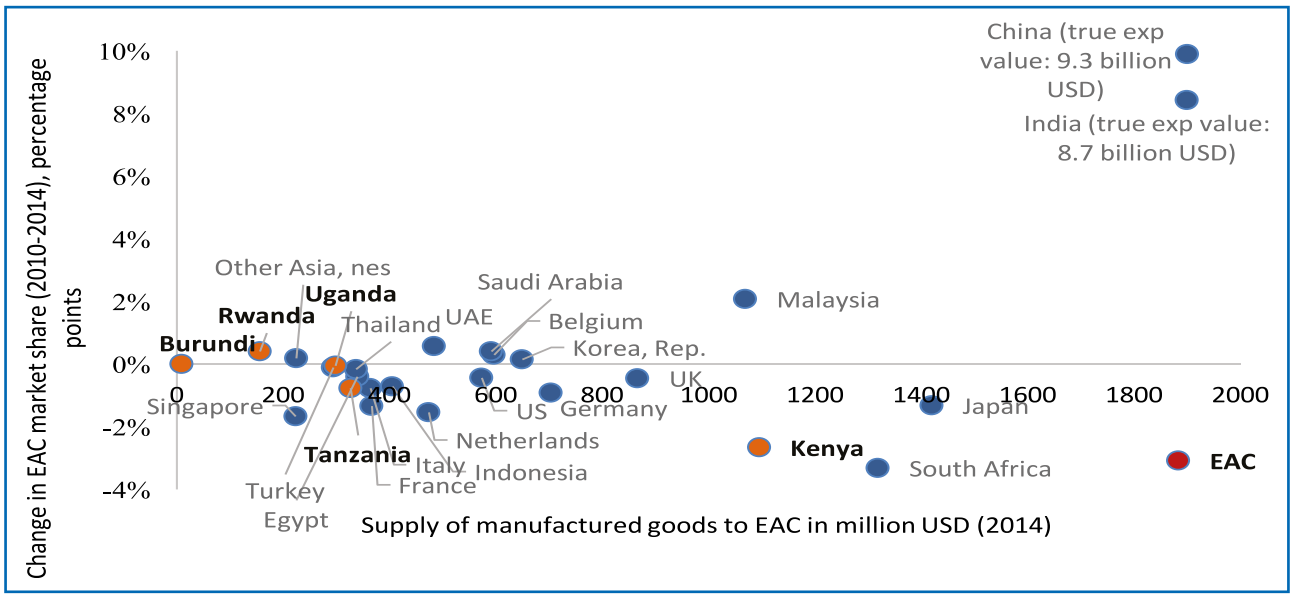


Source: UN Comtrade

Which countries are gaining market share in the EAC?

Chinese and Indian imported manufactured products gained large shares of the EAC market for manufactured goods (over 50% of the market in 2014). Both exported significantly higher values to the region than the EAC Partner States together or any other country, and they continue to capture increasing shares of the market. While EAC's intra-regional exports grew at 2% per annum between 2010 and 2014, Chinese and Indian manufactured exports expanded by 29% and 27% respectively per year. While India exports mainly heavy petroleum to the region (65% of its manufactured exports to the EAC in 2014), followed by medicaments (6%), China is selling a wide range of manufactured goods, from footwear to telecommunications equipment, wearing apparel, engineering plants and more.

Figure 3.8: Top 25 suppliers of manufactured goods to the EAC (2010-2014)



Source: UN Comtrade

Behind China and India is Malaysia, increasing its market share in the region from less than 1% in 2010 to 3% in 2014, driven by the exports of heavy petroleum and fixed vegetable oils. Other economies gaining market share in the EAC are United Arab Emirates, Saudi Arabia, Belgium, Republic of Korea, and Taiwan, though all to a lesser extent. Main exported manufactured products in these cases include heavy petroleum, primary ethylene polymer, lime/cement and pharmaceuticals and medicaments.

Rwanda was the only EAC Partner State to increase its share from 0.04% to 0.44% in the four-year period, due to its base metals exports (mainly tin ores/concentrates and Nb/ta/va ores/ concentrates).

Table 3.5: Top 3 manufactured products exported to EAC in 2014 by country (million USD)

	China		India		UAE		Saudi Arabia	
1	Footwear	439	Heavy petrol/ bitum oils	5636	Lime/cement/ constr matl	74	Primary ethylene polymer	220
2	Telecomms equipment nes	335	Medicaments include vet	444	Heavy petrol/ bitum oils	58	Plastic nes-primary form	193
3	Civil engineering plant	312	Motorcycles/ cycles/etc	143	Primary ethylene polymer	34	Elements/oxides/ hal salt	110
	Belgium		**Rep. of Korea**		**Other Asian**		**Rwanda**	
1	Pharmaceut exc medicamnt	285	Heavy petrol/ bitum oils	287	Heavy petrol/ bitum oils	70	Base metal ore/ conc nes	130
2	Medicaments include vet	67	Polyacetals/ polyesters..	38	Vinyl chloride etc polym	21	Telecomms equipment nes	5
3	Cereal etc flour/ starch	16	Nitrogen function compds	33	Knit/crochet fabrics	21	Clay/refractory material	3

Source: UN Comtrade

Box 3.2: Possible attractive markets in geographic proximity outside the EAC: The case of the DRC

The DRC is an important market for EAC Partner States. It receives 59% of Burundi's manufactured exports, compared to the 20% that remain within the EAC. Tanzania sends 11% of its manufactured exports to the neighbouring country alone, while 14% goes to its four EAC partners. For Rwanda, it is the second most important trading partner in 2014 after Tanzania, for Uganda the third (it follows Rwanda and South Sudan) and for Kenya it is the fourth most important (after Uganda, Tanzania, US). What distinguishes exporting within the EAC to trading with other countries in proximity such as the DRC? The attractiveness of the DRC market for manufactured goods is explored here, and put in comparison to that of the EAC.

Table 3.6: EAC manufactured exports to DRC vs. EAC

	EAC Market				DRC Market			
	Exports	Growth of mnf exp			Exports	Growth of mnf exp		
	(1000 USD)	2000-2010	2010-2014	2000-2014	(1000	2000-2010	2010-2014	2000-2014
EAC	**1,883,909**	**16%**	**2%**	**12%**	**610,316**	**30%**	**12%**	**24%**
Burundi	8,706	11%	6%	10%	26,099	66%	38%	58%
Rwanda	156,007	8%	114%	33%	50,087	50%	47%	49%
Tanzania	326,116	33%	-1%	22%	252,856	51%	19%	41%
Uganda	297,948	39%	13%	31%	101,214	41%	2%	29%
Kenya	1,095,133	13%	-2%	9%	180,059	21%	6%	17%

Source: UN Comtrade

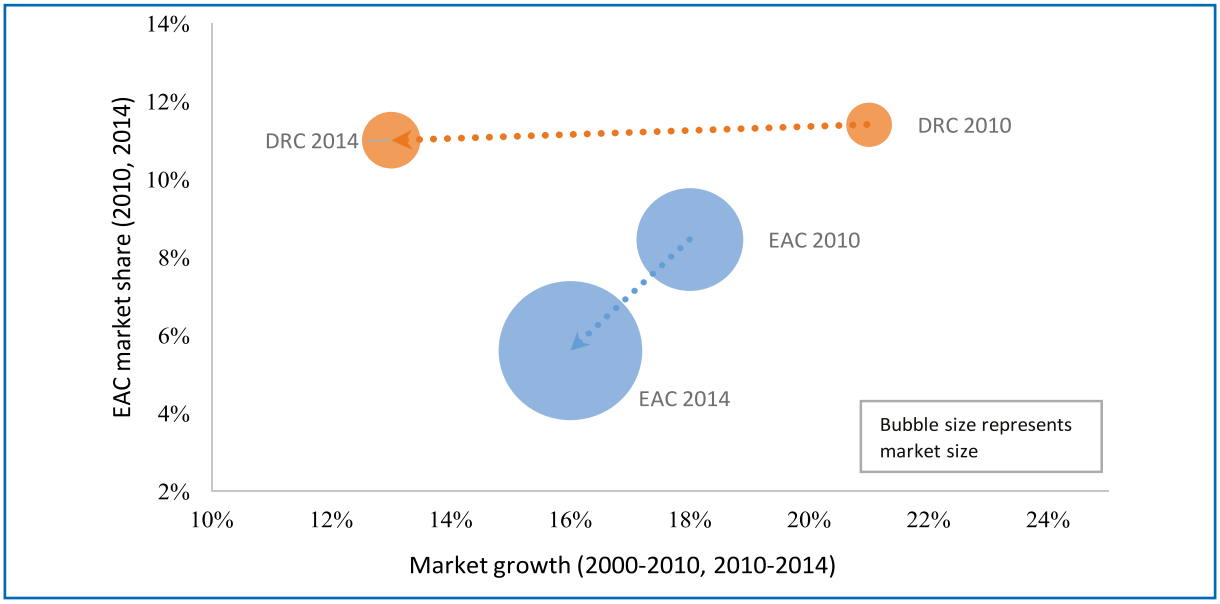
Although manufactured exports by the EAC to DRC are overall roughly a third of intra-EAC exports, they grew at twice the rate since 2000, and six times more rapidly since 2010. All countries, except for Uganda, experienced remarkably higher growth rates of their manufactured exports to this non-EAC country.

Earlier in the chapter we saw that Partner States are losing out on attractive opportunities in their own regional market. Here we find that demand of manufactured goods from the DRC is growing equally fast, even slightly higher. While growth over the entire period (2000-2014) of the EAC market was 17% the same measure grew to 19% in DRC. Both experienced a slowdown since 2010, although that of the DRC was slightly more significant.

Interestingly, the EAC members' market share in DRC exceeds that of its own region, at 11% in 2014, which is a minor improvement since 2010, contrary to the drop in the EAC market. In other words, this means that EAC Partner States managed to cater better for the manufacturing market of DRC than their own, or that they took better advantage of that market.

Box 3.2: Possible attractive markets in geographic proximity outside the EAC: The case of the DRC

Figure 3.9: Market growth and EAC market share in DRC vs. EAC



Source: UN Comtrade

DRC also offered EAC's Partner States more opportunity in exporting manufactured goods. Ninety three per cent of products destined to DRC from the EAC are manufactured. These manufactured exports are, however, less diversified than those traded within the REC. In 2014, the food, beverages and tobacco sector alone accounted for 45% of manufactured goods to the DRC. In addition, there is a lower share of medium and high tech products, at only 13% of manufactured goods.

The market is a particularly important one for Burundi. In fact, practically all Burundi's exports to the DRC are manufactured (99.7%), which is very different from what is sells within the EAC. In addition, it exported a larger variety of manufactured goods to its neighbour, with the main ones being articles of plastic (plastic packaging containers and lids), soaps, alcoholic beverages (beer) and flour. It exported all these products to a much larger extent than to the EAC, even higher than any manufactured product it exports to the EAC.

Comparing EAC countries' performance in a neighbouring market outside the region illustrates how some markets are simply more beneficial for some countries than others. In addition to focusing on the EAC market, firms should not confine themselves to export within the REC only. They should simultaneously be encouraged to look for other attractive neighbouring countries, or countries within a certain proximity. Regional proximity does offer various benefits in terms of export competitiveness, and specific markets may simply be more dynamic or easier to access than others. In fact, the EAC could support

Box 3.2: Possible attractive markets in geographic proximity outside the EAC: The case of the DRC

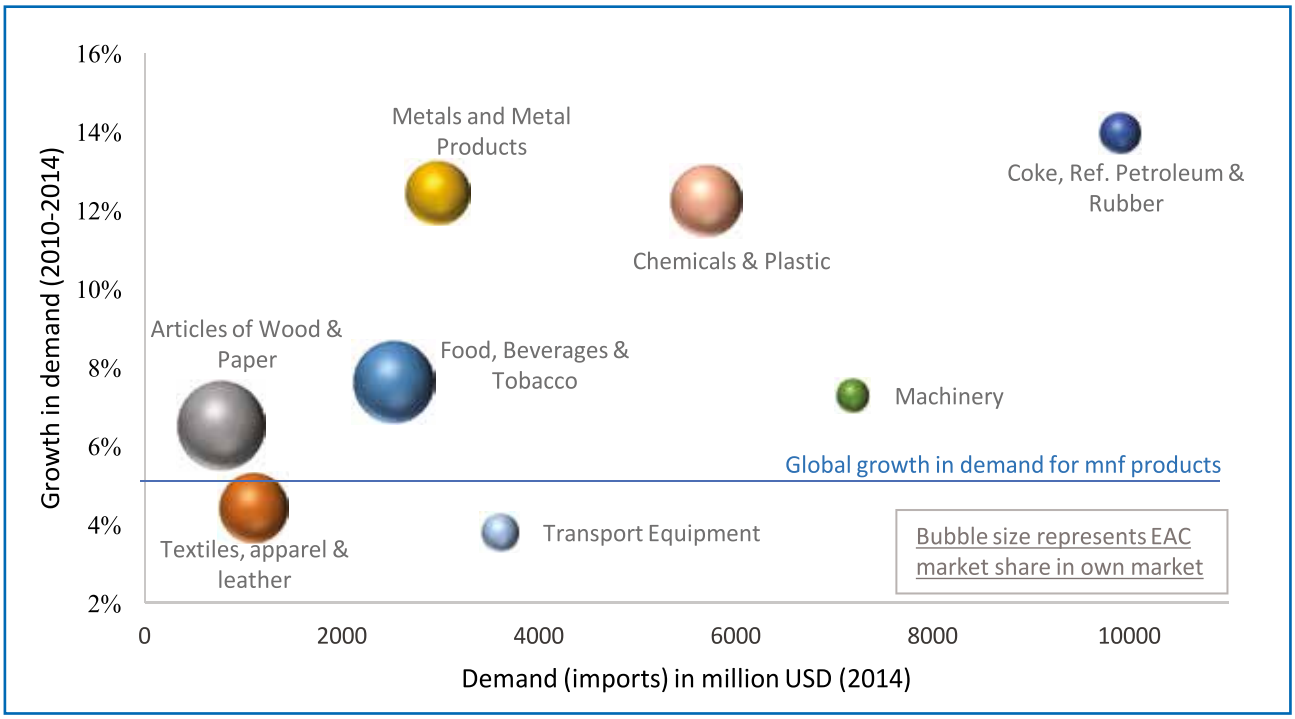
firms by offering market information, in terms of demand in these countries, constraints, or procedures.

On the other hand, the very aim of forming a REC is to offer a larger market to Partner States by reducing trade barriers, developing necessary infrastructure and easing/harmonising bureaucratic processes. Within the EAC, much effort was made on these fronts to facilitate intra-regional trade between the countries. Further support, would however be beneficial for firms, and would help regain market share of Partner States within their region.

C2 INVESTMENT OPPORTUNITIES IN THE EAC MARKET

It was earlier observed that firms within the EAC are losing market shares within their own region – despite the latter providing a very vibrant demand for manufactured goods, much more so than its comparators. This should drive the interest in identifying products which are most demanded, and to what extent the EAC would be able to satisfy this demand.

Figure 3.10: EAC demand and EAC market share by manufacturing sector (2010-2014)



Source: UN Comtrade

The EAC demands coke, refined petroleum and rubber products more than other products (demand is highest for heavy petroleum), followed by machinery, chemicals and plastics, and transport equipment. There is very high demand therefore for more technologically sophisticated sectors, which together make up 48% of EAC's demand for manufactured goods. Growth in demand is highest for coke, refined petroleum, metals and metal products and chemicals and plastics. Investing in sectors that are both highly demanded and fast growing would appear to be a reasonable strategy; however, as there is growth in demand for all product groups, enhancing engagement in any would be beneficial. In addition, caution needs to be taken in sectors where demand is changing rapidly.

Currently the EAC has the largest market share in sectors with a lower technology content (wood and paper: 14%, food, beverages and tobacco: 12%, textiles, apparel and leather: 9%), which also have relatively lower demand and growth in demand. However, the Partner States also succeeded in jointly securing 9% of the market of chemicals and plastics, and they also increased their shares in two of the three medium and high tech sectors since 2010: chemicals and plastics (from 7%) and transport (from 2% to 3%). Table 3.7 below lists EAC's 25 most demanded manufactured goods and observes EAC's related intra-regional trade.

Table 3.7: EAC demand and market share (2000-2014)[26]

			EAC Demand				EAC supply (to EAC)					
		in 1000 USD	Growth rate			in 1000 USD	Growth rate			EAC Market Share		
Manufacturing Sector	ProductDescription	2014	2000-2010	2010-2014	2000-2014	2014	2000-2010	2010-2014	2000-2014	2000	2010	2014
1 (5) Coke, Refined Petroleum, Non-metallic Mineral Prods & Rubber	Heavy petrol/bitum oils	8,260,161	20%	15%	18%	69,106	-3%	-16%	-7%	24%	3%	1%
2 (1) Food, Beverages and Tobacco	Fixed veg oils not soft	1,191,787	19%	9%	16%	31,464	39%	-5%	24%	1%	5%	3%
3 (8) Chemical and Plastic Products	Medicaments include vet	1,134,325	17%	16%	17%	75,559	14%	14%	14%	10%	7%	7%
4 (7) Transport Equipment	Passenger cars etc	1,107,632	20%	5%	15%	3,851	16%	5%	13%	0%	0%	0%
5 (6) Machinery, Equipment and Telecommunications	Telecomms equipment nes	881,918	18%	-3%	11%	3,992	35%	-13%	19%	0%	1%	0%
6 (4) Metal Products	Flat rolled iron/st prod	728,439	19%	8%	15%	22,737	7%	0%	5%	13%	4%	3%
7 (7) Transport Equipment	Goods/service vehicles	708,415	17%	1%	12%	10,799	7%	2%	5%	4%	2%	2%
8 (7) Transport Equipment	Road motor vehicles nes	552,357	19%	13%	17%	16,613	18%	-3%	11%	6%	5%	3%
9 (6) Machinery, Equipment and Telecommunications	Civil engineering plant	543,693	21%	5%	16%	29,842	33%	13%	27%	2%	4%	5%
10 (8) Chemical and Plastic Products	Manufactured fertilizers	524,660	14%	10%	13%	24,844	26%	0%	18%	3%	7%	5%
11 (8) Chemical and Plastic Products	Primary ethylene polymer	462,029	20%	4%	15%	3,129	23%	0%	16%	1%	1%	1%
12 (1) Food, Beverages and Tobacco	Sugar/mollasses/honey	445,895	14%	3%	11%	17,242	32%	-17%	16%	2%	9%	4%
13 (8) Chemical and Plastic Products	Plastic nes-primary form	440,228	20%	17%	19%	3,387	17%	2%	12%	2%	1%	1%
14 (5) Coke, Refined Petroleum, Non-metallic Mineral Prods & Rubber	Lime/cement/constr matl	438,535	27%	7%	21%	167,389	24%	5%	18%	54%	42%	38%
15 (3) Wood and Paper Products	Paper/paperboard	414,225	17%	3%	13%	30,758	11%	1%	8%	15%	8%	7%
16 (7) Transport Equipment	Aircraft/spacecraft/etc	405,026	23%	-11%	12%	32,185	32%	85%	45%	0%	0%	8%
17 (6) Machinery, Equipment and Telecommunications	Special indust machn nes	402,926	20%	10%	17%	13,509	15%	35%	20%	2%	1%	3%
18 (5) Coke, Refined Petroleum, Non-metallic Mineral Prods & Rubber	Rubber tyres/treads	389,959	16%	8%	14%	10,050	3%	5%	4%	10%	3%	3%
19 (6) Machinery, Equipment and Telecommunications	Computer equipment	376,072	17%	3%	13%	3,431	42%	-35%	13%	1%	6%	1%
20 (4) Metal Products	Iron/steel pipe/tube/etc	364,616	19%	34%	23%	24,884	18%	11%	16%	16%	15%	7%
21 (4) Metal Products	Iron/steel bars/rods/etc	355,636	22%	7%	18%	25,246	21%	-5%	13%	12%	12%	7%
22 (7) Transport Equipment	Motorcycles/cycles/etc	343,837	19%	11%	17%	461	17%	-18%	6%	1%	0%	0%
23 (8) Chemical and Plastic Products	Pharmaceut exc medicamnt	325,650	18%	14%	17%	4,860	19%	-14%	9%	4%	5%	1%
24 (4) Metal Products	Iron/stl/alum structures	315,942	17%	20%	18%	6,733	12%	-5%	7%	9%	6%	2%
25 (6) Machinery, Equipment and Telecommunications	Electrical distrib equip	291,971	16%	19%	17%	8,731	32%	2%	23%	2%	5%	3%

Source: UN Comtrade

[26] Heavy petrol/bitum oils: Fuel oils, such as motor spirit, kerosene/medium oils, gas oils, lubes (high petrol content) and other fuel oils. Fixed veg oils not soft: Linseed oil, palm oil, coconut (copra) oil, palm kernel oil, castor oil, tung oil and other fixed veg oils.

Which specific products is the EAC demanding the most?

All top 25 manufactured products demanded by the EAC exhibited very fast growth rates when observing averages between 2000 and 2014, all in their double-digits. This growth, however, slowed down in the period since 2010, with the exception of iron/steel pipes and tubes. Despite this, demand is increasing at a considerable pace (a contraction in demand was found for telecommunications equipment and aircraft/spacecraft only). The question is whether firms within the region have or are able to build the capacity to produce such goods competitively within the region. EAC increased market share in its own market since 2010 in civil engineering plants, aircraft/spacecraft and special industrial machines, all high-tech products, in which the region indeed experienced the largest growth in intra-regional exports. Nonetheless, the level of actual production of these goods is quite negligible domestically.

All the remaining top 25 demanded manufactured goods of the EAC witnessed a reduced share of intra-regional trade in these since 2010. This means the region is losing competitive edge for a range of products, and economies from outside are making most use of EAC's dynamic manufactured goods market. The remaining part of this sub-section discusses six product groups which are of strategic importance for the region in more detail.

Heavy petroleum

Table 3.8 illustrates that by far the largest demand for manufactured goods from the EAC was heavy petroleum which was growing at an average rate of 18% per annum. However, Partner States' supply to the region decreased throughout the period by -7% since 2000 and -16% more since 2010, causing the EAC to lose practically all its market share (from 24% in 2000 to 1% in 2014). This explains a considerable portion of EAC's decrease in its overall market share for manufactured products, as was seen in Figure 3.11. The largest suppliers to the EAC are India, UAE, Switzerland, Bahrain and Saudi Arabia. Although all, apart from Saudi Arabia, increase their exports to the region, India proves to be the most competitive economy, succeeding in rapidly gaining market share from 21% in 2010, to taking over half of the market (49%) in 2014.

Table 3.8: Top suppliers of heavy petroleum to the EAC

Top suppliers of heavy petroleum to the EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		Change
	2014	2010-2014	2010	2014	in MS
India	4,032,699	41.8%	20.9%	48.8%	27.9%
United Arab Emirates	1,502,275	8.2%	23.0%	18.2%	-4.8%
Switzerland	778,018	6.6%	12.7%	9.4%	-3.3%
Bahrain	514,363	43.8%	2.5%	6.2%	3.7%
Saudi Arabia	292,073	-8.8%	8.9%	3.5%	-5.3%
Andorra	288,055	N/A	0.0%	3.5%	3.0%
Singapore	149,392	-30.2%	13.2%	1.8%	-11.4%
Netherlands	130,941	2.5%	2.5%	1.6%	-0.9%
Oman	121,830	54.5%	0.4%	1.5%	1.0%
South Africa	107,605	-11.9%	3.8%	1.3%	-2.5%
EAC	69,106	-16.2%	2.9%	0.8%	-2.1%

Source: UN Comtrade

The EAC is in fact capable of exporting petroleum to countries outside the EAC. It currently exports over 10 times the amount it trades within the EAC to other countries, by an annual average growth rate of 30 %. The major exporters are Kenya (over 80%), followed by Tanzania. Disaggregating the data further, we find that the drop in intra-regional exports of heavy petroleum stems from Kenya's performance, peaking in 2002/2003 and 2005 (mainly due to demand from Uganda), after which its intra-regional trade of heavy petroleum declined significantly. Tanzania's market share remained constant between 2010 and 2014.

The fact that the region does in fact export to other countries makes it plausible to believe there is potential to reverse the negative trend of supplying less within the region and exploit growing demand. It will be necessary to further investigate why heavy petroleum intra-regional exports decreased. Furthermore, the region recently discovered large quantities of oil and gas in virtually all the five Partner States. Rwanda has methane gas, while Uganda, Kenya and Tanzania have some reserves of both oil and gas. However, exporting these resources requires large investments in pipelines and storage facilities. Oil/petroleum pipelines are in fact being expanded from the coast to all the countries of the EAC, which creates the expectations of increased intra-regional trade.

In addition to this there is a need to develop production capacities, as well as the adequate infrastructure within the region for the most effective use of these resources.

Fixed vegetable oil

The second most imported manufactured good in the EAC was vegetable oils, even though seven times less significant than petroleum. Growth in imports was high throughout the period despite a slowdown since 2010. This general upward trend in demand comes as no surprise in a region whose population as well as income per capita levels are fast-growing, and whose biofuel industry (especially biodiesel) relies on vegetable oil. Domestic production caters for only a small share of overall demand, and it is estimated that roughly 70 % of demand is being satisfied through imports (EAC, 2014).

In addition, EAC's intra-regional trade in fixed vegetable oil declined between 2010 and 2014, more drastically since 2012. This comes rather abruptly after a very successful period, i.e. since 2000 fixed vegetable oil exports grew at 39% per annum on average, with continuous success throughout the years. 97% of EAC's demand for edible oils is sourced from palm oil, in which the EAC has a mere 2.5% market share. Furthermore, 97% of EAC's exports of palm oil remain within the EAC, meaning that it is indeed concentrating on the regional demand.

Malaysia and Indonesia (both major global producers) are by far the largest suppliers of palm oil to the EAC, and together they cater for over 90% of demand in 2014 (Malaysia 60% and Indonesia 32%). In addition, both gained market share compared to 2010. Singapore is the third largest supplier to the region, while the EAC Partner States jointly come in fourth place.

Among the EAC Partner States, Kenya and Uganda are the main exporters, accounting for 63% and 35% respectively of EAC's supply to the region. Although the DRC currently supplies less palm oil to the EAC than Uganda and Kenya, its increasing market share, compared to EAC's contracting one, hints to its becoming a future competitor.

Table 3.9: Top suppliers of palm oil to the EAC

Top suppliers of palm oil to the EAC

	Import (1,000 USD)	CAGR	Market Share (MS)		Change
	2014	2010-2014	2010	2014	in MS
Indonesia	692,978	12.9%	51.6%	59.7%	8.1%
Malaysia	367,447	18.2%	22.8%	31.6%	8.9%
Singapore	57,601	-23.0%	19.8%	5.0%	-14.9%
EAC	**29,487**	**0.3%**	**3.5%**	**2.5%**	**-1.0%**
Kenya	18,579	7.2%	1.7%	1.6%	-0.1%
Uganda	10,411	-7.6%	1.7%	0.9%	-0.8%
Congo, Dem. Rep.	6,894	10.5%	0.56%	0.59%	0.03%

Source: UN Comtrade

All EAC Partner States seek to increase production of vegetable oils, particularly to reduce import dependency. The potential to produce vegetable oils across the region due to available natural resources and the favourable climate has in fact made it a priority sector in the region. This should also boost horizontal diversification of the product, such as the extraction of omega 3 fatty acids, and their use as biofuels and livestock feeds.

Medicaments and Pharmaceuticals

The pharmaceutical sector (which comprises of medicaments and other pharmaceuticals) is repeatedly named as a priority sector in EAC's industrialisation plan (for example in the EAC Strategy and Policy, and more recently in EAC's Vision). This is because it has a strong role to play in improving the health of its citizens. In East Africa, the pharmaceutical industry is small and fragmented, and the sector heavily relies on imports to cater for people's needs (EAC Vision 2050).

Medicaments

Demand for medicaments, the third most demanded manufactured product group, is currently growing at 16% on average per year with the EAC catering for 7% of the market share in 2014. Although the latter diminished slightly since 2000, the region maintained a steady growth of intra-regional trade of medicaments at 14% per year throughout the entire period. Over 90% of EAC's intra-regional exports of medicaments is supplied by Kenya. At the same time, Uganda's exports increased at a rate of 30% per year in the latest period, allowing it to gradually export 6 million USD worth of medicaments to other Partner States in 2014. The main supplier of medicaments to the region is however India, most recently holding 55% of the market, and enlarging its share over time. Interestingly, the EAC is the second largest supplier. However, while its market share has not changed over time, that of France, China and the US enlarged, indicating they are catching up with the EAC and potentially becoming even larger threats to regional suppliers.

Table 3.10: Top suppliers of medicaments to the EAC

Top suppliers of medicaments to the EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		Change
	2014	2010-2014	2010	2014	in MS
India	623,587	18.8%	49.6%	55.0%	5.3%
EAC	**75,559**	**14.2%**	**7.0%**	**6.7%**	**-0.4%**
Kenya	68,591	14.4%	6.4%	6.0%	-0.3%
France	66,549	35.7%	3.1%	5.9%	2.8%
China	62,559	28.5%	3.6%	5.5%	1.9%
United States	62,026	24.1%	4.1%	5.5%	1.3%
Belgium	33,094	2.8%	4.7%	2.9%	-1.8%

Source: UN Comtrade

Pharmaceuticals (excluding medicaments)

Pharmaceutical products other than medicaments are also on high demand in the EAC. Nonetheless, while EAC intra-regional trade for medicaments was growing steadily at the rapid pace of 14% per annum, EAC's supply of other pharmaceutical products has been decreasing at 14% per annum since 2010, despite previous success. This led to the region's market share dropping from 5% in 2010 to 1 % in 2014 in a market that is growing at 14 % per annum during the same years. Similarly to medicaments, over 90% of EAC's intra-regional supply of pharmaceutical products comes from Kenya.

Table 3.11: Top suppliers of pharmaceuticals other than medicaments to the EAC

Top suppliers of pharmaceuticals excl medicaments to the EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		Change in
	2014	2010-2014	2010	2014	MS
Belgium	71,369	46.2%	8.1%	21.9%	13.8%
India	65,847	16.8%	18.4%	20.2%	1.8%
Denmark	49,829	5.2%	21.2%	15.3%	-5.9%
United States	37,397	44.6%	4.5%	11.5%	7.0%
China	25,147	17.2%	6.9%	7.7%	0.8%
Germany	12,576	6.3%	5.1%	3.9%	-1.3%
Netherlands	12,121	11.5%	4.1%	3.7%	-0.4%
France	7,719	11.9%	2.6%	2.4%	-0.2%
United Kingdom	7,540	-2.7%	4.4%	2.3%	-2.1%
South Africa	6,435	3.8%	2.9%	2.0%	-0.9%
EAC	**4,860**	**-13.5%**	**4.5%**	**1.5%**	**-3.0%**

Source: UN Comtrade

Belgium is the main provider of pharmaceuticals in the EAC and has succeeded in gaining almost 14% of market share between 2010 and 2014. US suppliers have also been performing well, gaining 7% of market share in the four-year period and now holding 11.5% of the EAC market.

Recognising the strategic importance of the pharmaceutical sector in promoting access to affordable, quality and essential medicines, including those for the treatment of diseases such as HIV/AIDS, Malaria, Tuberculosis and various neglected tropical diseases (NTDs), the Secretariat in collaboration with Partner States and development partners put in place several programmatic measures to support the development and growth of the sector. These measures include the development of an EAC Regional Pharmaceutical Manufacturing Plan of Action (EAC-RPMPOA) 2012-2016 and the on-going EAC Medicines Registration Harmonisation Project. The EAC-RPMPOA, which is currently in its implementation stage, is a regional roadmap to guide the East African Community towards evolving an efficient and effective regional pharmaceutical manufacturing industry that can supply national, regional and international markets with efficacious and quality medicines.

Iron and Steel

Iron and steel products are also in high demand in the EAC. This is because there are several sectors which rely heavily on this input, such as construction, infrastructure development, capital goods for the mining industry, transportation and others. The main type demanded in the region is flat rolled iron/steel products (demand is roughly double that of any other related

product group), where it is most recently growing at 8% per annum. The share supplied by the EAC is declining consistently since 2000. Having started at 13%, it shrunk to 3% in 2014, illustrating once more how attractive opportunities for the region are not being sufficiently exploited. The lack of growth since 2010 is particularly of concern.

The EAC also demands iron and steel pipes, tubes and alike, as well as bars and rods. For these, the Partner States jointly enjoy a 7% market share, after having shrunk as well. Pipes and tubes are the most dynamic in terms of demand, with growth rates averaging 34% since 2010. This growth was accompanied by an 11% annual increase in intra-regional exports of the same, illustrating here solid efforts to become competitive in the region although still losing market share. Furthermore, almost all EAC's exports of this product remain within the EAC, showing that the regional market is providing the opportunity to export products whereas its Partner States are unable to do so elsewhere.

China, Japan, South Africa and India all boast higher market shares in the EAC for iron and steel products than the EAC Partner States put together, and all except South Africa enjoyed positive and very high annual growth rates above 24% since 2010. The Republic of Korea, although still exporting less iron and steel products to the region than the EAC, may become a competitor in the future as its supply to the region grew at 42% per annum.

Table 3.12: Top suppliers of iron and steel products to the EAC[27]

Top suppliers of iron and steel products to the EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		Change
	2014	2010-2014	2010	2014	in MS
China	390,233	41.7%	9.1%	22.1%	13.1%
Japan	369,240	29.8%	12.2%	20.9%	8.8%
South Africa	332,572	-7.2%	41.9%	18.8%	-23.1%
India	264,574	24.3%	10.4%	15.0%	4.6%
EAC	**79,600**	**0.1%**	**7.4%**	**4.5%**	**-2.9%**
Kenya	46,800	1.8%	4.1%	2.7%	-1.4%
Turkey	46,577	-1.9%	4.7%	2.6%	-2.1%
Korea, Rep.	44,050	42.0%	1.0%	2.5%	1.5%

Source: UN Comtrade

If iron/steel pipes/tubes etc are observed separately (due to their high growth in demand), it is found that China and Japan have larger market shares than the EAC, with the former holding 44% of the market. While they are further gaining market shares throughout the years, so are all other top suppliers, indicating that new competition is arising from a range of countries such as Norway, Italy, the US and the Republic of Korea.

[27] For this analysis, the different iron and steel related products of the top 25 most demanded manufactured goods were grouped together. These are: Flat rolled iron/steel products, iron/steel pipe/tube/etc., Iron/steel bars/rods/etc. and Iron/stl/alum structures.

Table 3.13: Top suppliers of iron/steel pipes/tubes etc to the EAC

TOP SUPPLIERS OF IRON/STEEL PIPES/TUBES ETC TO THE EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		
	2014	2010-2014	2010	2014	Change in MS
China	159,826	39%	37.4%	43.8%	6.4%
Japan	36,476	56%	5.4%	10.0%	4.6%
EAC	**24,884**	**11%**	**14.7%**	**6.8%**	**-7.9%**
Norway	20,220	283%	0.1%	5.5%	5.5%
Italy	15,246	119%	0.6%	4.2%	3.6%
United States	15,113	62%	1.9%	4.1%	2.2%
Korea, Rep.	14,949	359%	0.0%	4.1%	4.1%

Source: UN Comtrade

The region has comparative advantage in steel development. It has abundant natural resources (iron ore, coal, gas, limestone) to make iron and steel, considerable installed steel rolling capacity (3.2 million tons), as well as the dynamic demand due largely to the fast-growing construction industry and a vibrant public infrastructure development program. The region holds confirmed iron ore reserves of 2.8 billion tons in deposits but with a potential well above 10 billion tons. Extraction of 50% of the 2.8 billion tons at an annual rate extraction of 5 million tons will last for 280 years. The region also has 2.4 billion tons of coal and 50.5 trillion cubic feet of natural gas which are required in the iron and steel making processes as well as for generating electric power.

Production of metals takes place in all Partner States and the EAC is currently exploring ways to collaborate in the production of iron and steel products. While a sizeable private sector in steel rolling was established, the value chain development for iron, steel and metal processing in the region is weak. At full operation, steel rolling plants would be expected to meet 92% of the current regional steel demand of 3.5 million tons a year. Nonetheless, it is assumed that they operate at between 30% to 70%, mainly due to insufficient suppliers of scrap and semi-finished production, inadequate electricity supply and high costs, for example of transport, taxes on imported intermediary goods.

Furthermore, firms require heavy investments in capital and long-term financing which is a critical constraint for the industry. Ensuring sufficient and adequate support is given to firms engaging in the production of iron and steel is crucial especially to allow this sector develop strong forward linkages to other sectors of the economy (e.g. construction, infrastructure development, transportation and machinery). With large natural reserves, the region should not be import-dependent.

Fertilisers

Manufactured fertilisers are also among the 10 most demanded products, with a growth rate of 10% since 2010. However, intra-regional exports of these had a zero percent growth since 2010, although it had a period of remarkable development of 26% on average per year (between 2000 and 2010). A quarter of the region's exports of these fertilisers is destined to countries outside the EAC, and is growing at roughly the same rate. With the large deposit of phosphates within the region, setting up a large-scale fertiliser plant would allow the region to better exploit such economic opportunities.

The main trader within the region is Kenya (15.4 million USD in 2014), followed by Tanzania (9.3 million USD). Kenya increased its exports since 2010 and overtook Tanzania in 2014 after the latter experienced a decline. Russia is the main competitor holding over a fifth of the market, and continuing to increase market share. It is followed by Saudi Arabia and China. Indeed, most of the largest exporters broadened their shares in the EAC market.

Table 3.14: Top suppliers of manufactured fertilisers to the EAC

Top suppliers of manufactured fertilizers to the EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		Change
	2014	2010-2014	2010	2014	in MS
Russian Federation	108,935	13.7%	18.1%	20.8%	2.6%
Saudi Arabia	80,188	46.3%	4.9%	15.3%	10.4%
China	80,006	31.7%	7.4%	15.2%	7.9%
Finland	32,539	-2.1%	9.8%	6.2%	-3.6%
Morocco	30,957	28.6%	3.1%	5.9%	2.8%
Romania	26,691	3.4%	6.5%	5.1%	-1.4%
Ukraine	26,478	13.8%	4.4%	5.0%	0.7%
EAC	**24,844**	**0.1%**	**6.9%**	**4.7%**	**-2.1%**

Source: UN Comtrade

Cement

Among the top 25 most demanded manufactured goods lime/cement/construction material rank top of the products EAC managed to supply to its own market in terms of market share, reaching 38% for this product group. Growth in intra-regional exports slowed down since 2010, from 24% per annum prior to 2010, to 5% thereafter. With the demand in fact multiplying even faster than that, the region is facing a continuous contraction of its market share here as well. In 2000, intra-regional exports of cement accounted for more than half of imports.

Observing the main product of this group, portland cement, we find that the EAC satisfies 40% of its own market in 2014 following a reduction of 4 percentage points from 2010. The UAE is the main competitor, with 25% of the market, though its market share is growing at an impressive rate since 2010.

Within the EAC, Uganda exhibited a relatively fast growth of 11%, allowing it to almost equal the market share of Kenya which is declining. Tanzania exports cement to the region to a lesser extent with its market share stagnant at 5%. Other economies that prove to be competitive in the region are Pakistan, China and Iran.

Table 3.15: Top suppliers of cement to the EAC

Top suppliers of cement (portland) to the EAC					
	Import (1,000 USD)	CAGR	Market Share (MS)		Change
	2014	2010-2014	2010	2014	in MS
EAC	**165,544**	**5%**	**43%**	**40%**	**-4%**
United Arab Emirates	106,392	116%	2%	25%	24%
Uganda	73,152	11%	15%	17%	2%
Kenya	71,523	-1%	23%	17%	-6%
Pakistan	44,866	12%	9%	11%	2%
China	43,961	25%	6%	11%	5%
Iran, Islamic Rep.	21,325	N/A	0%	5%	5%
Tanzania	19,718	7%	5%	5%	0%

Source: UN Comtrade

This chapter was very important in pointing at several missed opportunities for the EAC Partner States to better exploit their own very dynamic regional market in terms of manufactured goods. Intra-regional manufactured trade is growing only sluggishly since 2010, in contrast to other regions such as SADC and ECOWAS. Nonetheless, the analysis on investment opportunities illustrates that there is potential for several of the most demanded manufactured goods by the region to be supplied by EAC's own Partner States. While in some cases exports to other countries outside the Community grew (e.g. for heavy petroleum), the processing of other products may still need some further support in terms of government interventions and investment (e.g. vegetable oil, iron and steel products), as raw materials are indeed available and the climate is favourable. The potential benefits of boosting certain sectors such as these can be enormous.

CHAPTER D: MOVING UP STRATEGIC VALUE CHAINS TO CATER FOR DYNAMIC DEMAND AND INCREASE EARNINGS

Chapter D examines upgrading opportunities within two value chains (cotton apparel and leather), by assessing the attractiveness of engaging in a specific product (stage of production) of the chain and identifying the most interesting markets for it. The first section introduces the concept of functional upgrading and presents the rationale for selection of the cotton apparel and leather value chains. The subsequent sections provide an analysis of each of these chains in turn.

The Need for Functional Upgrading

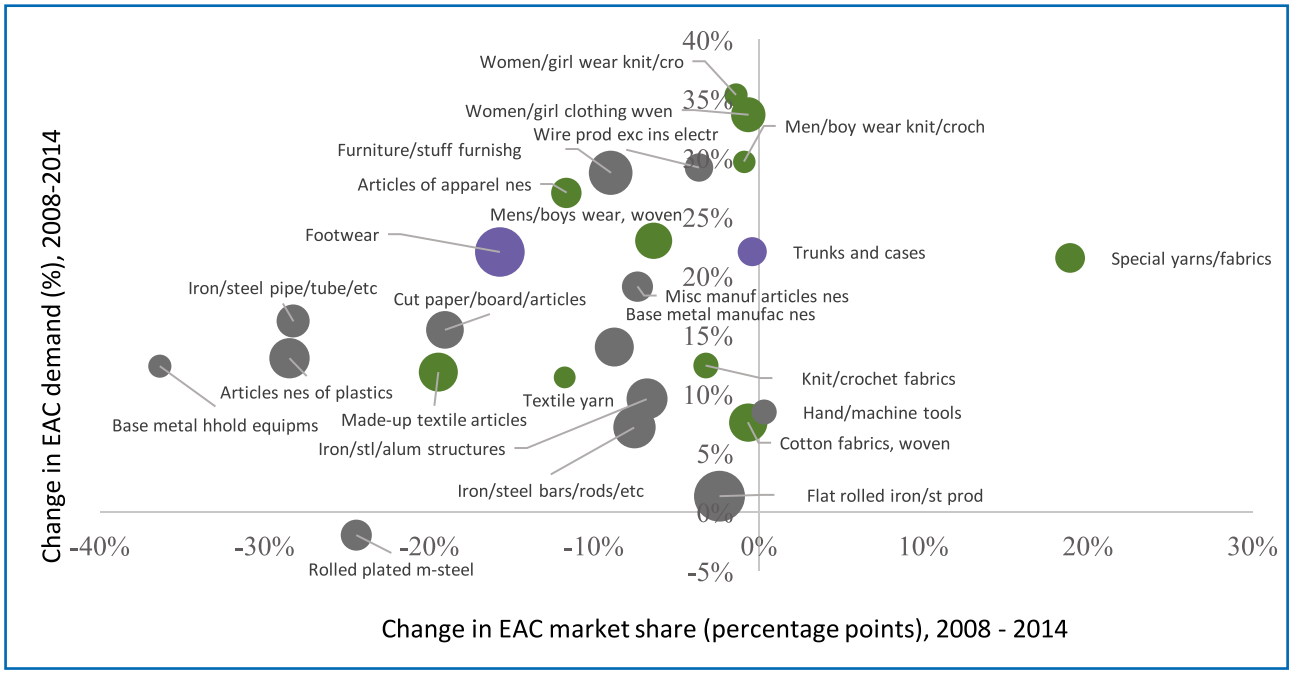
The lack of sustained structural change towards a larger manufacturing base is highlighted thus far in the review of industrial development in the EAC. The EAC Industrialisation Strategy places emphasis on the enhancement of industrial production and the structural transformation of economies of the EAC region. Thus, an increase in the share of manufacturing in GDP and progression to higher value added activities are critical objectives. A transition from primary based economies to production of medium and high tech products may be unviable in the short run, given the low level of skills and technology in the EAC Partner States. An alternative approach to developing competitiveness in manufacturing would entail moving into new activities further along product value chains. Engaging in higher value activities within the same chain will provide firms with the opportunities to increase earnings, enter new product markets, create employment opportunities and promote the acquisition of new skills and technology. This process of functional upgrading along product value chains is the focus of this chapter.

Rationale for Selection of Cotton Apparel and Leather Value Chains

Agriculture is a major source of livelihood and remains the largest employer of labour in the EAC region. In view of this, agro-processing is one of the six strategic sectors selected for targeted investment in the EAC Industrialisation Strategy. Leather and cotton are among the top commodity exports from the EAC region and both products present opportunities for functional upgrading through additional processing of raw products which have not yet been exploited. The growing demand for textile and leather products within the region, potential for generating additional revenues through exports of processed products and employment creation opportunities are some of the other factors considered in the selection of these value chains for further analysis.

In Figure 4.1 it is apparent that there is a large and growing EAC demand for clothing and finished leather products. Regional demand for apparel, woven and knitted clothing, and special yarns/fabrics grew by over 20% per annum from 2008 to 2014. Textile yarn and fabrics have a slower, though positive growth rate. With the exception of special yarns/fabrics, the EAC is significantly losing market shares for these products. Trunks and cases, and footwear are also among the top 25 low tech products in demand in the region. Market share for such leather products in the EAC is on the decline while demand within the region is growing at above 20% per year. In respect of both value chains there is a need to understand why firms within the region are becoming less competitive in their own highly dynamic markets. The rest of the chapter will focus on each value chain in turn.

Figure 4.1: Export performance of top 25 demanded low tech manufactured goods in EAC



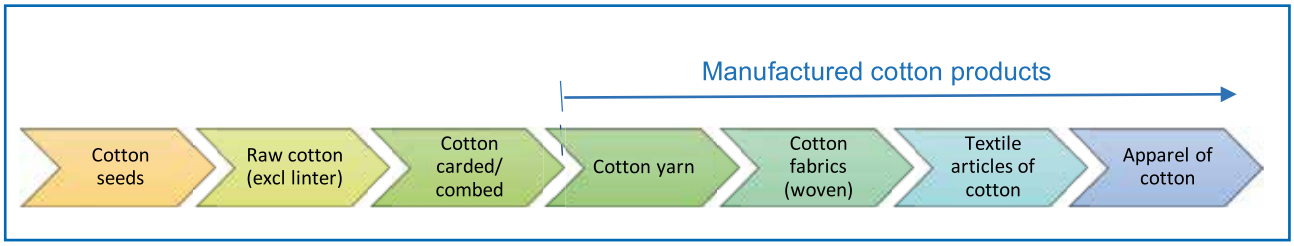
Source: UN Comtrade

D1 COTTON APPAREL VALUE CHAIN[28]

The fast-growing regional demand for clothing is largely being met by imports of "mitumba", the Swahili word commonly used to refer to used clothing. These are sold at cheap prices, making it difficult for regional clothing producers to compete. Trade regulations are being put in place to reduce the influx of these goods and allow local producers to build competitiveness; however, local firms are still unable to sell at competitive prices. This makes it difficult for consumers to afford new clothing, and producers are unable to ensure adequate sales and profits. Focusing on the development of the capabilities required to increase competitiveness in the textile industry is now more important than ever.

[28] The report focuses on the value chain of apparel made of cotton, rather than the cotton value chain in general, therefore excluding byproducts such as oilcake. At times, the report states 'cotton value chain' for simplicity, though this should be read synonymously with 'cotton apparel value chain'.

Figure 4.2: Cotton apparel value chain



Source: Author's categorisation per UN Comtrade data

Figure 4.2 presents the products along the cotton value chain that are analysed in this section, starting from the seeds up to the apparel of cotton. Following UNIDO classification, cotton yarn, fabrics, textile articles and apparel are considered to be manufactured goods. Annex 2. offers a list of the detailed products and their SITC codes for this value chain.

The EAC experiences challenges with increasing exports of cotton-related products, in particular the manufactured goods. This occurs despite the region enjoying preferential market access to the US under the AGOA trade agreement. Intra-regional exports of cotton-related products present a similar picture, with EAC firms able to cater for most of the region's demand for raw cotton but struggling to supply cotton fabrics, textile products and apparel.

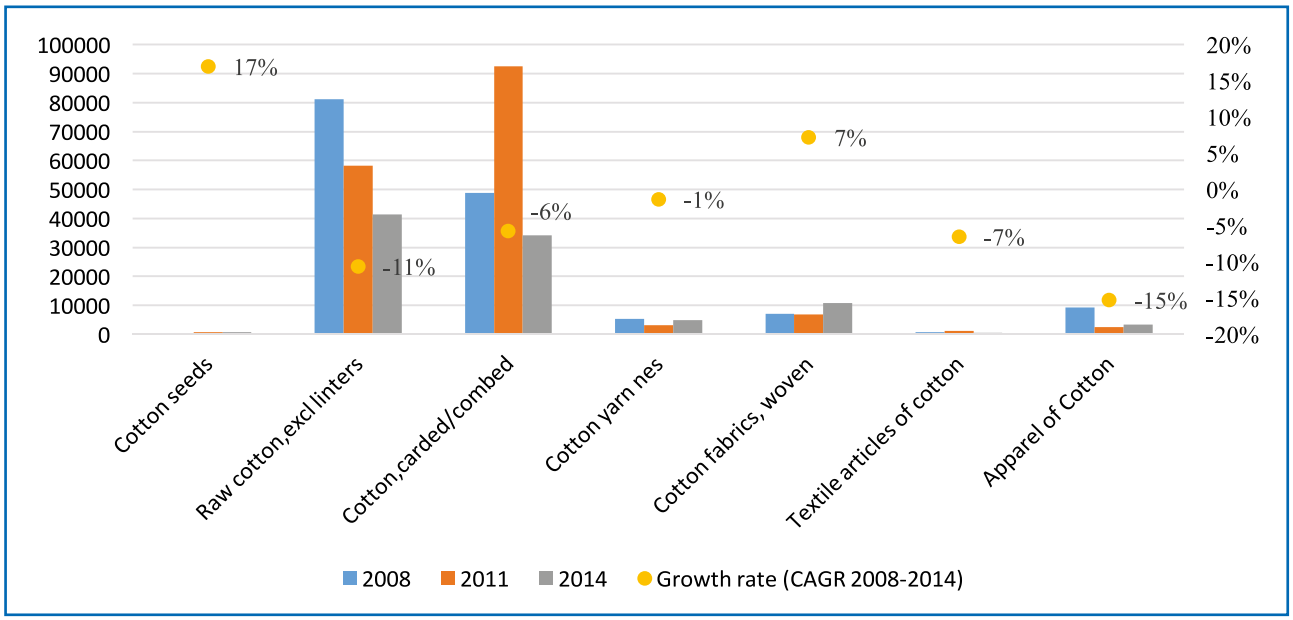
The development of a textile industry is the path many developing countries, including China, India and Vietnam followed to kick-start a comprehensive process of industrialisation. UNIDO's Industrial development report of 2013 highlights the significant scope to increase both value addition and employment in the textile sector. Based on empirical evidence, it is suggested that the sector can grow on both fronts until it reaches upper middle-income status. In addition to increased employment, upgrading also leads to higher real wages (Bernhard and Pollak 2016) and according to the ILO (2015), the sector is recognised for creating job opportunities for young women.

EAC Exports of Cotton Products

The EAC exports mostly raw and carded/combed cotton. Higher value added products, such as textiles and apparel of cotton, are exported to only a limited extent, as is true for cotton yarn and fabrics. Additionally, there were decreases in exports of almost all products in recent years (cotton seeds and fabrics being the exceptions). Cotton textiles and apparel exports declined by 7% and 15% respectively per annum. A proposed ban on imports of second-hand clothing credited to EAC governments is cause for concern given the limited capacity to produce and export cotton apparel[29].

[29] While not always the case, low export capacity indicates there may be low production capacity as well. In this case, this can be assumed as we learnt that demand for such finished products is high.

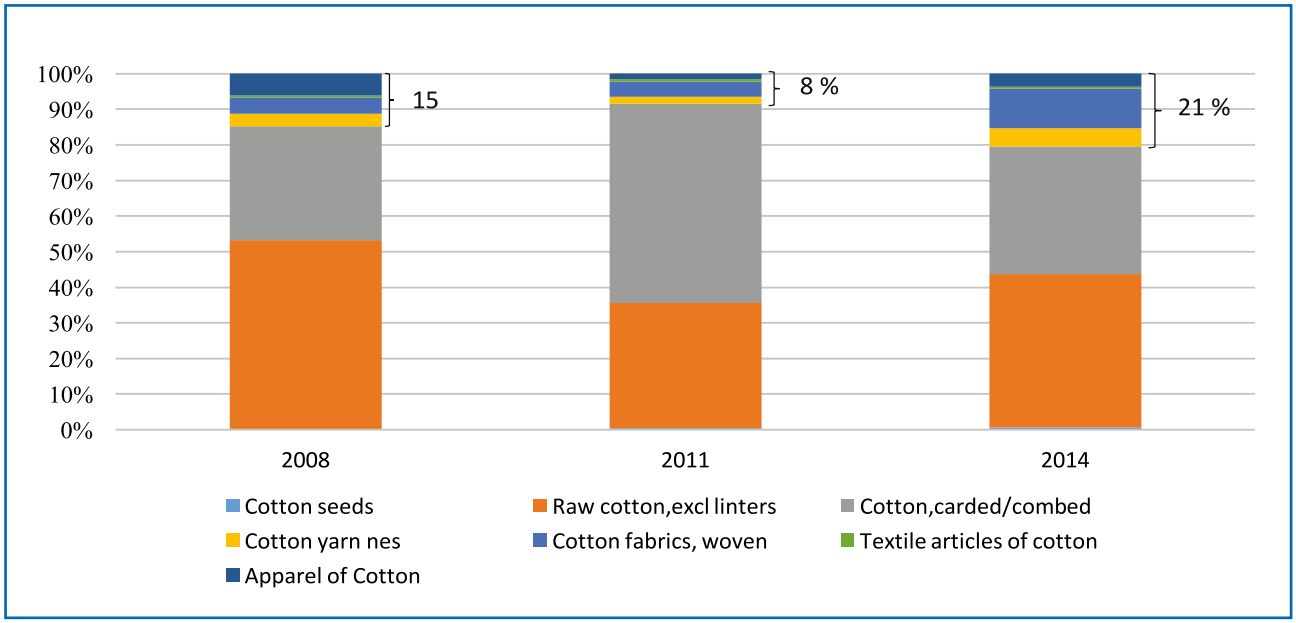
Figure 4.3: EAC exports of cotton value chain products (1,000 USD)



Source: UN Comtrade

Total exports of products of the cotton apparel value chain in the EAC declined by 7.5% per annum between 2008 and 2014 with an even more pronounced per annum decrease since 2011. Nonetheless, developments since 2011 show some positive signs concerning the exports of processed cotton products. While exports of raw and carded cotton shrank, those of cotton yarn, woven fabrics and apparel of cotton grew, even if only modestly, allowing the share of manufactured exports in this value chain to increase. Assuming export figures are representative of production within the region, these might be indicative of functional upgrading within this value chain.

Figure 4.4: Share of cotton products exported by the EAC (2008-2014)

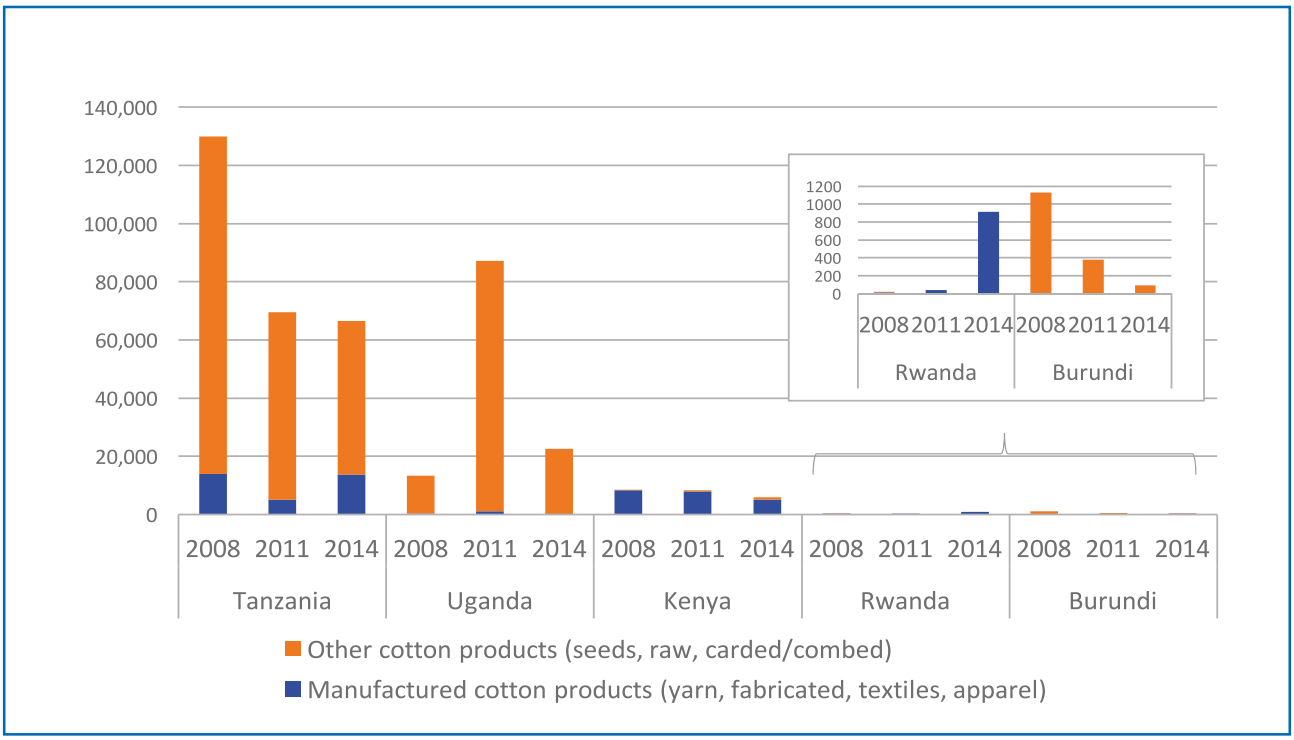


Source: UN Comtrade

Which EAC Partner State Exports Most Cotton-related Products?

In 2014 Tanzania was by far the leading EAC exporter of cotton products, followed by Uganda and Kenya. All countries, except for Rwanda, experienced a decline in exports either since 2011 or since 2008.

Figure 4.5: EAC exports of cotton VC products, per Partner State (1,000 USD)



Source: UN Comtrade

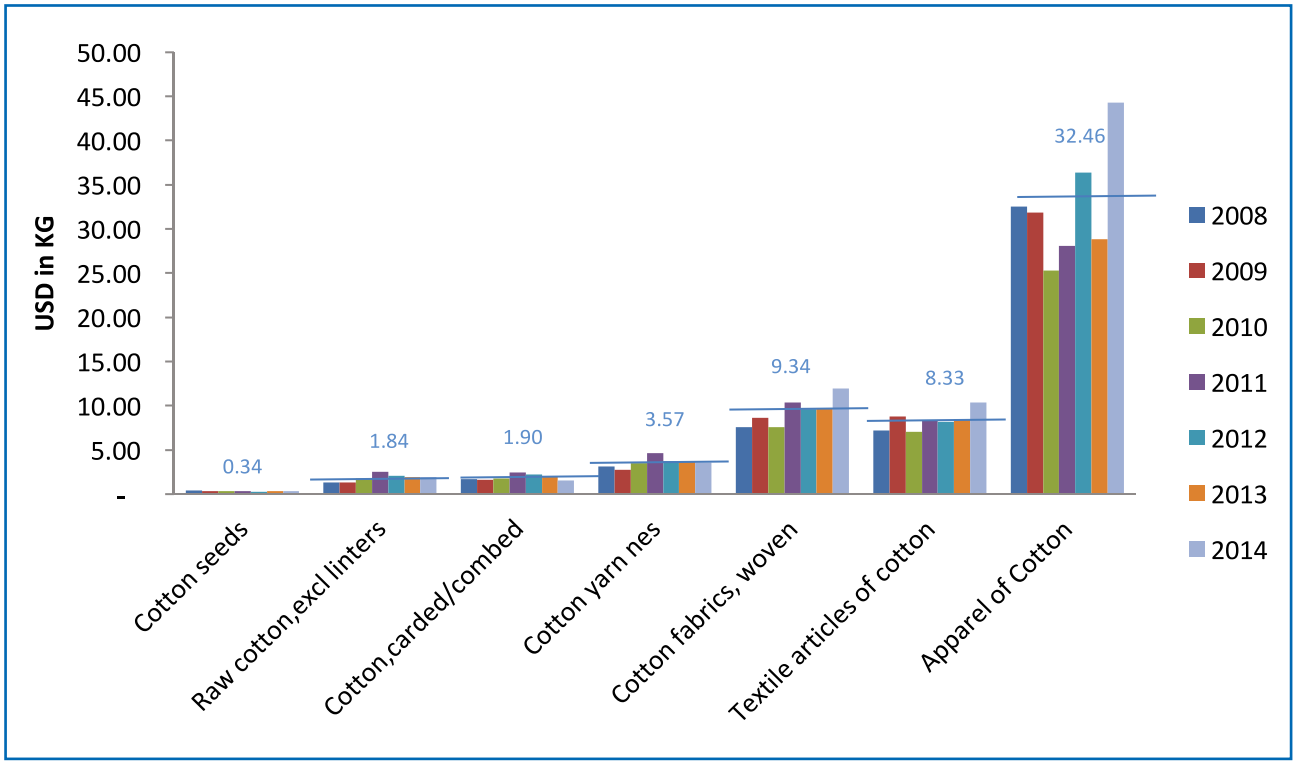
Rwanda is the only economy succeeding in expanding its cotton-related exports since 2008, with pronounced success in 2014, and it accomplished this by exporting exclusively manufactured cotton products (Figure 4.5). Kenya, similarly to Rwanda, focused on exporting processed forms of cotton, though with a negative export trend. Tanzania still outperforms both Kenya and Rwanda in terms of absolute export values of manufactured cotton products. Both Uganda and Burundi were still unable to export manufactured cotton products.

Attractiveness Assessment of Products within the Cotton Apparel Value Chain

As Tanzania, Kenya and Rwanda are concentrating on exporting manufactured cotton, and Uganda and Burundi are looking for ways to ensure their exports of cotton related products pick up again, it is important to understand which products within the value chain are most interesting to engage in. Examining unit values will provide additional useful information on the attractiveness of certain product groups.

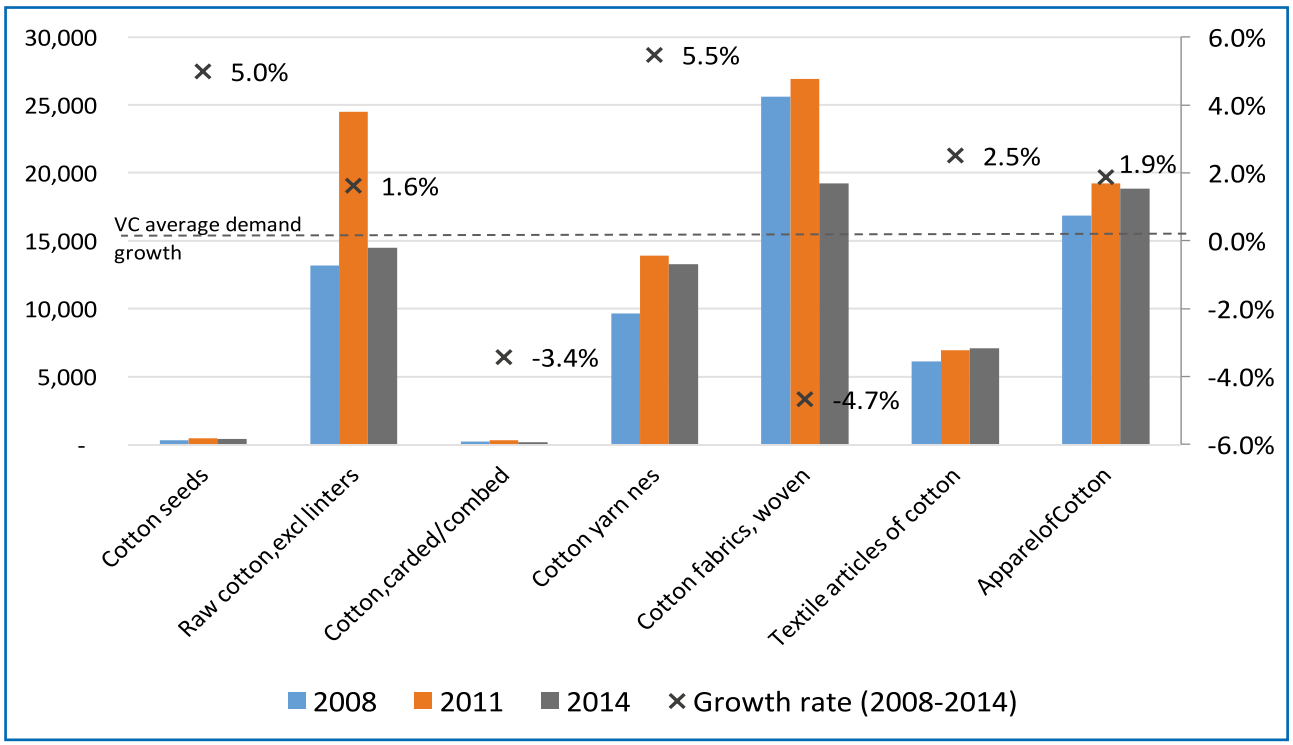
Figure 4.6 demonstrates that processed forms of cotton attract higher unit values, with cotton apparel worth four times more than textile articles of cotton. Furthermore, unit values of apparel globally increased faster than other cotton-related products in recent times.

Figure 4.6: Global unit values of cotton-related products (2008-2014)



Source: UN Comtrade

Figure 4.7: Global demand for cotton VC products (million USD)



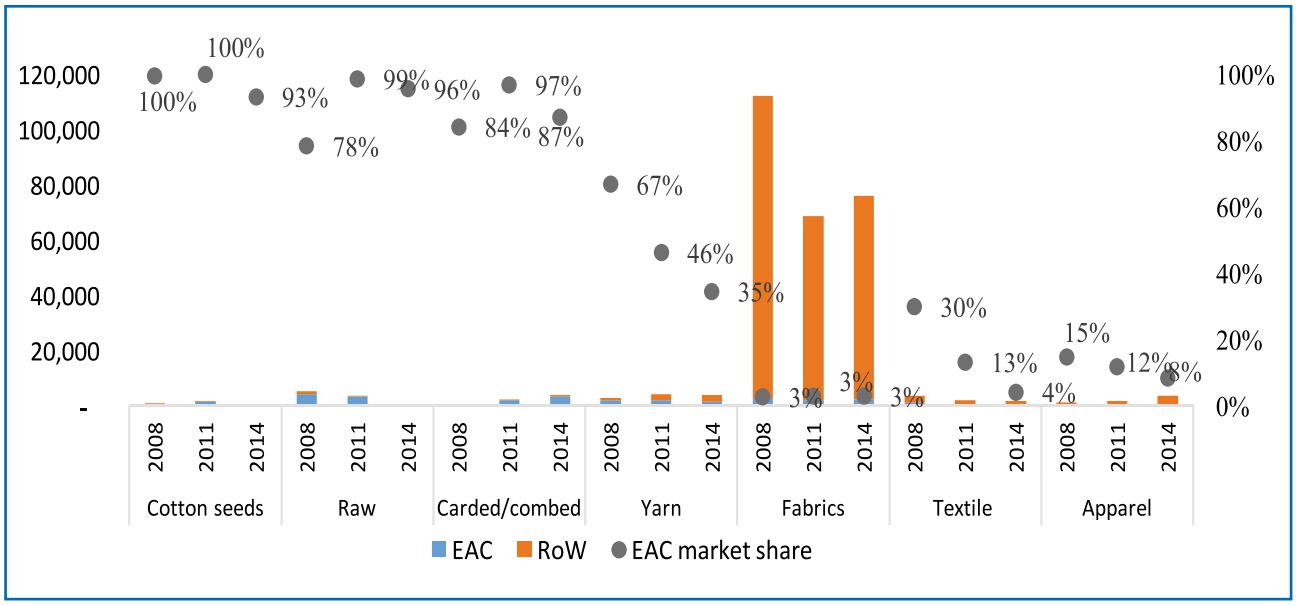
Source: UN Comtrade

Since 2014, global demand is highest for cotton fabrics and apparel, followed by raw cotton and cotton yarn. Between 2008 and 2014, demand for all cotton products marginally grew by 0.4% annually. The fastest growing category was cotton yarn (5.5% on average per annum), followed by textiles (2.5%)[30] Nonetheless, demand for all product categories, except for textile articles of cotton declined since 2011.

EAC Demand for Cotton-related Products

An expected outcome of the development of the cotton sector is to build the capacity to meet regional demand for apparel. Figure 4.8 presents the demand levels for all the different cotton-related product groups. Additionally, it shows the region's market share, to understand to what extent the EAC is already catering for its own demand.

Figure 4.8: EAC demand (imports) for cotton products (1,000 USD)

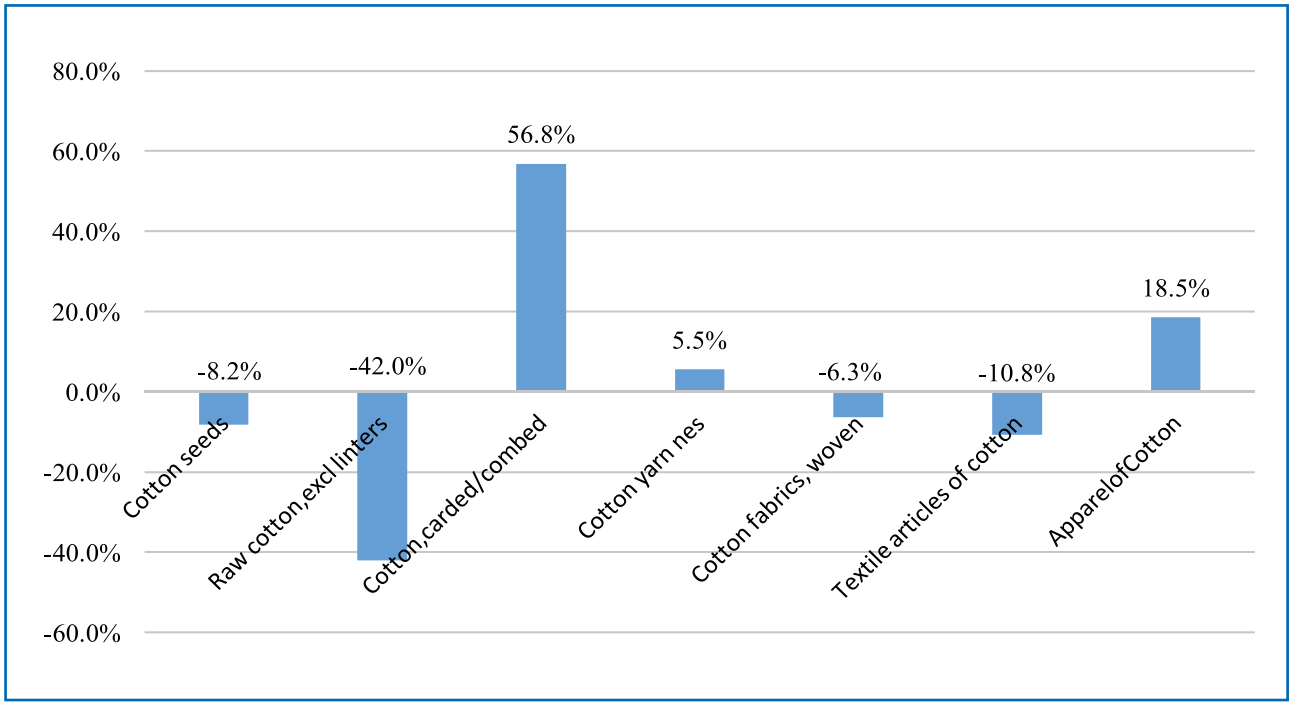


Source: UN Comtrade

EAC's demand for cotton fabrics significantly exceeds the demand for any other cotton-related product. Intra-regional trade has been unable to satisfy more than 3% of the region's demand. More generally, while the EAC is able to meet its own demand for cotton products that require little to no processing, it has a poor market share in the more processed forms, particularly fabrics, textiles and apparel (with market share between 3 and 8% in 2014). In addition, the region lost market shares in cotton yarn, textiles and apparel between 2008 and 2014 indicating lack of competitiveness in these.

[30] The relatively high growth rate of cotton seeds is less attractive because of the very low absolute values.

Figure 4.9: Growth rates of EAC demand for cotton products (2008-2014)



Source: UN Comtrade

The region's demand for certain cotton products is growing rapidly, while it is shrinking for others. Carded or combed cotton is the fastest growing category, rising by 57% per year. Demand for cotton apparel is second most dynamic, at 19% annually, and that of cotton yarn is 5.5%. These dynamic markets indicate that there are attractive opportunities for firms to further develop capabilities and expand in cotton processing.

Box 4.1: Demand for apparel (whether or not cotton, and including second-hand)

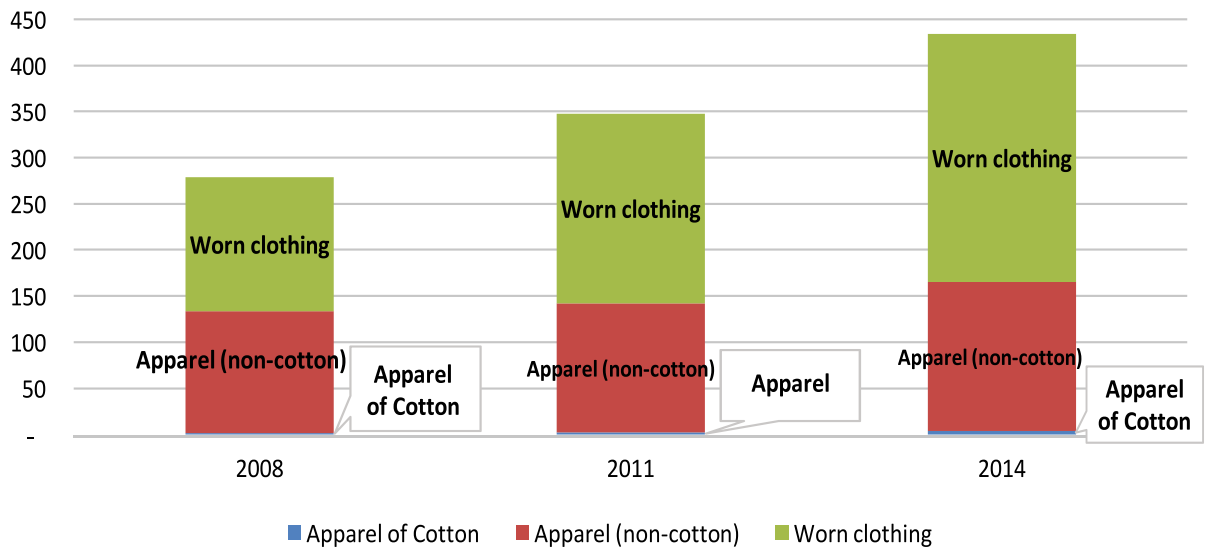
Presenting the demand for apparel made of cotton does not depict the complete picture of needs in terms of clothing. Producing cotton garment in the region will also cater for the needs of those purchasing apparel in general, whether or not it is made of cotton, including second-hand clothing.

While global demand for cotton apparel is 19 billion USD in 2014 and growing at 1.9% per annum, demand for apparel in general (whether or not cotton and including worn clothing) is 404 billion USD and expanding at an annual growth rate of 2.5%. Apparel therefore offers an immense market to tap into globally.

In terms of EAC demand, the graph below (Figure 4.10) complements Figure 4.10 by demonstrating the regional demand for apparel of cotton, non-cotton and second-hand clothing. In 2014 total imports for apparel were 434 million USD, a value over five times as high as the EAC demand for cotton clothing, where EAC had a similar market share (2.4%). Second-hand clothes make 62% of total apparel imports indicating their importance for consumers in the region.

Box 4.1: Demand for apparel (whether or not cotton, and including second-hand)

Figure 4.10: Total EAC demand for apparel (whether cotton or not, and worn), million USD



Source: UN Comtrade

The overall growth of demand for apparel is 8% per annum. This rate still places apparel as the product with the second fastest growth in demand after carded/combed cotton, and is particularly impressive when considering that the level of demand itself is significantly higher than any of the cotton-related products.

Table 4.1: EAC demand for apparel and growth, million USD (2008-2014)

	2008	2011	2014	CAGR (2008-2014)
Apparel of Cotton	1	2	4	**19%**
Apparel (non-cotton)	132	141	162	**3%**
Worn clothing	146	205	269	**11%**
Total	**279**	**348**	**434**	**8%**

Source: UN Comtrade

To conclude, so far the analysis has pointed at the following opportunities for the EAC to consider boosting its productive capacities: There is a large global demand for cotton apparel and apparel in general and the demand is still growing. More importantly, demand from within the EAC is growing at almost 19% per annum for cotton apparel and 8% for apparel in general, indicating there is room to tap into this market. Indeed, exports by EAC firms have been increasing since 2011, signalling the potential for continued expansion.

For regional firms that are not yet in position to produce clothing, the exports of cotton yarn could be an interesting milestone in their upgrading strategy, as global demand is both large and fast-growing, and EAC demand is also expanding.

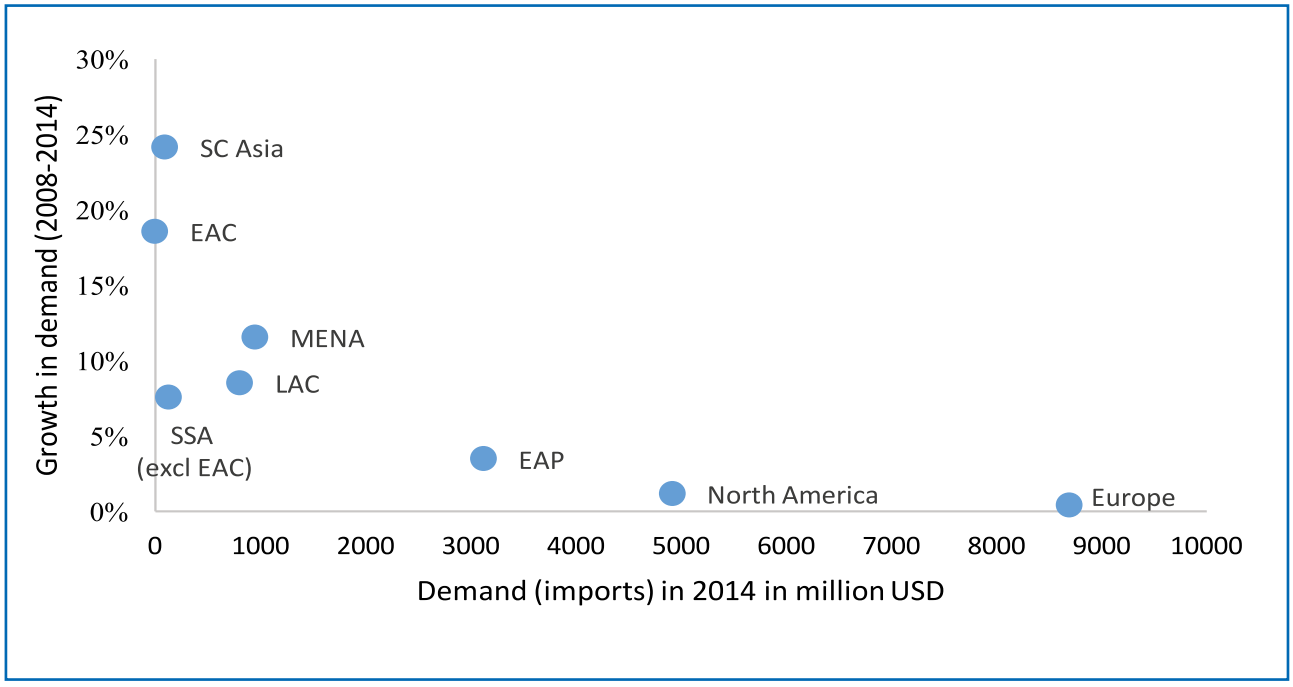
Market Analysis for Apparel of Cotton and Cotton Yarn

This section focuses on two products identified as presenting significant growth opportunities for the EAC: cotton apparel and cotton yarn. It identifies the most attractive export markets and how well the EAC is currently performing in these.

Apparel of cotton

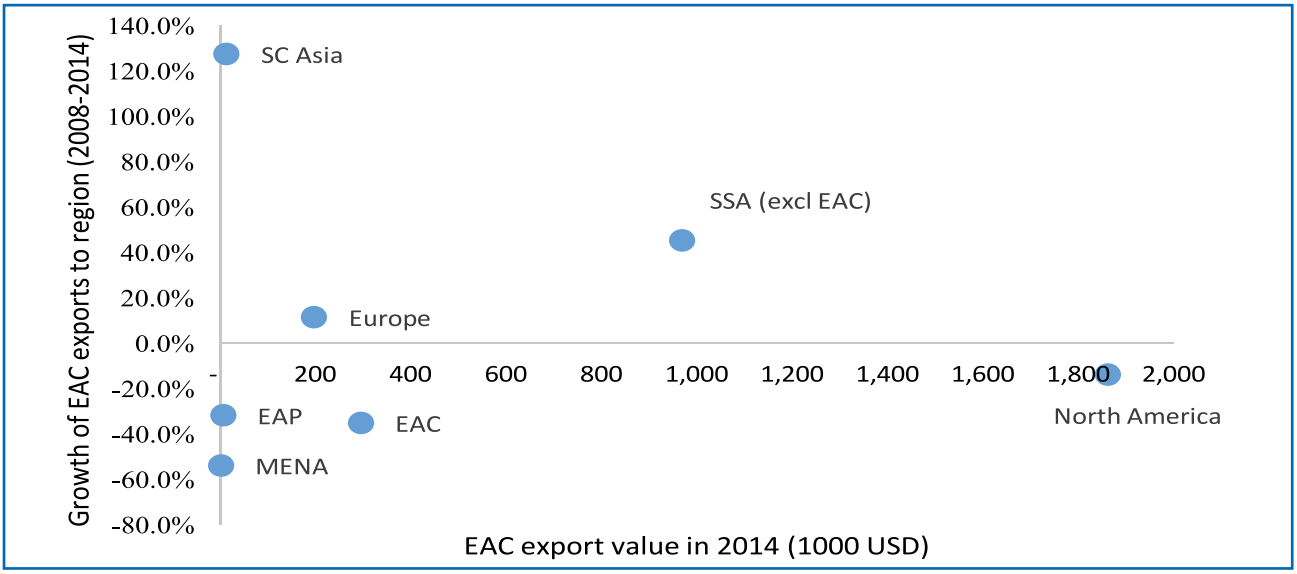
North America is the main export market for cotton apparel from the EAC, mainly due to the AGOA pact which grants preferential access to EAC firms. However, the EAC is exporting to a region where demand is practically saturated and in which it is losing market share. Opportunities exist in new markets where demand is growing fast and which are easy to access even in the absence of preferential trade agreements. The EAC itself is a dynamic target market as demand from the region is growing at an average rate of 18.5% per annum, which is one of the highest growth rates in demand for this product globally, after South and Central Asia. Neighbouring markets in SSA and MENA, in which demand is also rising, could be more accessible and dynamic in comparison to the more mature industrialised countries.

Figure 4.11: Regional demand for apparel of cotton (2008-2014)



Source: UN Comtrade

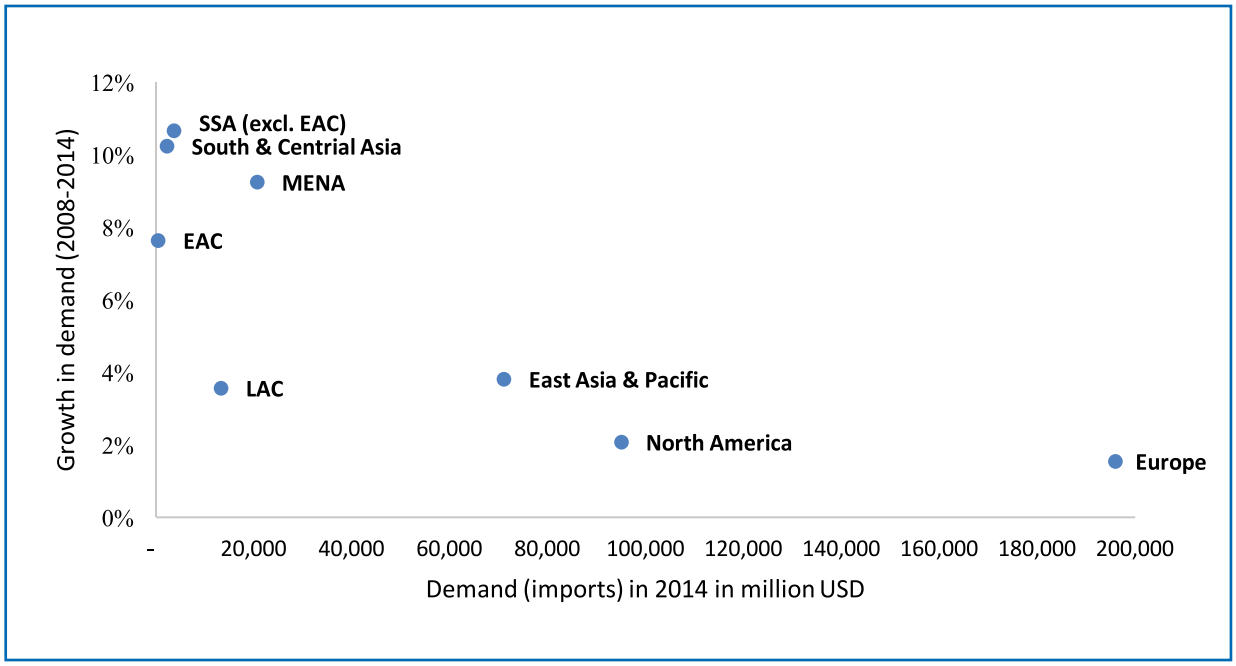
Figure 4.12: EAC cotton apparel exports to regions (2008-2014)



Source: UN Comtrade

Box 4.2: Regional demand for apparel

Figure 4.13: Regional demand for apparel (including worn and non-cotton), 2008-2014



Source: UN Comtrade

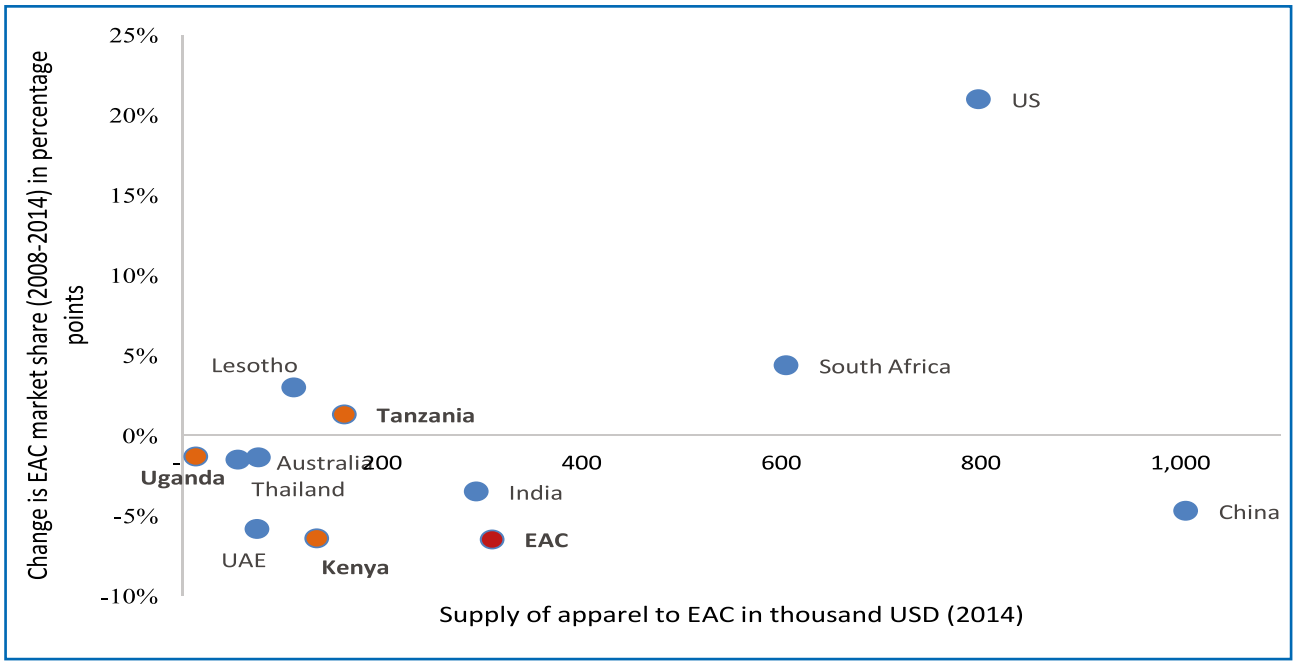
Overall demand for apparel is significantly higher in all regions of the world (by roughly 20 times). This offers a larger market in every region. Figure 4.13 shows that even for the more industrialised markets (Europe and North America), there is still a growth in demand for apparel, even if they offer the least dynamic markets.

Sub-Saharan Africa (excluding EAC) has a faster growth in demand for apparel in general, hinting that there may be more potential to expand into these countries than identified earlier. Demand growth remains high for the EAC and MENA regions as well.

Main competitors in EAC market for cotton apparel

Most cotton apparel imports to the EAC originate in China followed by the US and South Africa. While China is losing market share in the EAC, the US and South Africa are capturing a larger share of the market, and other countries seem to be struggling to compete. Tanzania and Lesotho increased their market share between 2008 and 2014 while other EAC Partner States are supplying less to the EAC market. The increase in market share by the industrialised countries might be difficult to emulate in the short run (US' success seems to be related to AGOA) but the relative success of South Africa and Lesotho could provide relatable examples for the EAC countries. Alternatively, while it may take time to develop efficiency in this sector, firms may choose to look for niche markets with less competition from abroad.

Figure 4.14: Top 10 suppliers of apparel and cotton to the EAC (2008-2014)

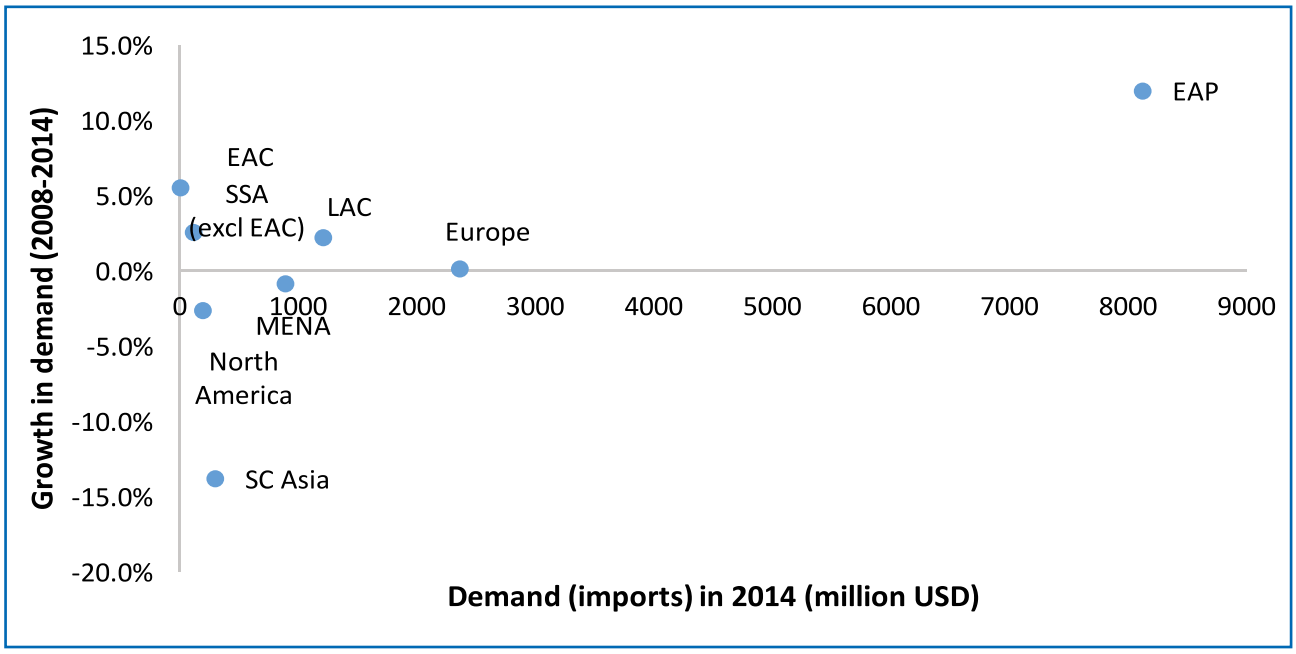


Source: UN Comtrade

Cotton Yarn

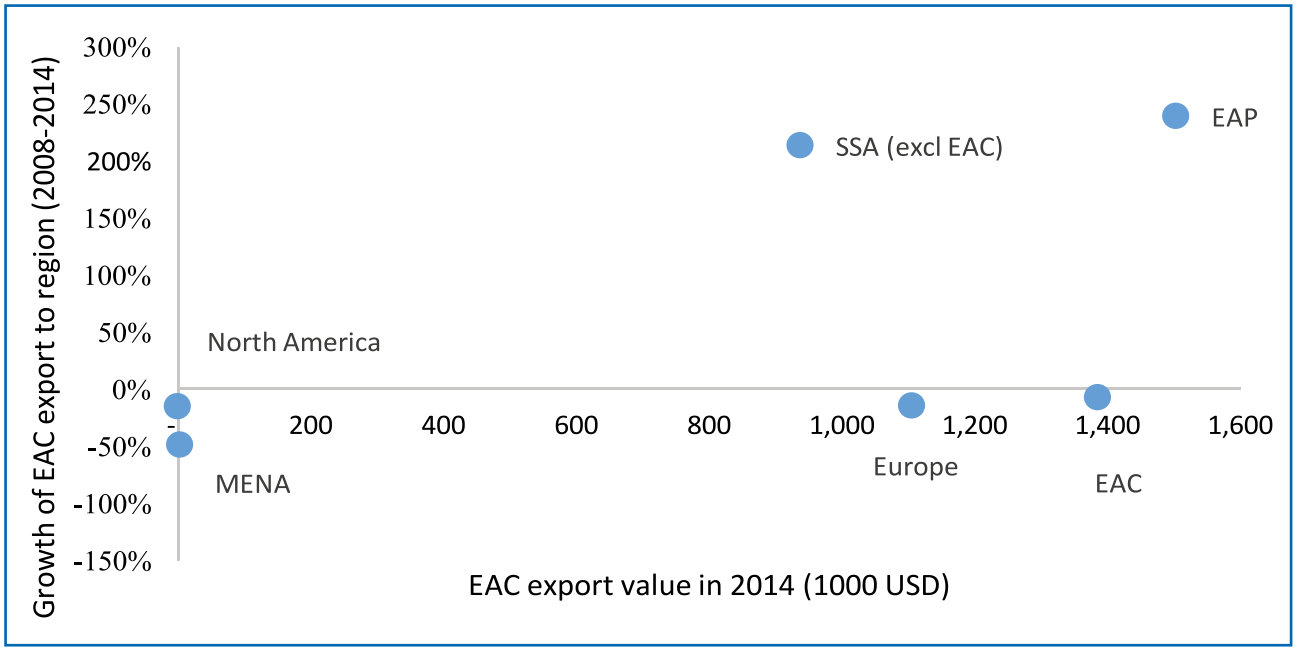
Increasing global demand for cotton yarn presents an opportunity for firms to develop manufacturing relevant capacities at a lower entry point in the cotton value chain. Although the value added and thus realisable profits at this level are relatively lower than other manufactured cotton products, it could serve as an important step on the functional upgrading ladder. The large and growing demand in the East Asia Pacific region positions it as an attractive export market for cotton producers in the EAC. Partner States recognised and are taking advantage of this opportunity as exports to the EAP region accelerated significantly between 2008 and 2014, more than doubling in value. Although intra-regional trade in cotton yarn is substantial in relative terms, there is little to no growth in trade among Partner States.

Figure 4.15: Regional demand for cotton yarn (2008-2014)



Source: UN Comtrade

Figure 4.16: EAC exports of cotton yarn to regions (2008-2014)



Source: UN Comtrade

Paradoxically, the EAC itself represents an attractive market for its firms, recording the second highest demand growth of 5.5% among other selected regional groupings. However, the EAC only gets 36% of cotton yarn exports from its own enterprises; therefore, there is still

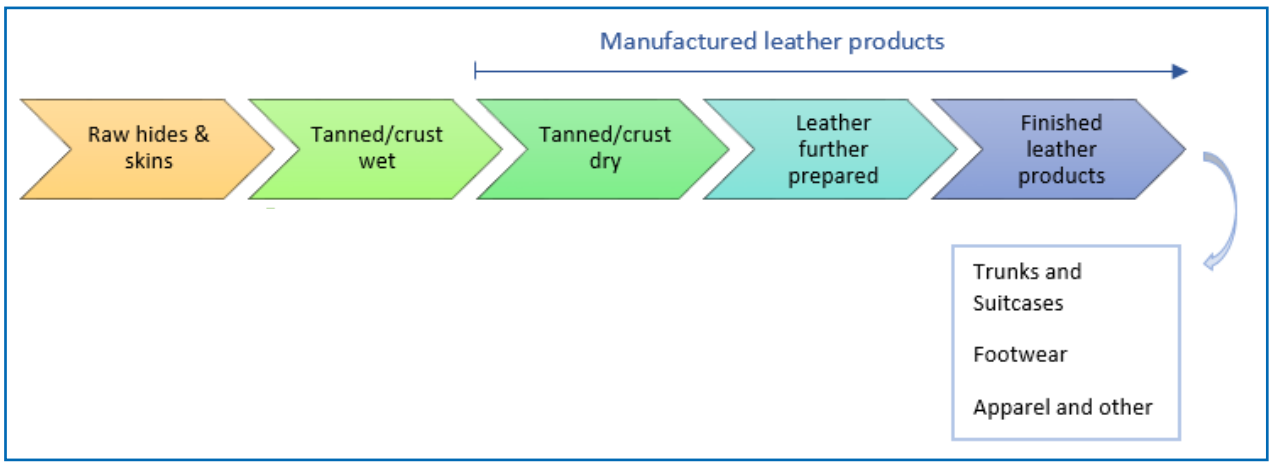
much room to expand this market share. While the EAC remains the second most important destination for its own exports of yarn, it is yet to be understood why growth of exports was in fact negative and market share declined continuously and drastically since 2008 (Figure 4.16). If apparel production takes off, it is expected that the demand for cotton yarn (and fabrics) will increase even faster within the region. Other countries in Sub-Saharan Africa also prove to be potential export markets, and some are already important destinations for these East African firms (Figure 4.16).

Thus, the EAC should consider a focus on exporting cotton yarn to East Asia, where demand is high and fast growing, while also increasing trade within the regional market. By so doing it would create opportunities for firms to deepen technical skills and take advantage of new market opportunities.

D2 LEATHER VALUE CHAIN

World trade in leather is fast growing and estimated at US $125.4 billion annually, with Africa earning US $4 billion of the total (3.2%) despite commanding 14% of global raw hides and skins market and a fifth of the world population of livestock (Mwinyihija, 2015b; FAO, 2012). This shows that Africa's share of the global market in leather is not commensurate with its share of raw materials and livestock. The leather sector in East Africa has many strengths (such as its natural resources and available manpower), but is missing out on opportunities in an expanding global market. Globally, demand for leather and leather products is growing faster than supply. In 2014 EAC's leather exports was only USD 112.5 million, a mere 0.09% of the global world trade in the sector. This indicates that despite the availability of relatively cheap labour, which is critical to such a labour-intensive sector, EAC countries remain marginal players in the global leather supply value chain.

Figure 4.17: Leather value chain



Source: Author's categorization per UN Comtrade

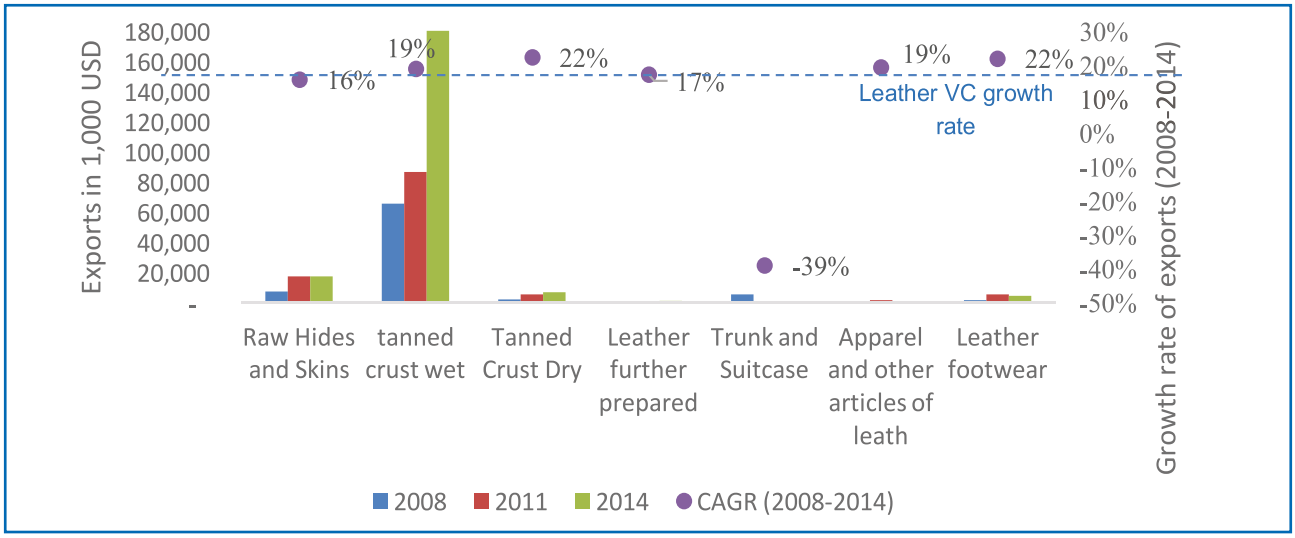
EAC exports of leather products

The EAC region is a net importer of leather products, with footwear being the most demanded import and tanned wet blue the major leather export. In the last five years EAC exports of all products in the leather value chain grew, apart from trunks and suitcases as illustrated in Figure 4.18. Growth rates for these are above 16%, which indicates the potential for expansion in future.

Nonetheless, the EAC predominantly exports low-value added leather products. Currently, 83% of all leather-related export earnings are from tanned wet blue with raw hides and skins and dry tanned/crust accounting for 14%, and 2% respectively. The further processed forms which comprise further prepared leather, footwear and other finished articles make up about 1% of total export earnings. Most finished leather products are sold mostly domestically while relatively small quantities of semi-finished products, often shoe-uppers, trunks, suitcases and leather hand bags, are exported through sub-contracted production.

There is no increase in the share of semi-processed leather exports in total leather exports between 2008 and 2014, but rather an enlarged share of products with low value addition. . Interestingly, tanned wet blue exports increased significantly in value since 2011 while exports of raw hides and skins stagnated. This may be partly due to the 40-80% export duty on raw hides and skins levied by Partner State governments in recent years. The policy possibly contributed to increasing the number of tanneries in Kenya, Tanzania and Uganda. This is a first step in functional upgrading along the leather value chain. Buoyed by this success, the region is considering a total ban on exportation of raw hides and skins and application of an export levy on tanned/crust both in the wet and dry states. Additional support to encourage leather further prepared and finished leather products is needed to continue producing and exporting higher value added products in this chain. The high growth rates of almost all products are a very positive sign, although it is still insufficient to create a change in the composition of leather exports of the region.

Figure 4.18: EAC exports of leather products (2008-2014)

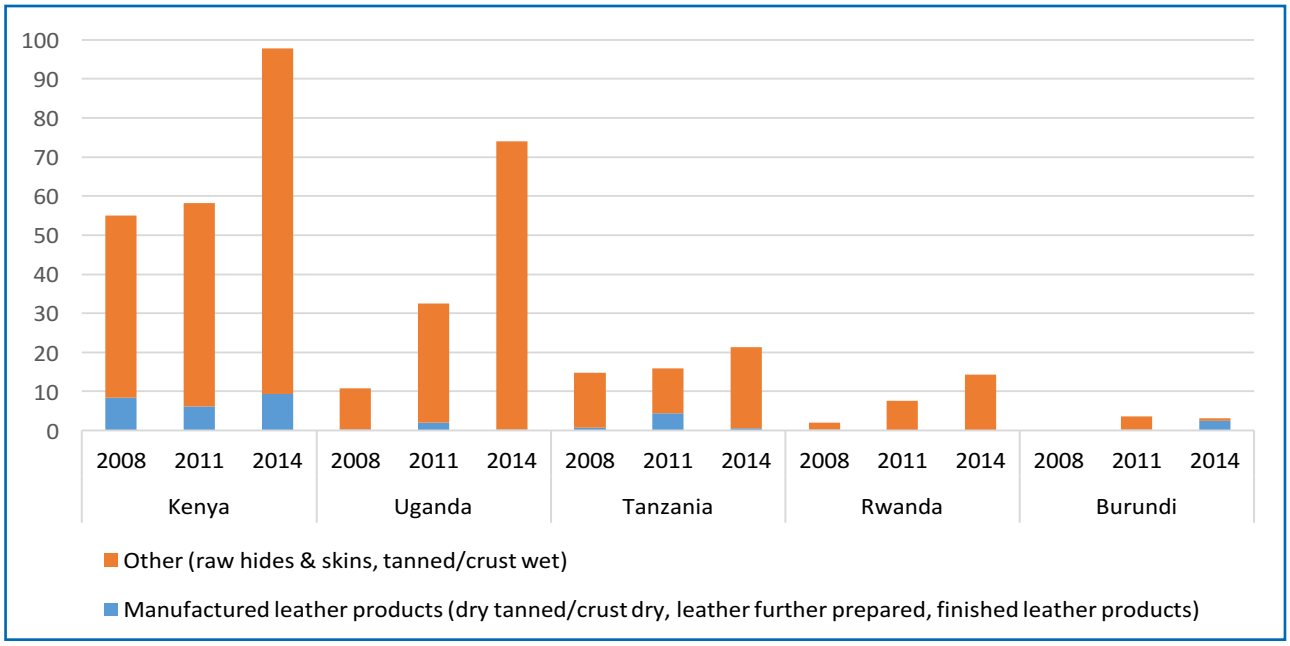


Source: UN Comtrade

Which player within the EAC is exporting leather products?

Kenya is the largest exporter of leather-related products in the EAC, followed by Uganda, Tanzania, Rwanda and Burundi. Leather exports grew for all EAC Partner States, with acceleration since 2011. Fastest growth was experienced by Rwanda with an increase of 48 % annually. Meanwhile, Uganda had an average rate of 38 %, allowing it to overtake Tanzania's leather exports by 2011 and nearing Kenya's performance most recently. In 2014 Burundi also demonstrated to have the capacity to export leather-related products.

Figure 4.19: EAC exports of leather products per Partner State (million USD)



Source: UN Comtrade

Note: For Rwanda 2009 values were taken instead of 2008, as data for the latter year was missing.

In 2014 over 90% of the leather value chain exports of four of the five countries, except for Burundi, was raw hides and skins and/or tanned crust wet. This indicates that until 2014 most leather exports from Partner States were minimally processed.

Kenya was the highest exporter of leather products, while Burundi had the largest percentage of manufactured exports in total leather-related exports (81% - mostly dry tanned/crust hides and skins). Uganda, Tanzania and Rwanda exported only limited values of manufactured leather products in 2014, decreasing since 2011.

Thus, all EAC Partner States should increase efforts to move up the value chain and capture additional value by encouraging domestic production and engaging more significantly in varied production processes. Uganda and Tanzania, while not able to increase the share of manufactured leather products in leather exports, considerably reduced the share of raw hides and skins since 2008 due to their increased exports of wet blue. This is an indication that they are beginning to move up the value chain, although still engaging in products which are considered non-manufactured.

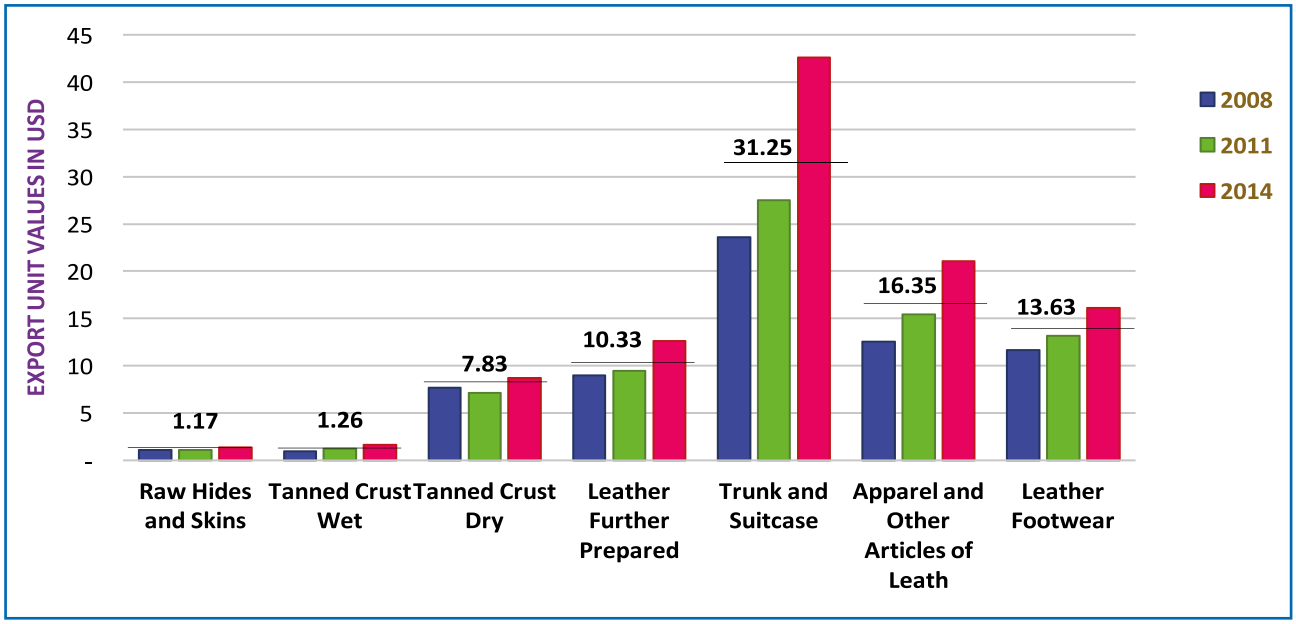
Some of the difficulty faced by regional producers in engaging in further processing of leather products can be attributed to the limited demand for leather from the EAC due to limited capacity to produce finished goods. On the other hand, international buyers may be reluctant to buy finished leather as they may prefer to process the leather per own requirements and standards.

Attractiveness Assessment of Products within the Leather Value Chain

Unit values of leather products

Exporting processed leather goods which are produced locally and that can meet regional demand is high on the development agenda for the EAC region. Export unit prices can be used as a proxy of the level of value addition taking place at each stage of the production process[31]. Figure 4.20 shows that on average, products with some additional level of processing have higher unit values.

Figure 4.20: Global unit values of the leather value chain[32]

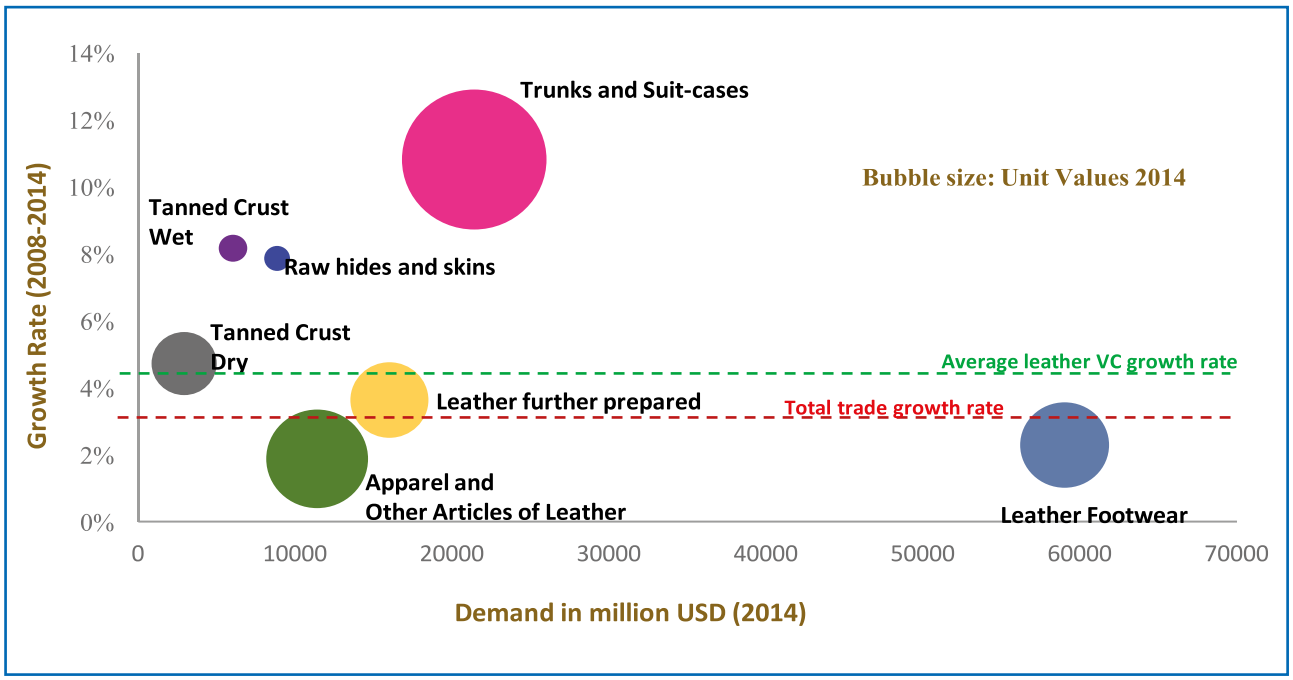


Source: UN Comtrade

This suggests that the region is not capturing significant earnings in the global value chain. Processed leather goods such as trunks and suitcases (31.25 USD per kg), leather footwear (13.63 USD per kg), apparels and articles of leather (16.35 USD per kg) and finished leather further prepared (10.33 USD per kg) have higher unit values than less processed forms such as wet blue (1.26 USD per kg) and raw hides and skins (1.17 USD per kg). While the EAC is moving away from the export of raw hides and skins to wet tanned or crust, the increase in unit price due to this initial upgrade is minimal. Further movement into tanned/crust hides or skins in dry state will increase earnings substantially. Thus it is apparent that countries with vibrant leather product manufacturing industries, such as China, India and Vietnam are capturing most of the value from leather processing.

[31] Data on domestic prices is dispersed and not harmonised across the different countries.
[32] Finished leather products were grouped into three types (trunk and suitcases, leather footwear and apparel and other articles of leather).

Figure 4.21: Global demand and demand dynamism for leather-related products

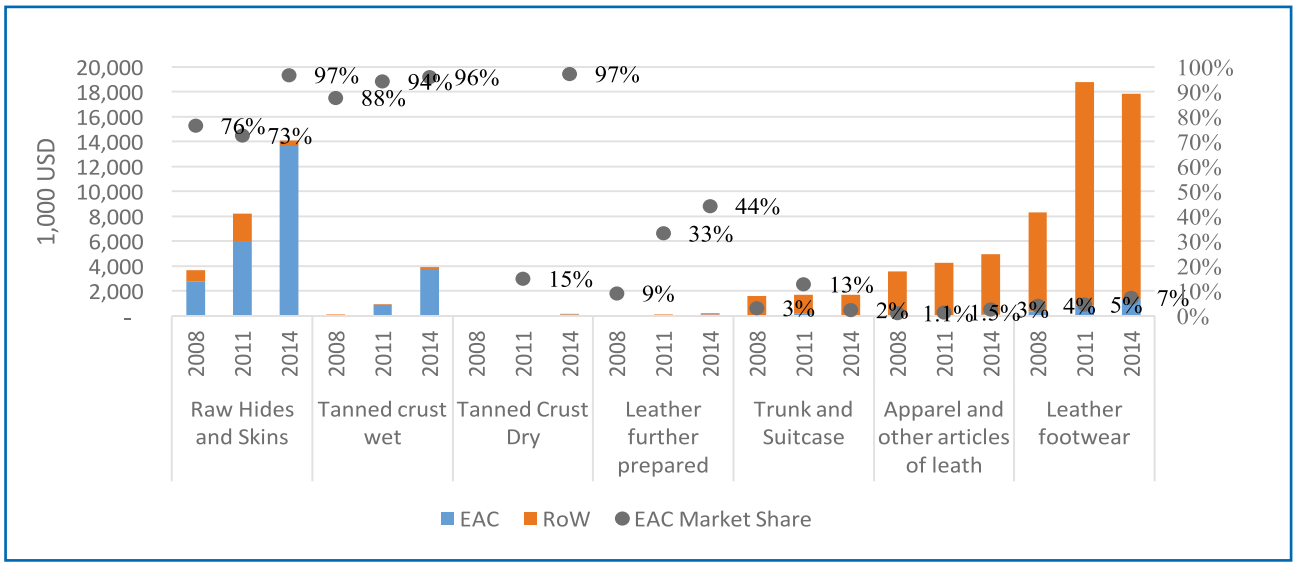


Source: UN Comtrade

Globally, the most demanded leather product is leather footwear, while demand for trunks and suitcases is the fastest growing. Due to the region's competitive advantage in raw material availability, the EAC can offer attractive niches for aspiring shoe manufacturers, as well as those of other finished leather products. There is also relatively high demand for leather further prepared, apparel and other articles of leather.

EAC Demand for Leather-related Products

Figure 4.22: EAC demand for leather products (imports from EAC and Rest of World), 2008-2014



Source: UN Comtrade

The production of leather-related goods should also serve the EAC regional market where there is a large demand for finished leather products. Demand for leather footwear is highest and fastest growing among all leather related products even though demand dropped slightly between 2011 and 2014. This growth can be attributed to an increasing demand for consumer goods by a rapidly growing population as well as an expanding middle class. To cater for this increased demand, new and used leather shoes as well as plastic shoes are imported from outside the region.

Raw hides and skins are the second most demanded product and this is likely due to an increase in the number of tanneries in the region. The tanneries indicated a willingness to prepare finished leather if given the right incentives by policymakers in the region. There is also a higher demand now for apparel of leather, as well as for wet blue.

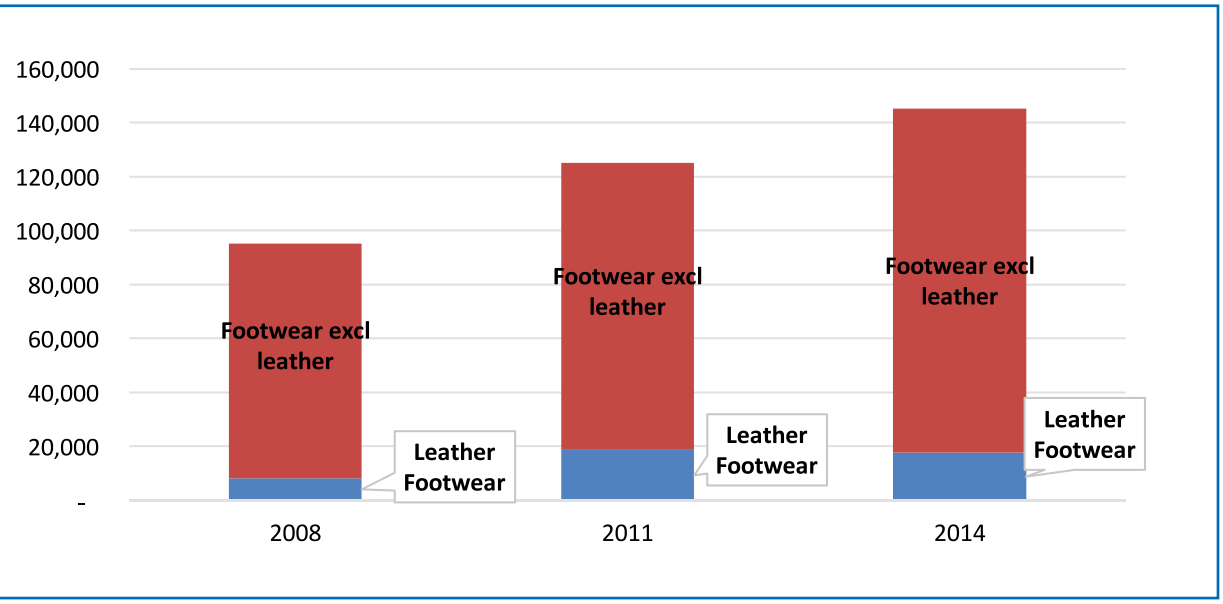
As expected, while the region can satisfy most of its own demand for products at initial stages of value addition (mainly raw and tanned crust, wet), it is less able to supply leather which has undergone further processing and which are priced higher. This production structure is also replicated in the EAC's global exports of leather products.

Despite this, the EAC increased its market shares in its own region for all product groups except for trunks and suitcases, and this raises expectations about regional capacity to become more competitive and gain market share in this niche.

Box 4.3: Demand for footwear (whether or not leather)

In addition to there being large global and regional demand for leather footwear, the overall demand for footwear gives further reason for leather producers to engage in the footwear industry. Global demand of footwear in general is 133 billion USD and growing at 9% per annum since 2008 (UNComtrade), while EAC demand is 145 million USD (almost ten times that of leather footwear), with a growth rate of 7.3%.

Figure 4.23: EAC demand for footwear (2008-2014)



Source: UN Comtrade

Box 4.3: Demand for footwear (whether or not leather)

Table 4.2: EAC demand and growth in demand (1,000 USD)

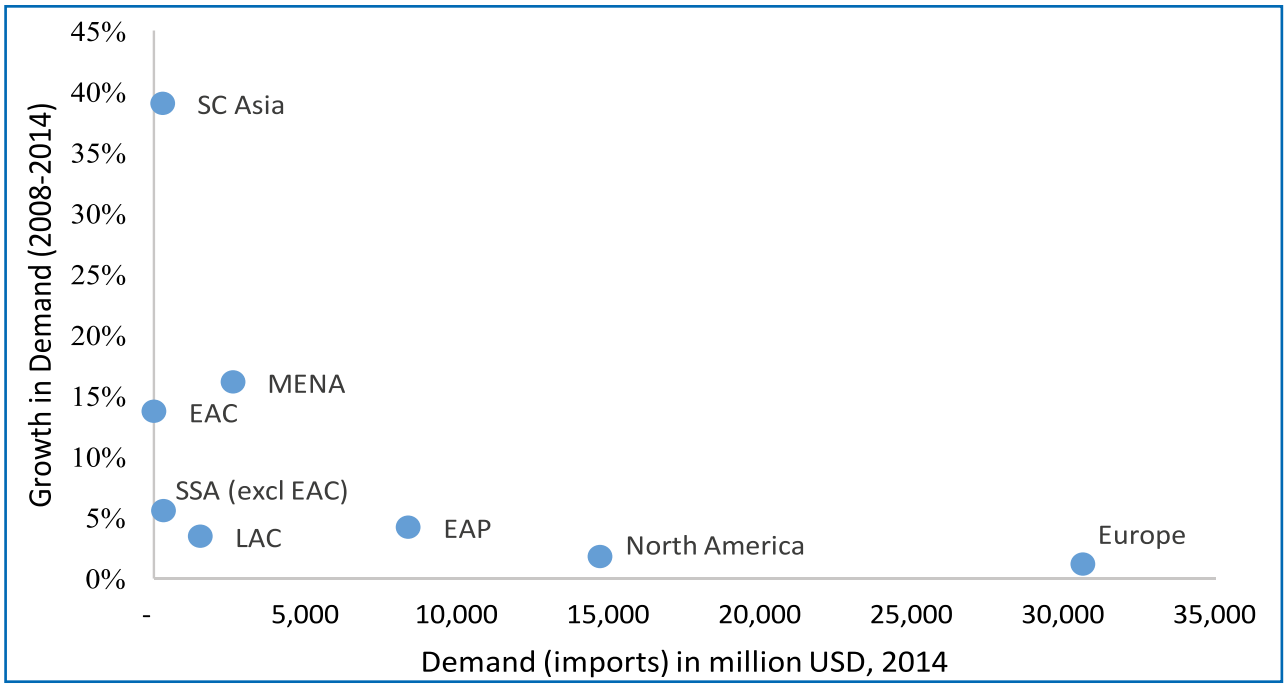
	2008	2011	2014	CAGR (2008-2014)
Leather footwear	8,290	9,251	17,847	13.6%
Footwear excl leather footwear	86,942	72,942	127,303	6.6%
Footwear (total)	95,232	82,193	145,150	7.3%

Source: UN Comtrade

Market Analysis for Leather Footwear

The high and growing global demand for leather footwear, as well as footwear in general, and its high unit costs makes it an attractive business opportunity for potential manufacturers and exporters. This section identifies key markets which are attractive to tap into, and carries out a competitive threat analysis for the EAC market, having already observed its demand dynamism for this product.

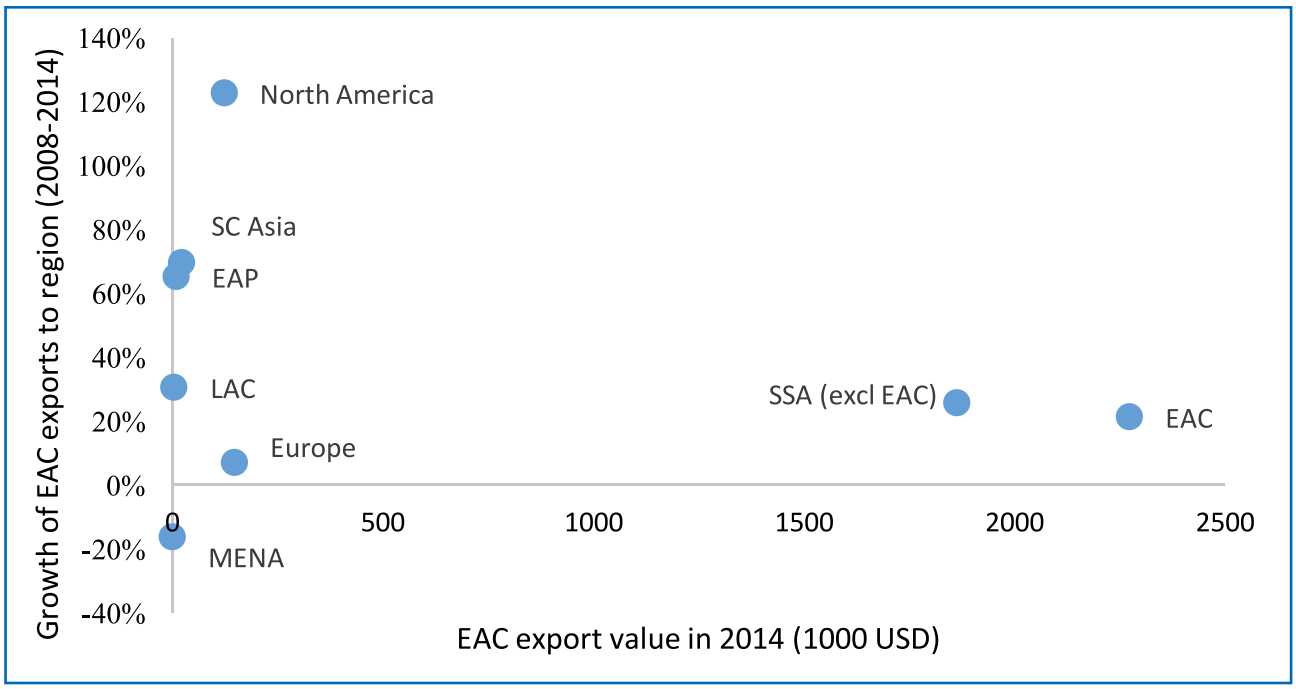
Figure 4.24: Regional demand for leather footwear, 2008-2014



Source: UN Comtrade

Demand for leather footwear is growing in all regions of the world. Locating the most attractive and accessible markets, especially at the early stages of production, can be very helpful for firms seeking to export. While the highest demand in absolute values comes from Western countries (Europe and North America), growth seems to have tapered. In contrast, the demand for footwear in South and Central Asia, the MENA region and the EAC is low but growing significantly (Figure 4.24). These growing markets are potential target markets for leather shoes originating from the EAC.

Figure 4.25: EAC exports of leather footwear to regions, 2008-2014



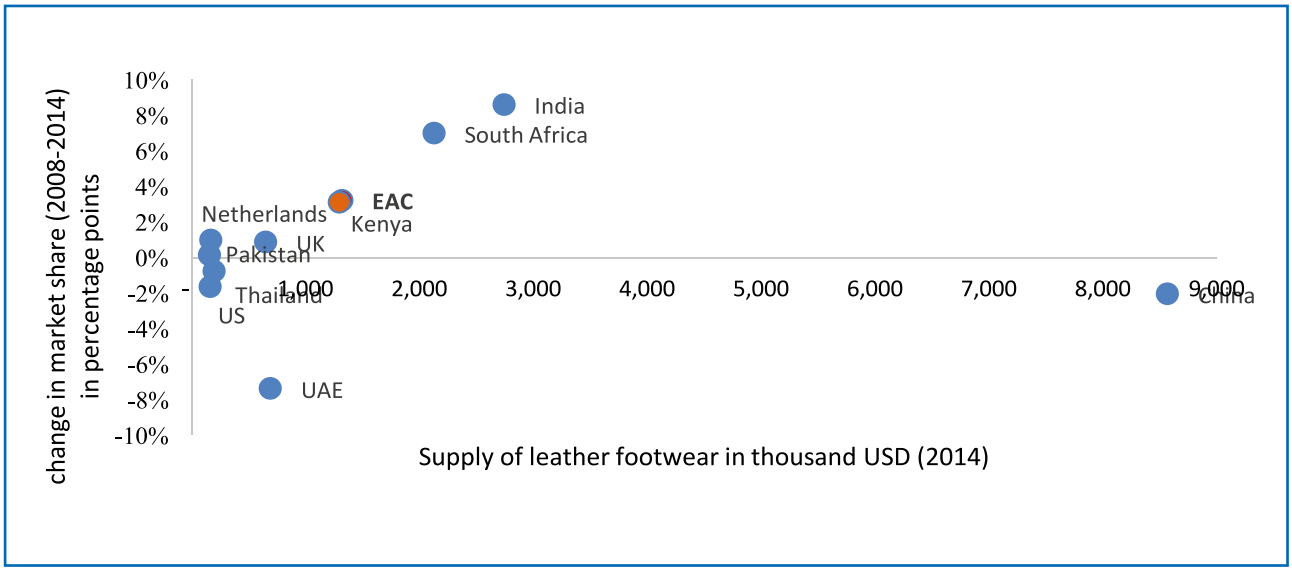
Source: UN Comtrade

EAC leather manufacturers are focused on neighbouring markets and are exporting primarily to other EAC Partner States. Several firms are also exporting to other countries in Sub-Saharan Africa which include Zambia, DRC and Malawi. Furthermore, the region expanded its supply to these markets substantially, with an annual growth rate of between 21% and 25%. Exports to other regions grew in the last few years. The exception is the MENA region, where its fast-growing demand is being met by competitors from outside the EAC.

The manufacture of leather products, particularly footwear, is potentially a strategic sector for the economic and industrial development of the EAC. However, the industry has failed to take advantage of global technological innovations. Limited design capabilities, poor managerial skills, lack of knowledge in appropriate material inputs and marketing techniques combine to lower productivity and limit competitiveness. In local markets, high operation costs, limited knowledge of current market trends among other factors enable the penetration of cheap Asian products and used shoes. Furthermore, the region can improve its competitiveness by diversifying beyond the manufacture of school shoes, military and security boots, which have more predictable demand because of their uniformity and basic designs.

The largest suppliers of footwear to the EAC market are the Chinese, though their share of the market is declining. India and South Africa are potential threats to the EAC, as both are relatively large suppliers of footwear and have increasing shares of the EAC market . South Africa, which may share some similar production challenges with the EAC countries, could provide useful lessons to EAC firms.

Figure 4.26: Top 10 suppliers of leather footwear in the EAC (2008-2014)



Source: UN Comtrade

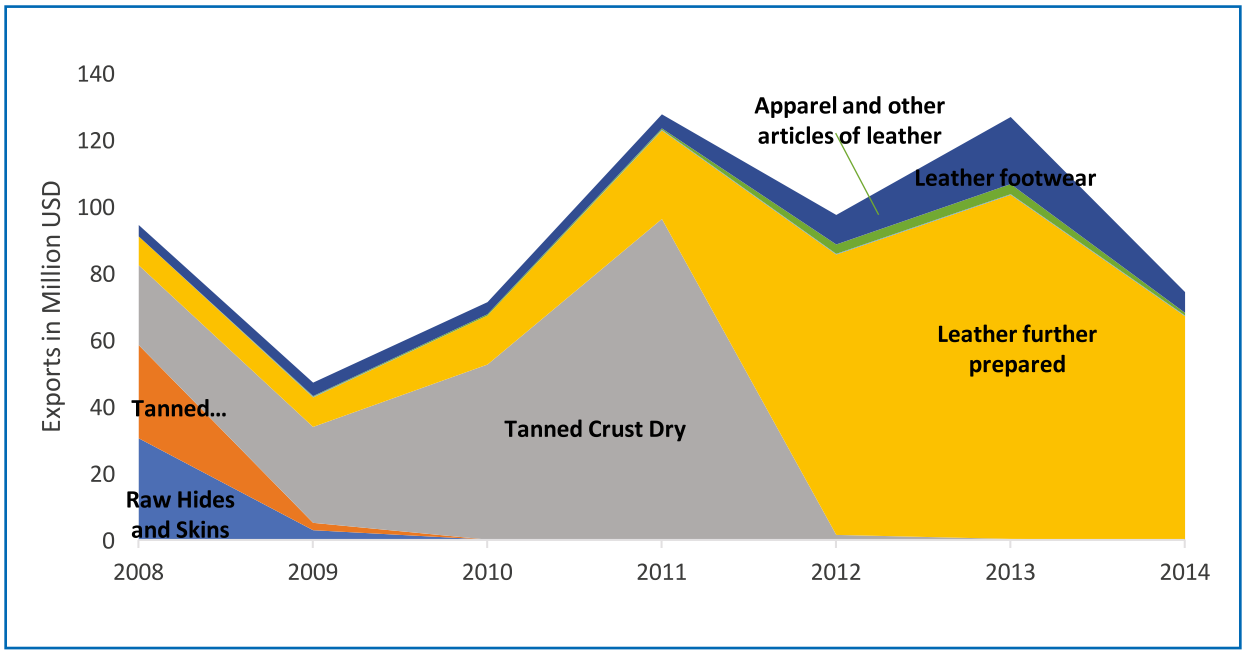
Summing up, the region and each individual Partner State increased exports of leather-related products significantly since 2008. However, more than 80% of these exports are tanned or crust forms of hides and skins, items with low value addition. As expected, unit values are significantly higher for leather-related products with higher levels of processing. Leather footwear is by far the most demanded product in this value chain, both globally and in the EAC. Within the region, the demand for leather footwear is growing steadily, at 14% annually since 2010. EAC firms are struggling to keep pace with this demand, largely due to low production capabilities and limited supply of finished leather inputs. Moreover, competition in this market segment within the EAC is fierce, with China holding the largest market share. Indian and South African firms are rapidly increasing their presence in the market and South Africa, which shares commonalities with EAC firms, could offer some important lessons. Entry into niche markets may also help EAC firms bypass their main competitors.

Box 4.4: Lessons from Ethiopia's upgrading in leather and cotton

The Ethiopian government is adopting a proactive approach in its implementation of an agriculture-led industrialisation strategy. Although the state took the lead in the production of the strategy, selection of priority sectors and provision of strategic support and direction, it did not trivialise the role of the private sector as the driver of growth and situated it at the centre of its plan. Parameters considered in selecting priority sectors include the labour-intensive nature of sector activities, backward linkages to the agriculture sector, export potential and the capacity to foster technological innovation. On this basis, the leather and textile sectors were among those prioritised in previous development plans and carried forward in the current Growth and Transformation Plan (2015-2020) and Ethiopian Industrial Development Strategic Plan for 2013 to 2025. In both sectors, the drive to upgrade from lower value added to more complex activities along the value chain influenced policy design and strategy implementation. Thus, a multi-level approach is being deployed to provide the necessary incentives and support to the priority sectors.

Outcomes of the efforts made for boosting the two sectors become evident through the changes in the composition of exports of both sectors towards higher value-added products.

Figure 4.27: Ethiopia's leather-related exports (2008-2014)

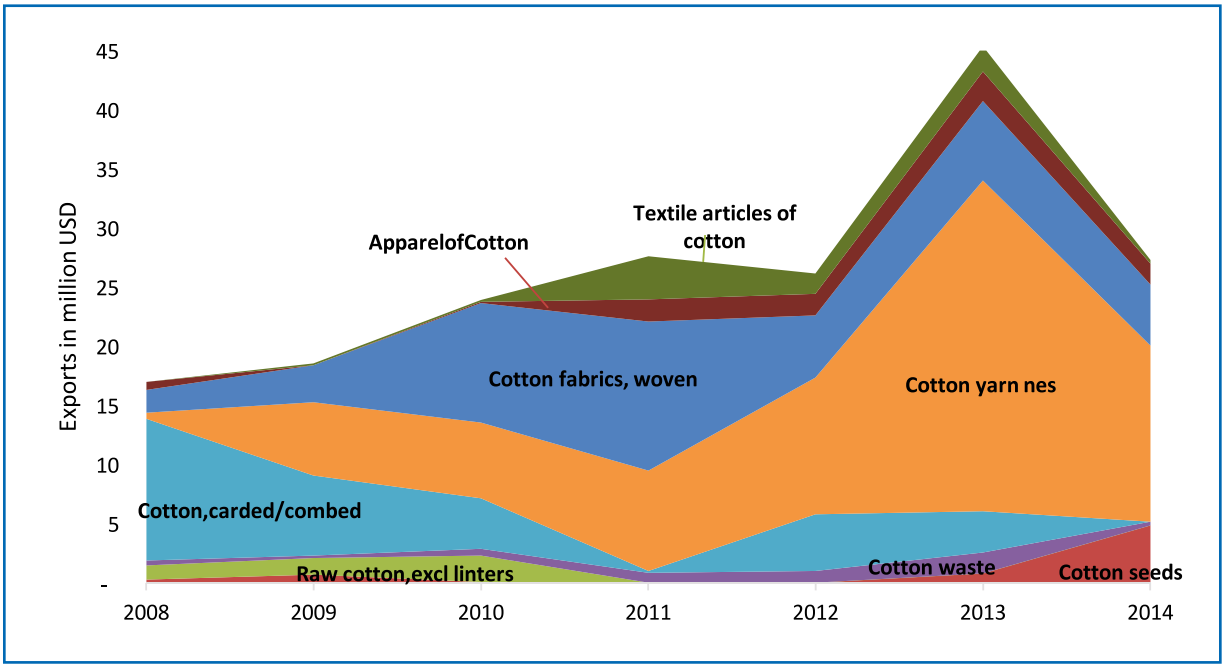


Source: UN Comtrade

In the leather value chain, raw hides and skins as well as crust (wet) were the main exports in 2008. These vanished by 2010, as the sector upgraded to the production and exporting of the dry form of crust. From 2012 the exports of leather further prepared fully replaced the crust.

Box 4.4: Lessons from Ethiopia's upgrading in leather and cotton

Figure 4.28: Ethiopia's exports of cotton-related products (2008-2014)



Source: UN Comtrade

In the cotton sector, the main exports in 2008 were carded/combed cotton. Upgrading efforts resulted in these being overtaken by the exports of cotton yarn and fabrics since 2010. The particularly large growth of cotton yarn exports until 2013 resulted in the whole sector experiencing higher export values.

How have these changes been stimulated? At the macro level, structural impediments to the drive for industrialisation are targeted through a variety of government initiatives and programs laid out in earlier development plans. These include the development of sectoral master plans, provision of incentives to encourage exports, rollout of an industrial policy toolkit, promotion of export-oriented cluster development, human resource development in science and technology, development of training institutes and centres for specific products, promotion of public and private sector dialogue and significant investment in infrastructure development to drive down operational costs. In subsequent development plan periods, these programs and policy packages were further expanded and fine-tuned. The support programs targeted at the leather and cotton sectors will be explored in the rest of this case study.

Government intervention at all points along the value chain encouraged the development of technical capabilities and greater local value addition in both industries in view of the stated desire to produce finished products for export to global markets. At the sector level, the emphasis is on functional upgrading with fiscal policy, especially in the case of the leather industry, as one of the main policy tools utilised. To encourage local production of finished leather goods, a 150% tax was levied on exports of wet blue and pickled leather in 2008 with a view to pushing industries further along the value chain. In 2011, this was taken further by imposition of a 150% levy on the export of crust, the output from additional processing of wet blue and pickled leather. This is the only export levy applied in Ethiopia and it stimulated foreign investment in the leather industry and led to an increase in the number of tanneries producing finished leather for export markets.

Box 4.4: Lessons from Ethiopia's upgrading in leather and cotton

Exports of raw cotton were banned in late 2010, despite high international prices in anticipation of demand from the local garment industry. However, the ban was lifted in 2012 after successful lobbying by local cotton producers in the face of competition from cheap textile imports and increasing stockpiles of raw cotton. Other fiscal and non-fiscal policy measures which apply to the leather and cotton sectors include customs duty exemptions on imports of capital goods and machinery, a variety of income tax exemptions, access to loans at concessional interest rates to upgrade sector technology, voucher and duty drawback provisions, loss carry forward provisions and bonded factory and manufacturing warehouse schemes. Relatively relaxed rules are also applied to retention of foreign exchange earnings by foreign firms for future operational use as well as the remittance of certain fund categories.

Targeted institutional support by government agencies is instrumental to the development of the leather and cotton sectors. Support is provided directly by the government and in partnership with foreign governments and international development agencies. The Ethiopian Textile Industry Development Institute (TIDI) and Leather Industry Development Institute (LIDI) are the lead agencies set up by government to provide the following services to their respective industries: policy formulation, definition of industry standards, training and skills development, investment promotion, research and development, market development, product testing services among others. Both institutes initiated twinning programs with Indian government institutions to develop technical capabilities to better serve their sectors along all stages of the value chain. The LIDI program was held in partnership with two Indian government institutions, the Central Leather Research Institute (CLRI) and the Footwear Design and Development Institute (FDDI) while the TIDI initiated a twinning arrangement with the Institute of Chemical Technology (ICT) in India in 2014.

The LIDI also organised and sponsored short-term training in India for managers and technicians from sector factories while the German Federal Ministry for Economic Cooperation and Development sponsored 35 Ethiopians to study in India for postgraduate and doctoral degrees in subjects relevant to the leather sector. Firms in the sector benefited from LIDI's state of the art computer-aided design facilities and a skills transfer program with Indian leather experts (Brautigam et al, 2016). Other institutional arrangements to strengthen both sectors and increase international competitiveness include benchmarking exercises in both sectors and a technical assistance project for the leather and leather product industry, both with UNIDO assistance with the latter funded by the Italian Agency for Development Cooperation. The introduction of the Kaizen business philosophy through the establishment of the Ethiopian Kaizen Institute in 2009 with JICA support and USAID activities in both the leather and cotton value chains, particularly in addressing constraints at the upstream end of the value chain, also contributed to the development of both industries.

Although increased local value addition is at the core of the industrialisation strategies in the leather and cotton sectors, foreign capital is critical to the development of technical capabilities and expansion of export opportunities. Local firms in the textile and retail sector are mainly small and medium sized and operate at various stages along the production value chain; however, foreign firms constitute a large proportion of investment in both industries. In addition to the incentive structures and structural changes to the business environment instituted by the Ethiopian government, the development of industrial zones and parks also facilitated foreign direct investment in the sectors. Several industrial parks, either developed solely by the Ethiopian

Box 4.4: Lessons from Ethiopia's upgrading in leather and cotton

government, in partnership with foreign investors and governments or a combination of both, were established countrywide. An often-cited example is The Huajian Shoe City, developed by Huajian, one of the largest shoe companies in China in the Eastern Industrial Zone built outside Addis Ababa. The Chinese government part-funded the construction of the industrial zone and operations commenced in 2012. It produces footwear in Ethiopia on behalf of global brands such as Guess, Nine West and Naturalizer. Exports to the United States commenced within three months of operations and almost 4,000 jobs were created in two years (ODI, 2016). As of 2014, the factory was producing 180,000 shoes monthly, it plans to expand operations significantly over the next decade and acquired 138 hectares of land in Addis Ababa for mixed use with the potential of employing a workforce of 50,000 (China Daily, 2014). Other major shoe companies with operations in Ethiopia include George Shoe of Taiwan and Brown of the United States, while the British glove firm Pittards in partnership with a Chinese group purchased existing tanneries and established a glove stitching and garment factory in Ethiopia. Hiroki Company Limited of Japan is also set to invest in a leather manufacturing company in Ethiopia.

Similar investments were made in the textile industry. The Turkish textile and garment company, Ayka Tekstil, set up an Ethiopian subsidiary, AYKA ADDIS, a vertically integrated firm which began operations in Ethiopia in 2010. It is the top textile exporter in Ethiopia and is credited with investing an estimated USD 67.2m, which is acknowledged as one of the largest foreign investments in Ethiopia as of 2014 per the Ethiopian Investment Agency (EIA, 2014). Several news reports indicate plans for an expansion of operations in 2016. Several South Korean textile companies, including the Youngone Corporation, a textile and footwear company, are also planning to set up operations in the Bole Lemi industrial zone. Based on a report commissioned by the Netherlands Embassy in Addis Ababa, international retail clothing brands such as H&M, Primark and Tesco established offices in Ethiopia and are sourcing finished garments from Ethiopian manufacturers. According to the same report, the DBL group from Bangladesh is currently constructing a vertical integrated garment factory at a reported investment of USD 30 million.

By adopting an activist approach to industrial development, the Ethiopian government is making significant progress in upgrading its leather and textile sectors by leveraging on relationships with foreign governments and international firms. With the aid of a pragmatic industrial development strategy in conjunction with investment incentives and supporting policies and institutions, the government continuously updated and fine-tuned its strategy to deliver on its objective of developing a viable light manufacturing sector. Large scale infrastructure investments such as the Grand Ethiopian Renaissance dam, which is expected to generate 6,000 Megawatts of electricity on completion, constitute a critical element of the Ethiopian industrial strategy and are expected to enhance the country's attractiveness as an investment destination. Although several challenges remain, such as challenges with securing quality inputs at the lower end of the value chain, the need to develop stronger backward linkages, increase access to finance and further drive down relatively high transport costs, and thus ensure total exports of the sector increase, much progress is being made. There is little doubt that Ethiopia has secured a place for itself on the African and even global manufacturing map and much of the success in its light manufacturing sector can be attributed to the significant progress made in scaling up higher value added activities in the leather and textile sectors.

CHAPTER E: WHAT IS DRIVING INDUSTRIAL COMPETITIVENESS IN THE EAC REGION?

Countries in the EAC are developing along different industrialisation pathways, as reflected by their competitiveness performances. The latter were widely discussed in the previous chapters of the report. The empirical evidence has shown how each country in the EAC is diversifying the production base along different sectoral trajectories, each of them characterised by different potential in terms of manufacturing value creation and value capture in trade. In certain sectors, these different industrial competitiveness performances are favouring the emergence of dualistic structures, that is, some countries (and regions within them) are catching up both regionally and internationally, while others are falling behind. Similarly, there are differences in terms of the trade opportunities that countries are capturing in the region. In order to explain some of these different performances we need to investigate what is driving industrial competitiveness in each country, and benchmark them according to different key variables for which robust quantitative assessments are possible.

Industrial competitiveness performances are the results of a complex process whereby each country undertakes different efforts in building up their production, technological and organisational capabilities in different sectoral value chains and tasks, ultimately in different product groups and niches for the domestic, regional and global market. As a result of these processes of firm-level capabilities accumulation, coupled by investments in production capacity and infrastructures, and broader expansion of the knowledge base of the economic system, countries in the EAC have managed to transform segments of their productive sectors. The development and accumulation of capabilities in manufacturing industries are particularly critical for the achievement of sustained and more inclusive growth. The reason is that the development and accumulation of capabilities in manufacturing-related areas allow for broader changes in production processes in more traditional sectors, like agriculture.

This developmental process involves multiple actors. Alongside private and public productive organisations, education and research institutions play a critical role in conducting basic research and developing a skilled and technically capable workforce. A number of other intermediate institutions such as sector and technology-focused applied research centres (which are present in all EAC countries) support firms and farms in the absorption of technologies and innovation, in increasing productivity and process efficiency as well as in reaching international product standards.

Productive companies are the cornerstone of the industrial capabilities' development process, as they have to continuously invest in their internal resources, scale up production and introduce new products if they want to create and capture more value in the domestic and international markets. Productive organisations operating in different sectors are endowed with different sets of production, technological and organisational capabilities and make investments contributing to the overall fixed capital formation in the country.

Investments in technology and sustained innovation require financial credit, regulatory frameworks and various forms of public support, especially in its infant stages. Therefore, banks, government departments and a number of other public and private institutions can also play a critical developmental role (Freeman, 1987; Lall, 1992; Malerba and Mani, 2009). The successful industrialisation of a number of East Asian countries in the second-half of the -20th century, and before them of many of today's mature industrial economies, has shown how the government alongside firms and markets can play a critical developmental and entrepreneurial role especially with respect to boosting supply-side interventions supporting industrial capabilities development and accumulation.

Countries' industrial capabilities are various types of firms' competencies (associated with production and its organisation, technological change and innovations) as well as firms' production capacity (determined by investments in machines, equipment and other capital goods). Countries' industrial capabilities also relate to the physical and institutional infrastructure supporting the overall productive economy. This is why countries' industrial capabilities are the main 'drivers' and 'enablers' of countries' industrial competitiveness (Lall, 2001; Andreoni, 2011; Andreoni, 2015). The following Table 5.1 provides a comprehensive taxonomy of the different and complementary set of industrial capabilities at both the country and sector level. In fact, the majority of these industrial capabilities are sector specific, that is, they allow the performance of different production, organisational and technological functions in different sectors.

Table 5.1: Industrial capabilities taxonomy

Industrial capabilities taxonomy	
COUNTRY-LEVEL INDUSTRIAL CAPABILITIES OWNED BY FIRMS (AND OTHER TECH/RESEARCH FOCUSED ACTORS)	
Production capacity	Scale-appropriate assortment of equipment, machinery and other capital goods
Production capabilities - *Individual capabilities*	Skills, experiences and productive knowledge that workers/individuals require to choose, install and maintain capital goods, and to operate various technical functions
- *Organisational capabilities*	Skills, experiences and productive knowledge that organisations require to operate technical and organizational functions; perform and monitor the execution of a set of interdependent productive tasks given certain time and scale constraints
Technological capabilities	Capabilities needed to generate, absorb and manage technological and organisational change
Innovation capabilities	Capabilities needed to innovate across different organisational and technological functions
COUNTRY-LEVEL INDUSTRIAL CAPABILITIES RELATED TO PHYSICAL AND INSTITUTIONAL INFRASTRUCTURE	
Infrastructure capabilities	Different types of physical and institutional infrastructure reducing learning and transaction costs for the overall economy

Source: Andreoni, 2015

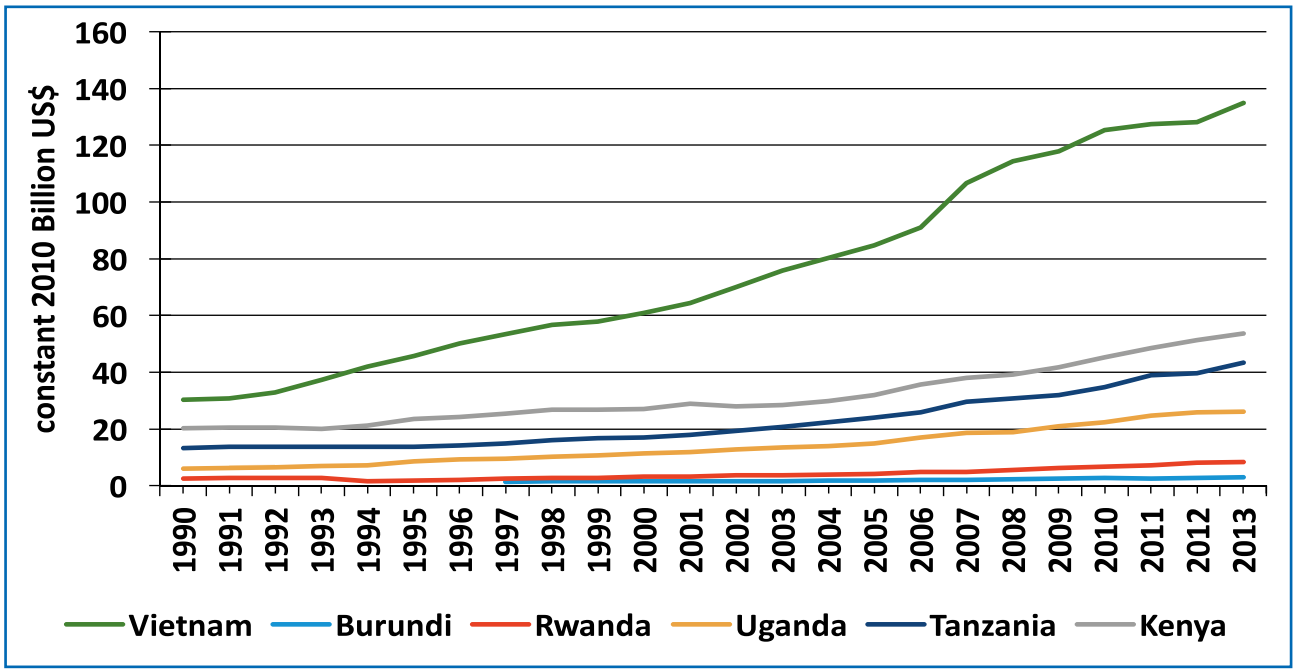
Building on this framework, and a number of indicators developed in previous studies (Andreoni, 2011 and 2015), this chapter of the report looks at the future of industry in the EAC region particularly by monitoring a set of drivers for industrial competitiveness, with a somewhat stronger focus on production and organisational capabilities, as well as production capacity expansion and technological capabilities. At the earliest stages of industrialisation these are key drivers of transformation. In fact, the increasing value addition in many industrial sectors in the EAC result from increasing micro-level efficiency via production and organisational capabilities development and production scaling-up. While a number of indigenous technological developments can potentially emerge even at earliest stages of development, the industrialisation of these new technologies and their competitive production in scale for the domestic, regional and international markets are the most constraining factors.

According to the amount and quality of the industrial capabilities available in a certain country, and given the ability of its entrepreneurs to identify and capture productive opportunities in the market, productive organisations will undertake production processes in a certain combination of sectors and industries. They will also experience cumulative processes of learning and capabilities building triggered by 'internal compulsions' in production, that is, the need to solve production, technical and organisational problems (Andreoni, 2014).

In their continuous attempt to identify and capture new productive opportunities in the market, changes in the size of the market is another critical factor. In fact, the possibility of increasing production scale depends on the expansion of markets and the access to effective demand in the domestic, regional and international markets. This is why the EAC – as a regional trade area among countries with similar industrialisation potential – can be another major demand-side driver of industrialisation, especially considering the relatively modest performances in manufacturing export of the region towards international markets.

Figures 5.1 and 5.2 show trends in both gross national expenditure and household expenditure in EAC countries, and against one of the country benchmarks used in the report, Vietnam. The two major biggest economies in the region, Kenya and Tanzania, have both overcome the threshold of 40 billion US dollars in 2014. Vietnam did the same in 1993, and since then in less than twenty years has managed to increase it four times this amount, reaching almost 140 billion US dollars in 2014, that is, more than three times Tanzania and double Kenya. During these two decades Vietnam has largely relied on external demand as the driver of growth, however as the table shows this has also translated into an expansion of the household share of final consumption.

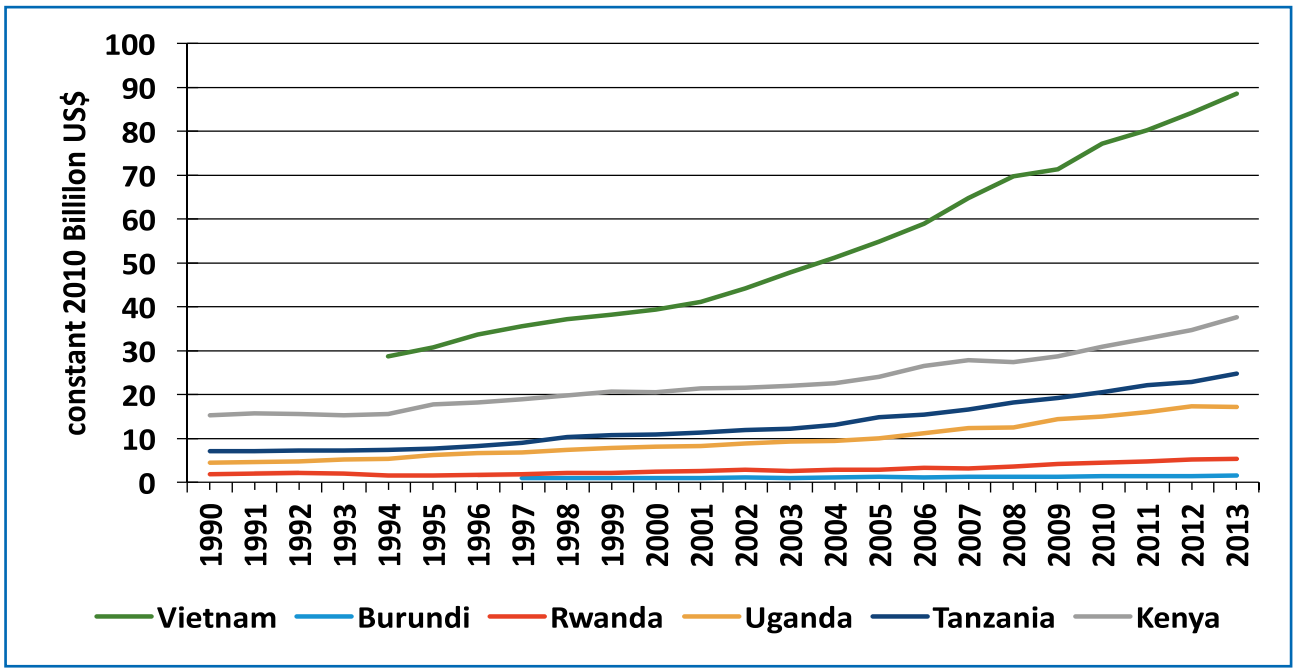
Figure 5.1: Gross national expenditure (constant 2010 US$)



Source: WDI

Household final consumption expenditure in the EAC has been led by Kenya, Tanzania and Uganda. Despite its relatively smaller size, Uganda has kept an expansion path comparable to Tanzania, while Burundi and Rwanda present smaller domestic markets. All three top performer countries in the EAC have managed to double their household expenditure between 2003 and 2013. The combined size of these markets measured in terms of household final consumption almost reached 85 billion US dollars, while Vietnam alone has managed to almost reach 90 billion US dollars in 2013. While the expansion of domestic effective demand in Vietnam is more than coupled by its outstanding performances in exports which remained for the last two decades its main demand-side driver, in the EAC both the domestic and external drivers of industrial development have remained relatively weaker.

Figure 5.2: Household final consumption expenditure (constant 2010 US$)



Source: WDI

Regional trade in the EAC could potentially open opportunities for regional smart specialisation in industries and sectoral value chain tasks. This form of smart specialisation can develop along two main paths. First, the access to a regional market with 135 billion in gross national expenditure can offer productive organisations in the EAC to scale up production and become major players in eastern Africa. A number of these firms are already emerging, especially in food-related and beverages industries. Another form of smart specialisation is the one which does not simply lead to the emergence of bigger players, but more critically to the development of regionally integrated supply chains involving multiple firms in different countries in the region. These regional supply chains could be driven by both domestic and foreign owned companies, and would become potential new players in the broader Sub-Saharan African region.

However, the firms and countries in the EAC region that will be able to capture these demand/market opportunities along the two industrialisation paths discussed above, will be those which manage to equip themselves with more production, organisational and technological capabilities as well as build up production capacity and infrastructure such as roads but also, and more critically, reliable entry points in the markets (ports and railways) as well as reliable energy production.

The alternative path of growth expansion driven by exploitation of natural resource and abundant labour is increasingly becoming a short term strategy without a future. In fact, less developed countries cannot simply rely on natural resource abundance or traditional competitive factors (e.g., low cost unskilled labour) if they want to increase productivity in

the traditional agricultural sector and catch up in manufacturing industries. In the new global competitive landscape, low-skilled agriculture and manufacturing activities can be used as part of an entry-level strategy for the short term. However, only by increasing their industrial capabilities will countries become able to process natural resources and to diversify into higher return agricultural and industrial products (Lin & Chang, 2009; Noman et al., 2011; Andreoni, 2011 and 2017).

E1 PRODUCTION CAPABILITIES IN THE EAC REGION

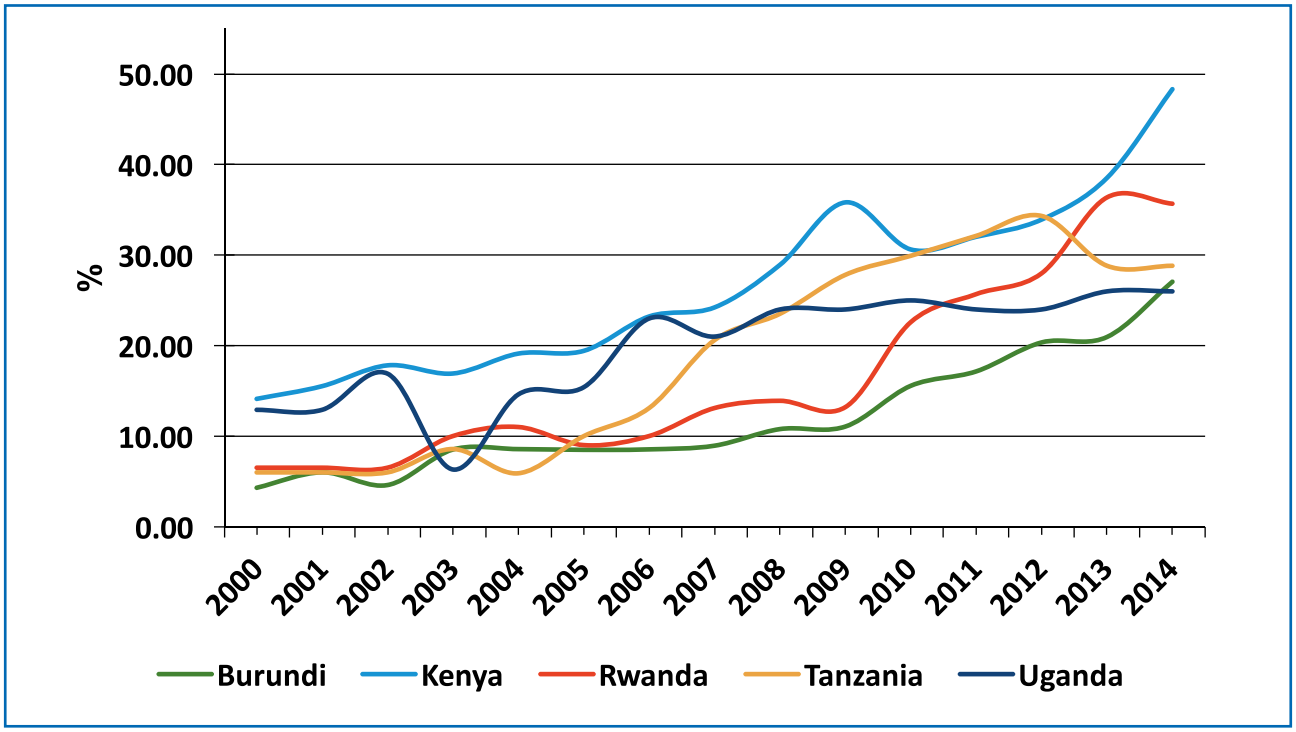
Firms' production capabilities are individual and collective competencies, skills, productive knowledge and experiences needed to perform different productive tasks as well as to adapt and undertake in-house improvements across different technological and organisational functions. From a 'static efficiency' point of view, *production and organisational capabilities are competencies, skills, productive knowledge and experiences* whereby productive agents and organisations select, install and maintain capital goods; operate technical and organisational functions; perform and monitor the execution of a set of productive tasks (Andreoni, 2011 and 2015; Andreoni and Chang, 2016).

Workforce skills constitute that know-how base on which firms rely for absorbing and adapting technologies to local conditions, modifying organisational practices and new work methods: from the simple re-arrangement of production tasks up to the introduction of information technologies for process control, inventory systems and quality management.

The education system, from primary up to tertiary education, as well as technical and vocational schools are the main suppliers of skills. *More skills, higher-level skills and different kinds of skills* have to be developed through a skills policy if countries are to increase their presence in domestic, regional and international markets whilst developing industrial sectors and activities with higher value added and rising wages.

Starting from the mid-2000s, countries in the EAC have registered significant upward trends in terms of secondary enrolment rates. While the trends are all positive, there are some variations. Kenya is the only country which managed to reach almost 50% of net secondary enrolment, only followed by Rwanda whose acceleration started only in 2009 when the same ratio moved from less than 15% to more than 35% in 2014. The other country which managed to overcome the 30% threshold is Tanzania, although its performance has been negative since 2012.

Figure 5.3: Net secondary enrolment rate (%)

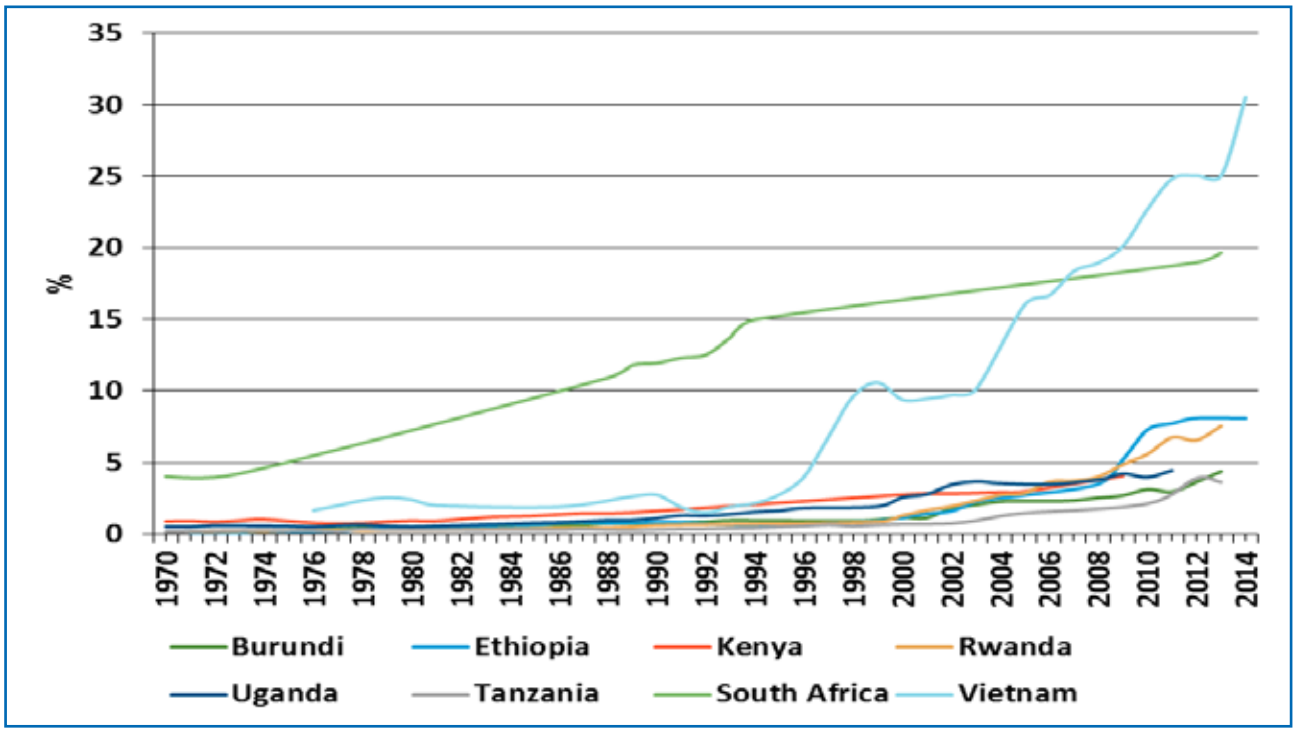


Source: EAC Portal

The need for increasing the quantity, quality and variety of skills domestically available goes hand in hand with the structural transformation of the national production system (in particular the manufacturing base). It is not a surprise then if the more countries want to industrialise and increase their product value addition, the more they need to increase the number of students with higher level education, especially in science and engineering areas. At the same time, while the improvement of workforce skills is a main trigger of countries' structural transformation, it is also one of its main outcomes. Specifically, technological deepening processes within domestic and foreign companies create new demand for an increasing number of higher-skilled workers and also generate new resources for improving higher level education alongside increasingly specialised vocational training. The government, in partnership with companies, has a fundamental role to play here.

The relationship between increasing school enrolment in tertiary education and increasing industrial competitiveness is clearly shown by three benchmarking countries in Figure 5.4 below.

Figure 5.4: School enrolment, tertiary (% Gross)



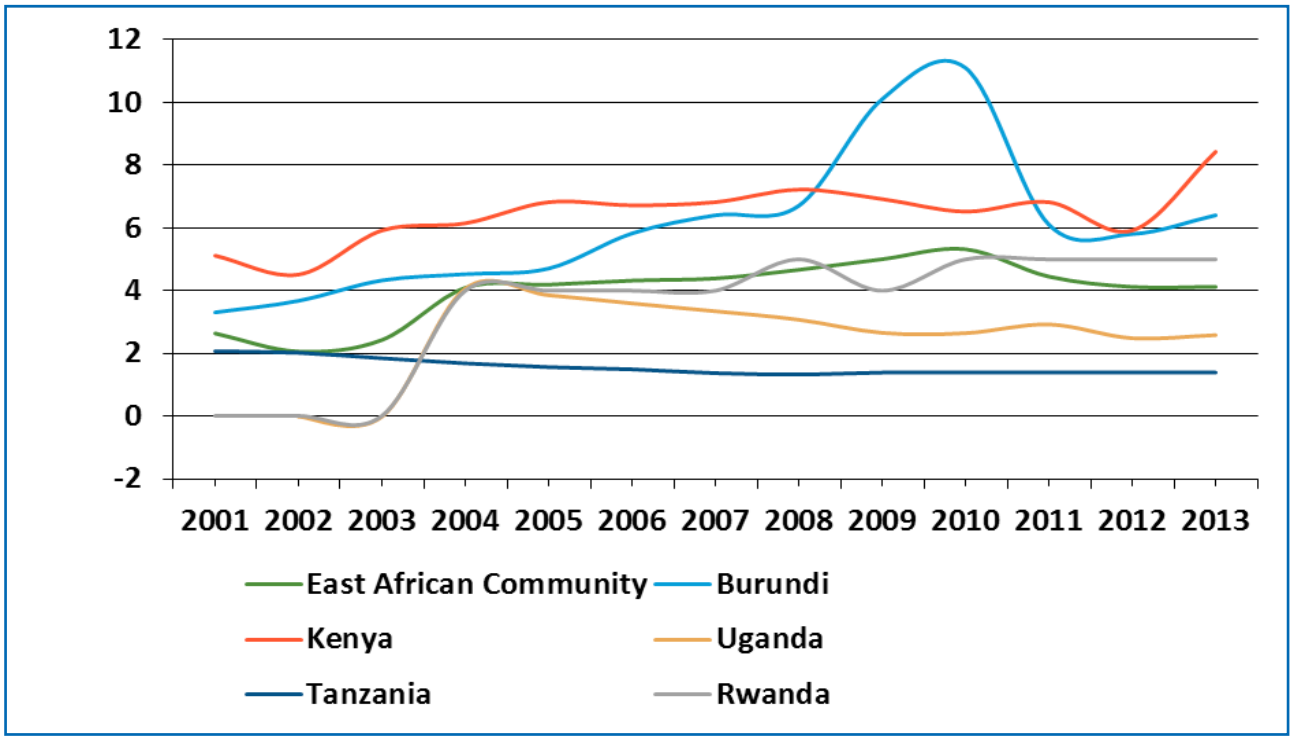
Source: UNESCO

In 1992 the school enrolment in tertiary education in Vietnam was comparable to the other countries in the EAC and around 2 to 3%. Vietnam's remarkable achievement in tertiary education developed along two expansionary phases. The first one increased tertiary enrolment from 3 to 10% in only 6 years, while the second phase of ten years moved tertiary enrolment from 10% to 25% (and later 30%). In this second phase Vietnam took over South Africa which remained at a level between 15 and 20% for the last two decades. The last benchmark country Ethiopia shows a similar fast process of increasing tertiary educated students. Starting at a comparable level with Kenya in early 2000 around 3%, it managed to reach 8%, far above all the other countries in EAC. By 2010 the best performer in the EAC region was Rwanda, while Tanzania showed the fastest increase while starting from a lower level.

However, as already highlighted, the composition of tertiary enrolment can be very different and countries which invested relatively more in science and engineering areas have got better results. In 2001, 30 per cent of all tertiary students in Kenya took a science or engineering programme compared to Uganda which 3 years later had less than 10% of its graduates pursuing a science or engineering degree. Rwanda has in place policies to encourage students to take up these courses and the government's aggressive programme to promote these courses among its students seems to be paying off. In 2012, over 20% of graduates possessed a degree in engineering or science. The country is quickly catching up with Kenya's lead set a decade earlier. Burundi's performance between 2011 and 2013 was only slightly above 10 per cent.

By investing increasing tax revenues in the education and vocational school system, it helps drive the cumulative self-reinforcing process of skills development and structural transformation. In the EAC, countries have on average invested between 4 and 5% of their GDP in education since 2004 (before that the expenditure was only 2% of GDP).

Figure 5.5 Expenditure on education as % of GDP



Source: EAC portal

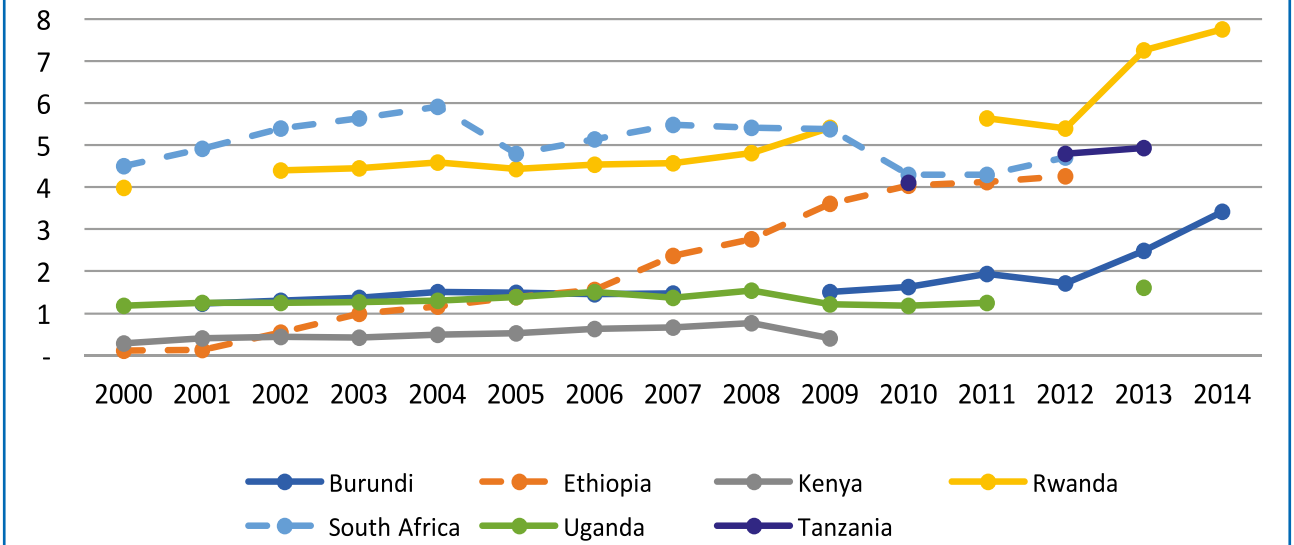
Kenya, Burundi and Rwanda are the countries which reached the highest level of expenditure. Among them Kenya is investing more resources both in relative and absolute terms, given the relatively bigger size of its economy. Kenya managed to maintain a constant allocation of resources since 2003 and increased to above 8% of its GDP in 2013. Tanzania and most recently also Uganda, by contrast, have relatively low shares of expenditure in education.

The education system, from primary up to tertiary education, is the main supplier of diffused knowledge and skills. However, various forms of learning at work and re-skilling, particularly in manufacturing industries, are also important for building 'experience-based technical skills' as well as for the transformation of 'formal education-based skills' into production capabilities. Various studies show that vocational training plays a critical role, especially in early stages of industrialisation. In fact, training is important in order to impart technical skills often used in manufacturing and increase the overall efficiency of the productive organisation, also in terms of reaching quality standards in processes and products.

Figure 5.6 below shows the number of vocational students in secondary education per 1,000 inhabitants in the EAC countries and comparators. Despite some limitation in the data, we can see how Rwanda has the highest number of secondary students in vocational training in the

region. This is due to concerted efforts on the part of the country to offer vocational training for different productive sectors. It is followed by Tanzania. In Burundi, Kenya and Uganda, the number of vocational students in secondary education is significantly lower in comparison to Rwanda. Kenya's poor performance can be explained by the fact that it is not the practice to have secondary school students also pursuing vocational training simultaneously. Burundi has seen positive developments in the last years, reducing its gap with Tanzania. Overall, especially if we compare the EAC with Ethiopia and South Africa, the figures point to most countries still having a critical lack of vocational training in the EAC region.

Figure 5.6: Enrollment in secondary vocational per 1,000 inhabitants



Source: UNESCO

In some EAC countries, vocational training is now offered alongside secondary education so that people are trained early in the skills they will require on the job while earlier technical/ vocational centres were often converted into universities. In the broader eastern African region, there have also been multiple attempts to reform the vocational training system to make it more capable to match demand and specific skill profiles requirements. The following box provides an overview of some of these reforms in one of the EAC countries (Tanzania) and one close comparator (Ethiopia).

Box 5.1: Vocational training reforms in Tanzania and Ethiopia

Tanzania: Designing a new 'Technical and Vocational Education and Training' system (TVET)

Over the last decade Tanzania has undertakenn unprecedented fiscal effort for supporting its education system, including abolition of primary school fees and enrolment-related contributions from parents (since 2004). In 2011, spending on education reached almost 20% of the total government budget (of which half ill goes to primary education), while from 2005 to 2011 education expenditure per capita increased by 175%. In 2011, the number of unemployed people out of Tanzania's workforce of more than 22 million has fallen to 10.7%. However, in the same year the level of unemployment among youth reached 13.4% (14.3% for women), while a high percentage of the youngest find employment in the informal sector.

Formal education-based skills are necessary for using technologies effectively, for example literacy skills allow workers to read blueprints, or in the case of engineering skills to operate and control sophisticated machines. However, very often, basic skills acquired in primary and secondary schools such as literacy and numeracy, or higher skills acquired in tertiary education, are insufficient as production processes also require workers endowed with experience-based technical skills. The latter are generally acquired in vocational training and technical education colleges (often called TVET). Among them, in Tanzania the major providers of industrial skills which are relevant for industries are the VETA training centres and the company based training centres. Internal training schemes are mainly provided by larger companies and parastatal companies, however, and their number drastically decreased as parastatals were privatised. In 2010, the total number of students enrolled in all forms of vocational and technical education was approximately 180,000 (URT, 2011: chapter 19; ADEA, 2012).

The strong commitment to quality assurance is testified by the fact that in 2011 the number of vocational training centres has fallen from 900 institutes to 300 as a result of the annual review of accreditation standards. Also, the supply of programmes have been segmented for increasing training effectiveness, flexibility and differentiation: the minimum requirement of formal education for undertaking VETA training has been recently increased for many programmes, especially those aimed at developing higher experience-based technical skills; while, for other programmes, especially those targeting the informal sector there is no barrier to entry and selective interventions have been developed, such as the "informal apprenticeship" programme; finally, other programmes promote self-employment, microenterprises and SMEs development by providing business and financial management skills and offer complementary services such as microcredit.

The VETA planning, labour market and development is responsible for promoting private sector/ industry interaction. Industry experts are involved in the training process as educators in some cases, but there appears to be a limited level of technology sharing. There are memoranda of understanding prepared for several companies with trainings geared specifically towards the projected needs in the short to medium term. These include: British Gas, PetroBras, Tanzania Breweries, Tanzania Cotton Board as well as hotels and cement companies. Special industry specific trainings have been established in Moshi and Mwanza for the mining sector. However, there is mistrust on the part of some industries that 1) that they may lose valuable staff to become full-time trainers, or 2) that by sharing technology competitors may gain advantage. Internship placement is common practice in most education programs in Tanzania, and is part of many technical programs. Previously there was also an industry placement program for trainees, but this is in need of revitalisation. In response to industry needs, the Dar es Salaam Institute of Information Technology was opened in 2012, offering five courses on electrical, computer application and programming, electronics, multimedia, repair and maintenance.

Box 5.2: Vocational training reforms in Tanzania and Ethiopia

Ethiopia: Addressing challenges in TVET design and implementation

Ethiopia has been sharing with Tanzania a number of education policy challenges, especially with respect to the improvement of the quality of education at the different levels. However, today, Ethiopia is often mentioned as one of the most successful experiences in the context of effective TVET development (Baraki and van Kemenade, 2013). When the government introduced the national TVET strategy in 2008, there was an overall restructuring of the education system and a number of innovative approaches were introduced.

Firstly, the government realised that in order to be effective (and be perceived so), TVET curricula and activities need to be demand-driven and, also capable of responding and adjusting to on-going changes in the manufacturing sectors. Secondly, TVET training needs to be reliable in terms of the achievement of certain certifiable quality standards. Thirdly, instead of following on more consolidated TVET models of the French/English speaking African countries, the government went for its own unique and context-based model. For example, the national TVET strategy stipulated the integration of traditional apprenticeship into the TVET system and promoted vertical and horizontal mobility and progression (MOE, 2008 and 2010). Finally, the TVET national strategy adopted a very comprehensive approach whereby quality improvements were achieved by acting upon each specific components of the programme.

The new TVET programme has been evaluated along the following axes (Baraki and van Kemenade, 2013), each of them corresponding to a specific component of the implementation programme:

- National TVET qualifications framework (NTQF)

  The national framework was developed to identify demand-driven needs, to assess current skills gaps and mismatches and, finally, to design flexible pathways or qualifications levels facilitating horizontal and vertical integration. The National TVET certificates I-V are structured in file levels, each of them being carefully characterised with level descriptors.

- Occupational standards

  The definition of occupational standards required the development and constant update of a sophisticated scheme of occupational titles called Ethiopian Occupational Standards Development Guidelines (MOE 2009 and 2012). This includes 338 occupational titles in agriculture; economic infrastructure; culture, sports and tourism; health; industry development; labour affairs and social services.

- Occupational assessment and certification

  The Occupational Assessment and Certification Directive was issued in order to bring coherence in the broader system.

- Accreditation of TVET institutions and testing centres

- TVET research, monitoring and evaluation

  A system for gathering and disseminating labour market data and information was developed.

- Stakeholders' participation and partnership

Box 5.2: Vocational training reforms in Tanzania and Ethiopia

While the programme is under the responsibility of the Ministry of Education, the government has decided to involve a number of stakeholders, from the planning and policymaking, to delivery of training and its monitoring and evaluation.

- Other support/regulatory mechanisms.

As a result of this articulated programme, and partially as a result of its large population, Ethiopia developed the second highest number of training institutions in Africa, with 30% of them provided by private actors. Between 1999 and 2007, enrolment in TVET in Ethiopia increased by over 5,500 %. Since the introduction of the new TVET system, there was also an increase from 17.42% in 2009/2010 to 40.23 % in 2011/2012 in the share of TVET graduates identified as competent by the certification system (Baraki & Kemenade, 2013).

Industrial skills do not simply develop via formal education in school and vocational training centres. With the expansion of manufacturing employment, countries tend to experience an increase in the workforce skills as an increasing number of people have the opportunity to develop their skills on the manufacturing shop floor (Lall, 2001).

E2 ORGANISATIONAL CAPABILITIES IN THE EAC REGION

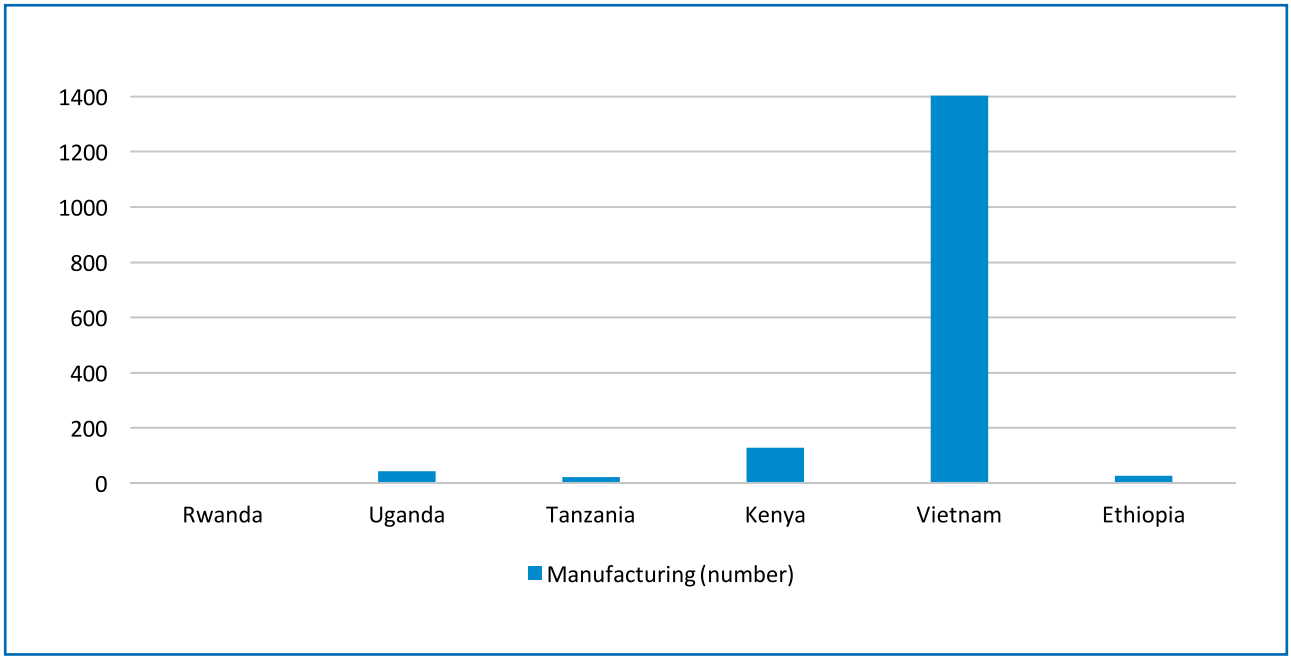
Industrial competitiveness is driven by production capabilities. Workforce skills constitute the know-how base on which firms rely for absorbing and adapting technologies to local conditions as well as modifying organisational practices. In fact, they are crucially important for the development of new work methods ranging from the simple re-arrangement of production tasks up to the introduction of information technologies for process control, inventory systems and quality management.

The effective utilisation of production capabilities requires firms to learn how to organise production processes and technology operations effectively. Manufacturing production is a collective process to the extent that the execution of interdependent sets of production tasks requires organisational forms, plans and capabilities. The development of organisational capabilities is particular critical with relatively more complex production activities involving more advanced technologies or operations. The lack of such collective forms of capabilities often has a negative effect on the quality standard of production and the possibility of acquiring international certifications. The latter are very important, especially for productive companies interested in linking up as first or second tier suppliers with major companies or directly sell their products in the regional or international markets.

The achievement of production certifications are a first good proxy of the level of firms' organisational capabilities.

While Kenya's performance is quite remarkable with respect to the region, having about 150 manufacturing companies acquiring ISO 9001 certificates in 2014, Figure 5.7 shows how Vietnam has more than 6 times the number of companies with ISO 9001 certificates than Kenya.

Figure 5.7: ISO 9001 certificates valid in 2014 for the manufacturing sector



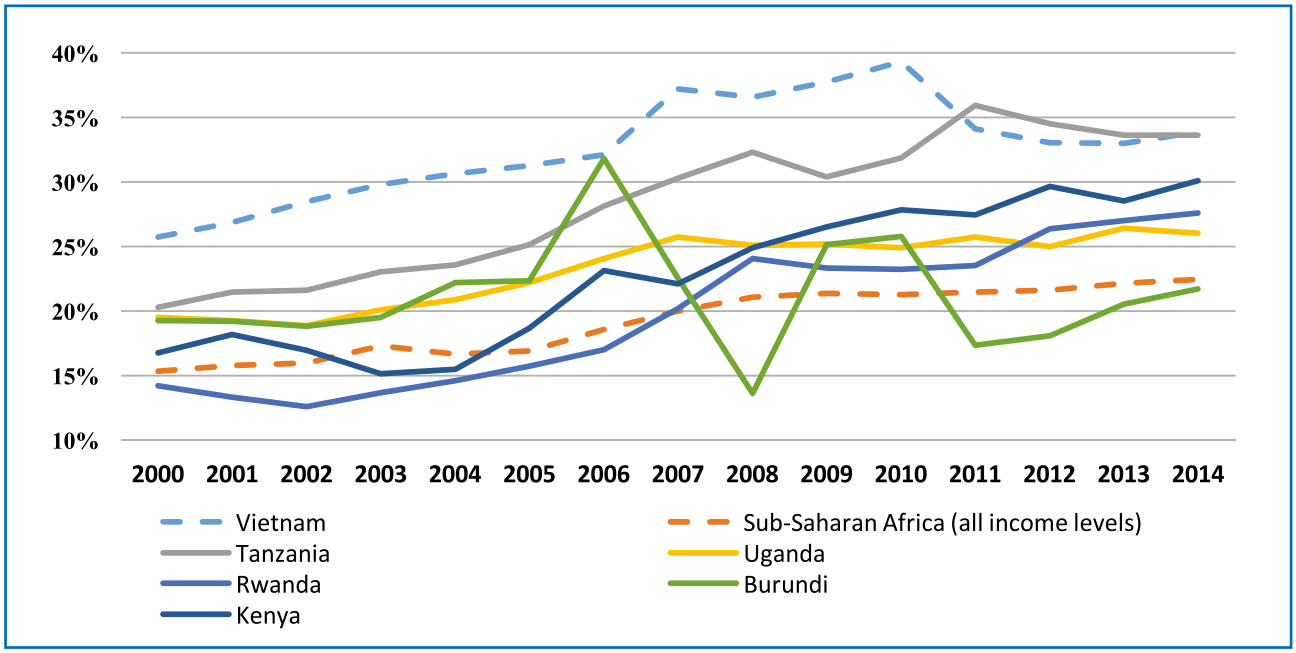
Source: ISO

E3 PRODUCTION CAPACITY INVESTMENTS AND FDI IN THE EAC REGION

So far we have focused on the people skills – production capabilities – and their capacity to work in an organised manner – organisational capabilities. In fact, performing a set of interdependent productive tasks does not only require capable agents and functioning organisations – that is, individual and collective agents endowed with productive knowledge and relevant skills; it does require the establishment of a certain *production capacity as well, that is, of a scale-appropriate assortment of* equipment, machinery and other capital goods.

The share of GFCF (Gross Fixed Capital Formation) to GDP indicator captures investments trends into fixed capital from both private and public sources. In the Figure 5.8, all Partner States, except Burundi, show a steady progress over the years in their ability to increase investments in GFCF, above the Sub-Saharan average. Tanzania, in particular, overtook Vietnam in 2011 and is the best performer among all EAC countries.

Figure 5.8: GFCF as a share of GDP[33]



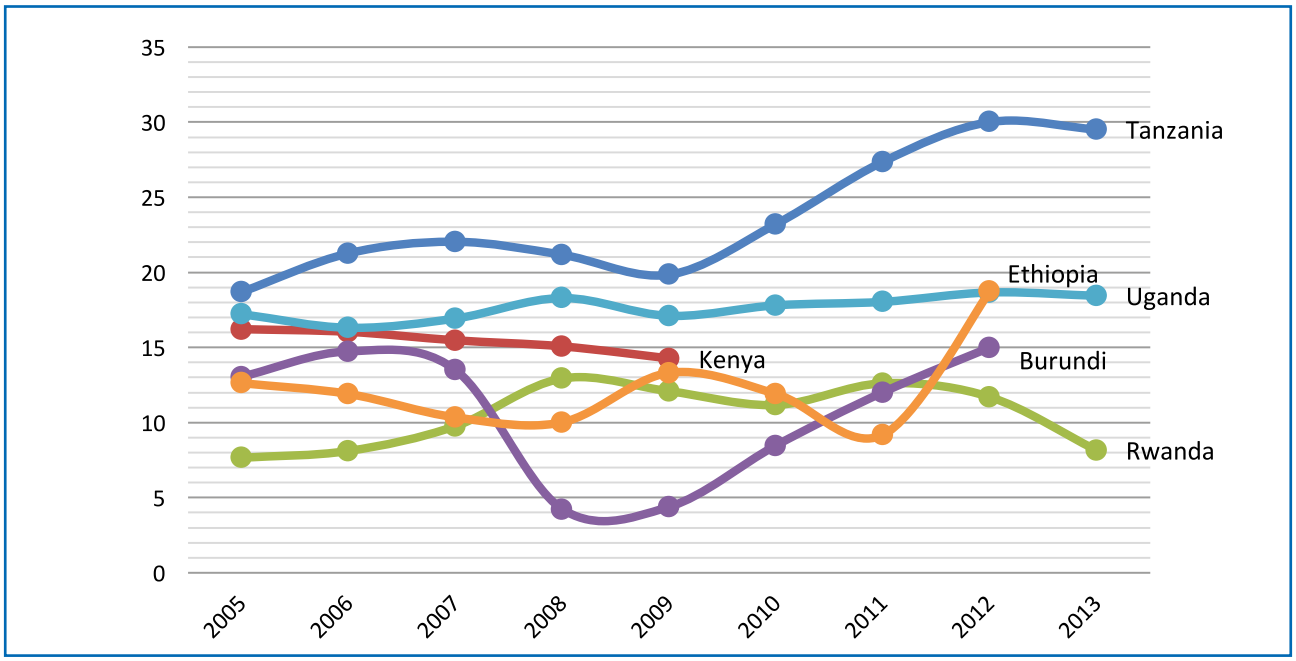
Source: Author's calculations, WDI

Tanzania and Kenya registered a significant increase in gross fixed capital investments starting from 2004, although Kenya started from a much lower level than Tanzania. If in 2004 Tanzania was reporting a share of GFCF in GDP of almost 25% against 15% in Kenya, in 2014 Kenya managed to catch up and reduce the difference to less than 5% point, with Tanzania still leading at 34%. The other three EAC countries present shares of GFCF in GDP below 30%, although Rwanda seems to be on an upward trajectory, boosted by an investment expansion cycle from 2002 to 2008. Burundi's performance, which in 2006 rose sharply, fluctuates intermittently to levels above and below the Sub-Saharan average of 23%.

The source of the investment in fixed capital, that is, their coming from the public or private sector is another important indicator of the major drivers of industrial competitiveness. Figure 5.9 below shows again Tanzania as the best performing country, especially after 2009. If in Tanzania private GFCF in GDP peaks at 30% in 2012, in the other countries the same indicator remains below 20% from 2005 to 2013. While the data for Kenya are not available, we can see how both Uganda and Rwanda fluctuated respectively between 18% and 10%. Burundi in the contrary has shown a strong increase of private investments in fixed capital starting from 2009, while Ethiopia experienced a similar upward trend starting from 2011.

[33] GFCF as a share of GDP was calculated by the authors themselves using data from WDI on private GFCF and GDP, rather than taking the pre-calculated indicator from the same database. This is common practice and recommended when possible as it ensures the values do not include estimations or have undergone other data manipulation the user is not aware of

Figure 5.9: Share of private GFCF in Gross Domestic Product (GDP) – EAC and Comparators

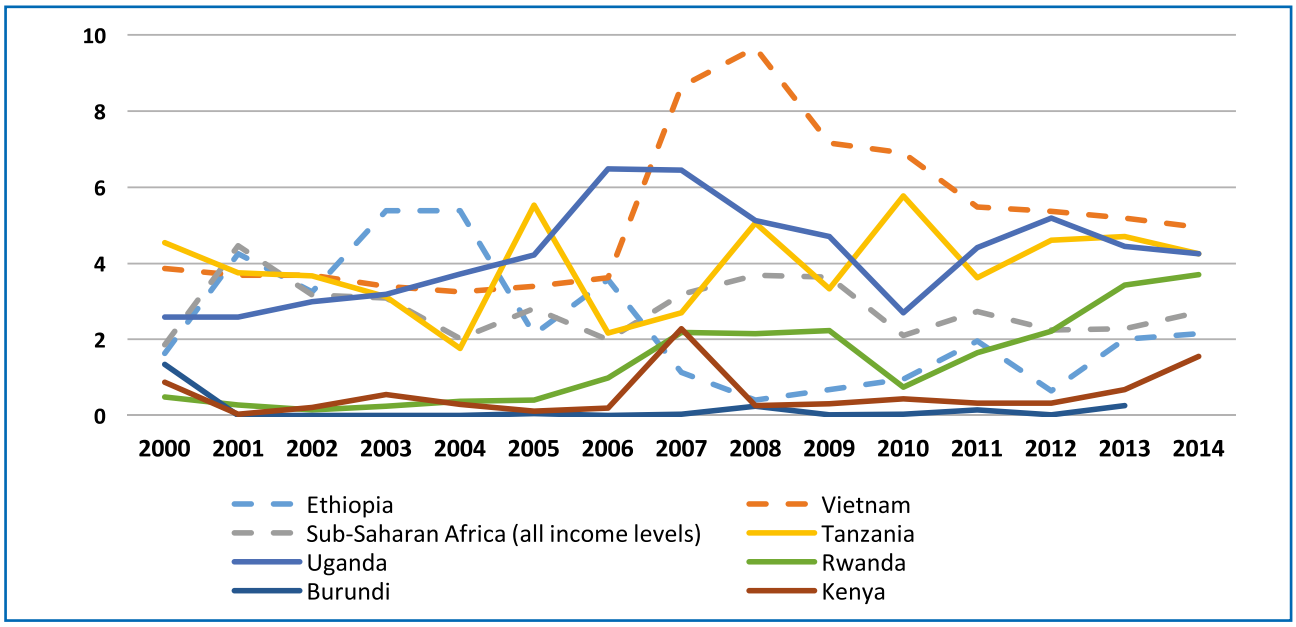


Source: WDI

Given the conflicting claims on the public sector expenditure and the constraints in turning rents into productive investments, foreign indirect investments (FDIs) can play an important role in the earliest stages of industrialisation. The net Inflows indicator is a measure of the amount of foreign investment countries are able to attract as a percentage of GDP.

FDIs can boost investment in production capacity in different sectors of the economy as well as in infrastructure, such as the building up of energy power plants, grids, roads and ports. The performance of the EAC countries in attracting FDIs are quite heterogeneous. The two countries which managed to attract more FDI in the EAC region are Tanzania and Uganda. In 2014 their FDI net inflows measured as a share of the GDP stabilised around 4.5%, however in both country cases it reached up to 6% in the mid of 2000s. Considering that the average for Sub-Saharan African countries is slightly below 3%, and that our benchmark country Vietnam stabilised around 5% after a pick of almost 10% in 2008, Tanzania and Uganda are successful cases. Rwanda is the other EAC country which showed a significant upward trend since 2010. Specifically, it managed to move from a modest 1% to a robust 3.8% in 2014. On the contrary, both Kenya and Burundi have remained below the 2% threshold, although Kenya has shown a strong upward trend from 2013. Similarly to Kenya, and despite its improved manufacturing performances, Ethiopia has experienced an industrialisation process mainly led by domestic investments, more than FDI.

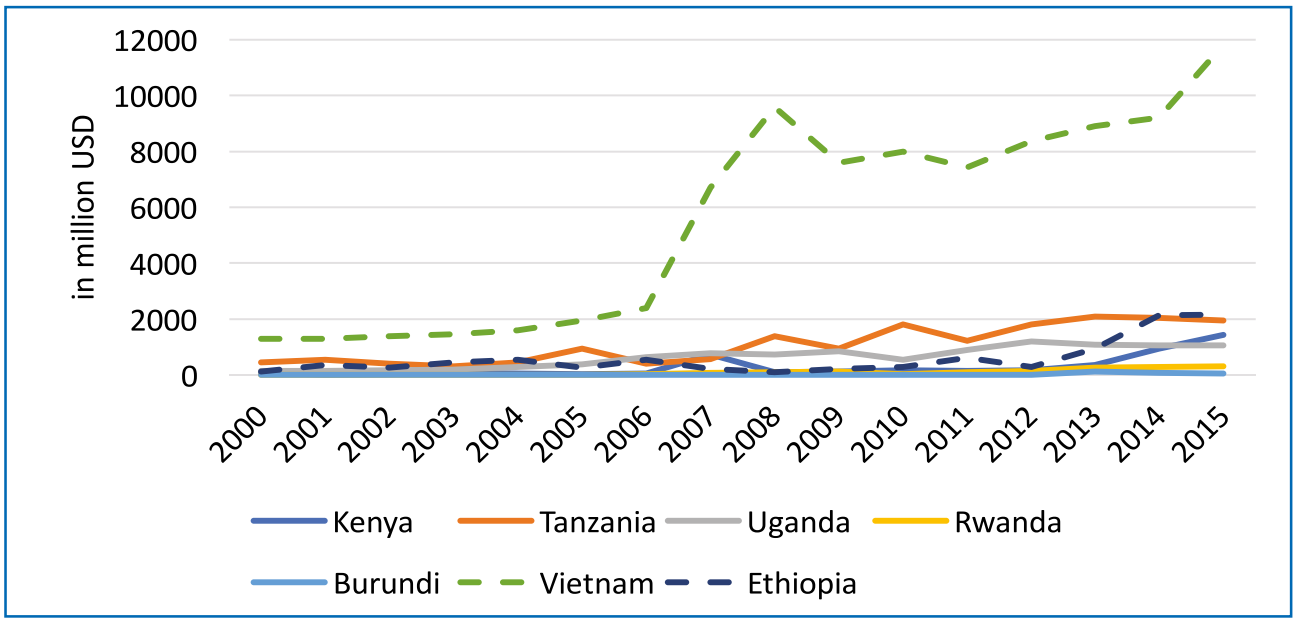
Figure 5.10: FDI net inflows as a share of GDP



Source: WDI

However, if we consider the net inflow of foreign investments in current US dollars we can see how given the bigger size of the economy, Ethiopia overtook Tanzania in 2013 as the first attractor of FDI in the eastern African region. Interestingly however, this follows a phase of significant expansion of the manufacturing base mainly led by domestic investments. Furthermore, Figure 5.11 shows clearly how while EAC Partner States have been increasing their FDI inflows modestly, Vietnam has reached levels beyond eight times those of EAC's top performer.

Figure 5.11: Foreign direct investment, net inflows (BoP, current US$)

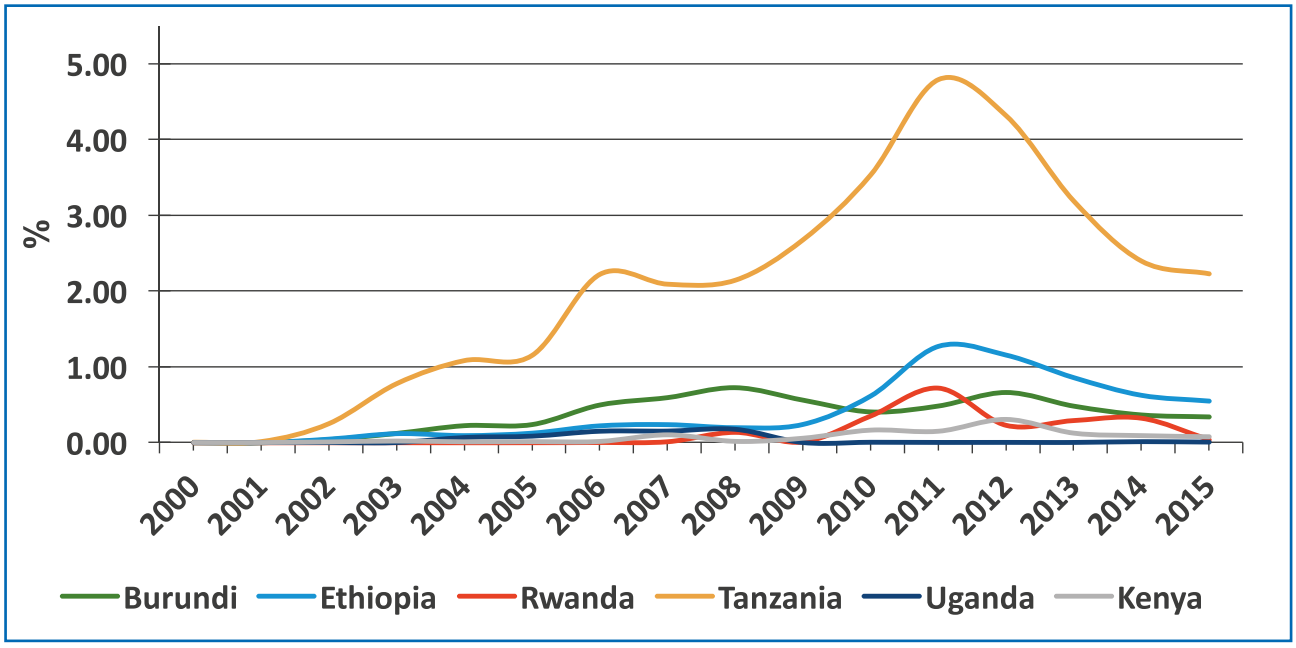


Source: WDI

The impact of FDI on countries' industrialisation is critically affected by the type of investments and sectors involved. For example, FDI directed towards extractive sectors to extract mineral rents can have a relatively contained impact on the rest of the economy, especially if investments in extractive sectors are not coupled by developments of backward and forward linkages.

The following Figure 5.12 shows how the mineral rents as share of GDP reached very high levels for Tanzania. Since 2004, the mineral rents have remained above 1% of GDP and reached a peak in 2011 when the mineral rent was equal to 5%. Mineral rents can be a strong attractor of FDI investments, however, they tend not to have the same impact as FDI directed towards value creation (more than value extraction) sectors, typically manufacturing.

Figure 5.12: Mineral rents as share of GDP



Source: WDI

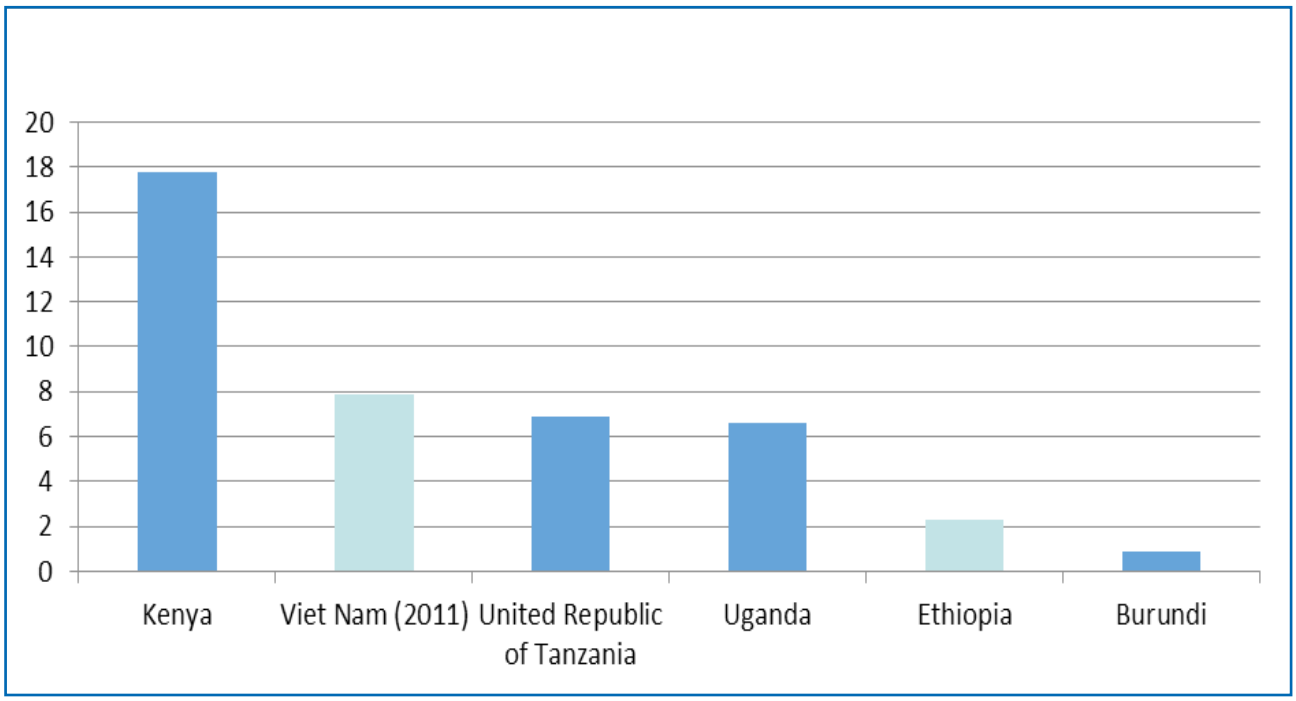
E4 TECHNOLOGICAL CAPABILITIES IN THE EAC REGION

From a 'dynamic efficiency' perspective, the *absorption, adaptation and improvement of given productive techniques,* as well as *innovations across different organisational and technological functions,* mainly depend on the availability of two specific subsets of industrial capabilities owned by firms and other technology/research focused actors. They are *technological capabilities and innovation capabilities.* Capabilities needed to generate, absorb and manage technological and organisational change may differ substantially from those needed to operate existing production processes (Lall, 1992 and 2001; Andreoni, 2011 and 2014).

Technological and innovation capabilities develop and accumulate through targeted investments in research and development activities. In countries at earlier stages of industrialisation, lots of these activities are mainly oriented towards the absorption and adaptation of foreign technologies into existing production structures and processes, including adaptive design of products for local markets. In particular, firms undertake considerable technological efforts in reverse engineering imported capital goods, learn about performing maintenance and repair operations, and production/adaptation of spare parts. Addressing all these manufacturability challenges is the main technological and innovation activities in place. At more advanced stages of industrialisation, the increasing technological capabilities of medium and large companies, open the way to innovation opportunities. Endogenous innovations might result from process, product and market opportunities. While the technological push is important, the market pull is critical as well. The EAC extended market offers more opportunities for businesses in terms of product diversification, and innovative forms of product re-engineering with a focus on local demand needs.

The Gross Expenditure on Research and Development (GERD) per capita provides a first measure of the level of investments in R&D in the country, indicating the extent to which the country is focusing on developing technological and innovation capabilities. Figure 5.13 below shows how in 2010 among EAC Partner States, Kenya recorded a higher GERD of 17%, followed by Tanzania and Uganda. Burundi had the lowest GERD in the EAC countries. In comparison the benchmark country Vietnam, falls below Kenya by 7.8% but places higher than Tanzania and Uganda.

Figure 5.13: GERD per capita (in PPP, constant 2005), 2010



Source: WDI

Investment in R&D does not lead automatically to increased industrial competitiveness. The extent to which this is the case, will depend on multiple factors including the effectiveness of the expenditure, its targeting the right type of technological efforts and its participation of the private sector into R&D activities, beyond public spending. While Kenya is by far the country which is most engaged in developing R&D in the EAC region, as well as the main benchmark country Vietnam, this has not led to higher value addition performances than Vietnam. This shows how the investment in R&D to be effective has to be coupled by other investments in the other drivers discussed above, and that the results can be affected by time lags. If Kenya investments in R&D are going to drive the country out of a phase of slow growth might become visible in the coming years.

Looking at the other countries, we notice how while Tanzania is almost catching up Kenya in terms of production capacity, it is still far behind Kenya in investing in R&D, and the other EAC countries are even further behind (no data is available for Rwanda). This means that Kenya is probably building stronger foundations for more sustained growth, despite its currently slower growth. Expenditure on R&D in Kenya has increased over time (from 6 in 2007 to 14.4 in 2010), more than double than Tanzania where R&D gross expenditure per capita reached only 6.5 in 2010 (Table 5.2). If we look at other comparators, for example South Africa, the R&D expenditure per capita has actually been decreasing.

Table 5.2: Gross Expenditure on Research and Development (GERD) per capita and Share Government-Financed GERD in Total GERD – EAC and comparators

Gross Expenditure on Research and Development (GERD) per capita						Share Government-Financed GERD in Total GERD
	2006	2007	2008	2009	2010	2010
Tanzania		4.9			6.5	57.5%
Kenya		6			14.4	26%
Burundi		0.9	0.7	0.7	0.7	59.9 % (2008)
Uganda	2.9	3.9	3.5	4.5	6.3	21.9%
Ethiopia		1.2			2.2	56%
South Africa	81.9	84.2	86.9	79	70.4	44.5%
Vietnam					7.9 (2011)	64.5% (2011)
In PPP$, constant prices = 2005						

Source: UNESCO

At the earliest stages of industrialisation, investment in R&D tends to be driven by the public sector. However, this is not the case for all the EAC countries. While almost 60% of investment in R&D was financed by the public sector in Tanzania (and Ethiopia as country comparator), in Kenya the government financed only 26% of the overall GERD. In Uganda the contribution of the public sector is even lower- at just over 20%.

Not only is investment in R&D driven by different actors in the EAC countries, the investment can also target different types of R&D activities. Kenya has been focusing almost 60% of their investments in basic research, while only 25% to applied research. Interestingly, if we compare Kenya with Ethiopia we observe how the latter has prioritised applied research (almost 45% of their total GERD) and experimental research. At earlier stages of industrialisation, these types of investments tend to deliver more immediate results in terms of increasing industrial competitiveness. As discussed above, the reason is that it is much more difficult to reach the technological frontier with investments in basic research. On the contrary technological efforts oriented towards applied industrial research can boost product quality, process efficiency and broader industrial competitiveness parameters.

Table 5.3: Share type of research in GERD

Country	2007	2008	2009	2010
Applied Research				
Tanzania	36.2%			
Kenya				24.6%
Burundi	93.6%	93%	93.4%	95.2%
Uganda	79.6%	69%	58.9%	43%
Ethiopia				43.5%
Basic Research				
Tanzania	11.8%			
Kenya				57.5%
Uganda	18.2%	24.9%	34.5%	34.7%
Ethiopia				19.8%
Experimental Development				
Tanzania	13.6%			
Kenya				17.9%
Uganda	2.2%	6.1%	6.6%	22.3%
Ethiopia				21.2%

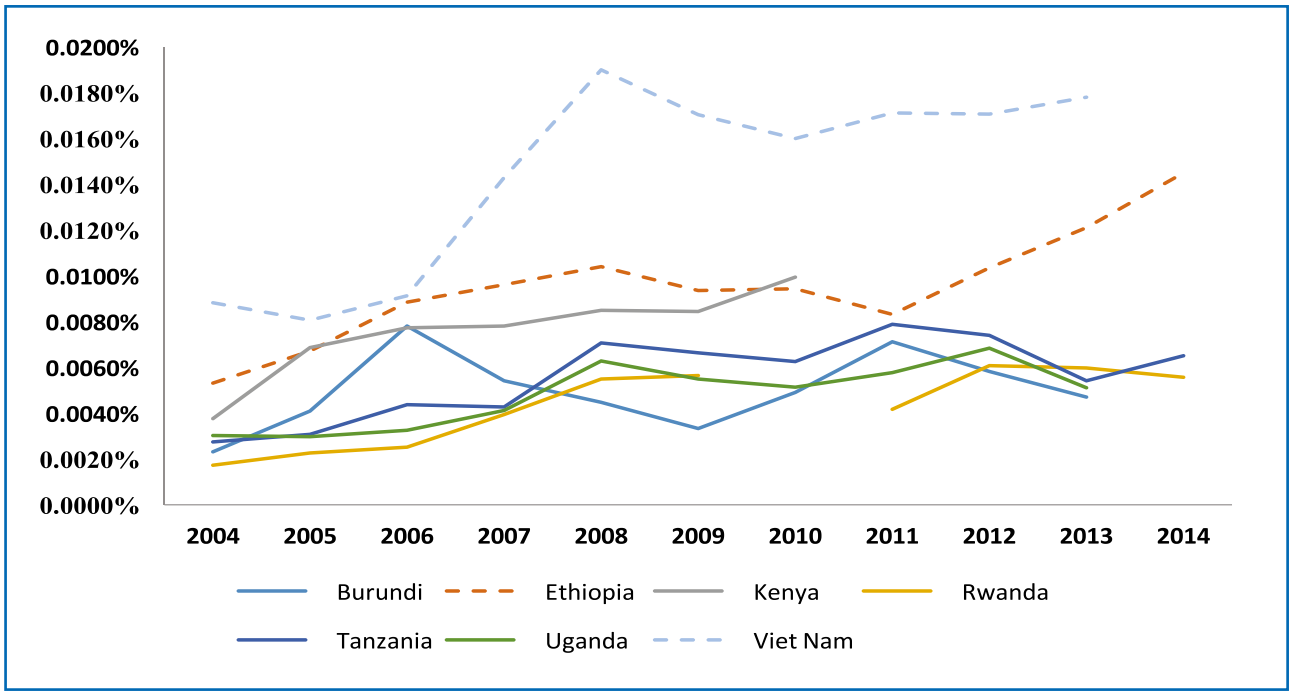
Source: UNESCO

At earlier stages of manufacturing development, the domestic technological effort must be coupled by technological absorption efforts. In particular, countries tend to rely on foreign technologies, especially production technologies such as machine tools and other production equipment. Capital goods imports (as a share of GDP) is a very good measure of this type of technological effort. Figure 5.14 below shows how import of capital goods has been a major driver of technological capabilities building in Vietnam, especially since 2006. The other closer country comparator, Ethiopia, registered a dramatic increase in capital goods imports since 2010, although its performances were higher than all the other EAC since 2003. Kenya is the only country in the EAC which showed a similar robust path until 2010 (after that data are

missing). The other EAC countries are clustered together and show variations in the imports. Generally the capita l goods imports among the EAC countries are very low and registered an alarming downward trend since 2010.

Considering the limited domestic and regional production of capital goods, these downward trends in capital goods imports could slow down and dramatically affect the overall industrialisation process in the EAC. While over time decreasing dependence on imports would signal accumulation of technological capabilities, EAC countries are still in strong need of upgrading their technological base and production system with imported capital goods. The involvement in the production of capital goods components, spare parts and maintenance and repair operations are critical activities in this direction.

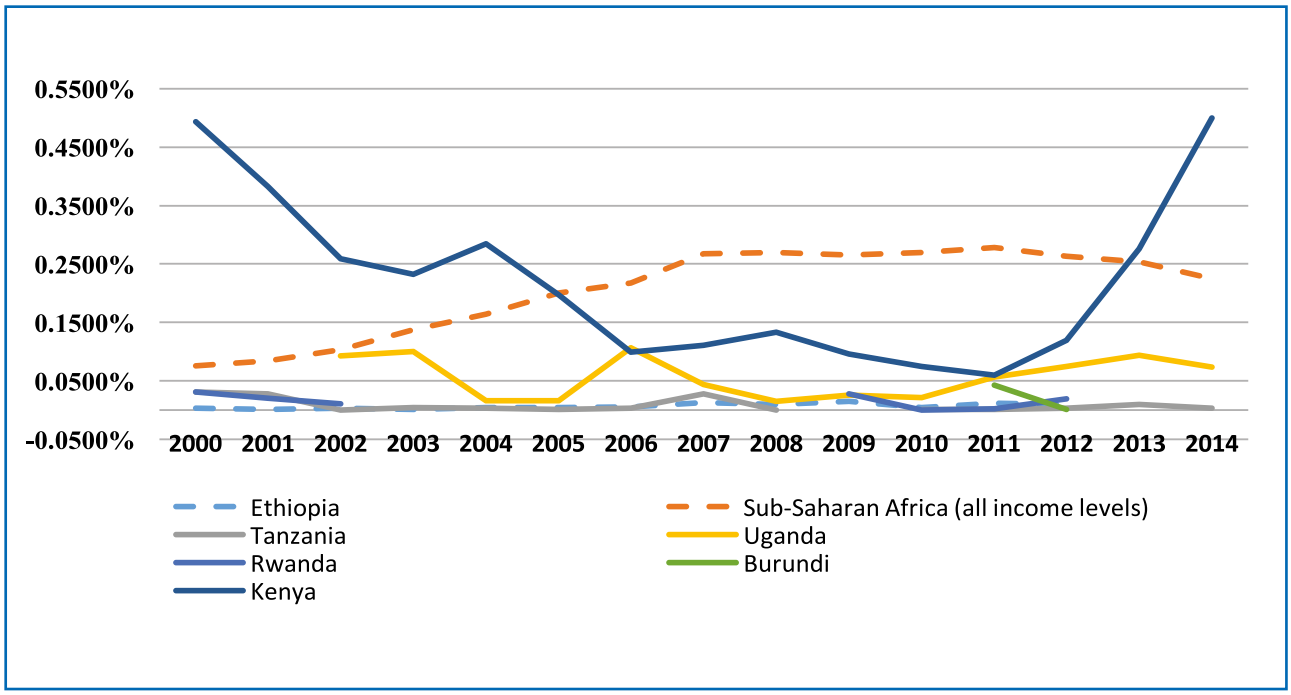
Figure 5.14: Capital good imports (% of GDP)



Source: Author's calculations, OECD and WDI

The importation of capital goods is quite critical in certain productive sectors. In others, firms have access to foreign technology solutions, formulas and design protected by intellectual property rights. Figure 5.15 below shows payments for IPRs as share of GDP in the EAC region and a number of country comparators. With one only exception – Kenya, all EAC countries present relative low levels of IPR payments, far below the Sub-Saharan African average. Kenya however shows a U-shape trend over the period 2000 -2014. Starting from a very high level of payments in 2000, the country reduced this expenditure until 2010 to levels comparable to the other EAC countries. However in 2011 the IPRs payments have started increasing dramatically to reach the record levels of 2000.

Figure 5.15: Intellectual Property Rights payments (% of GDP)



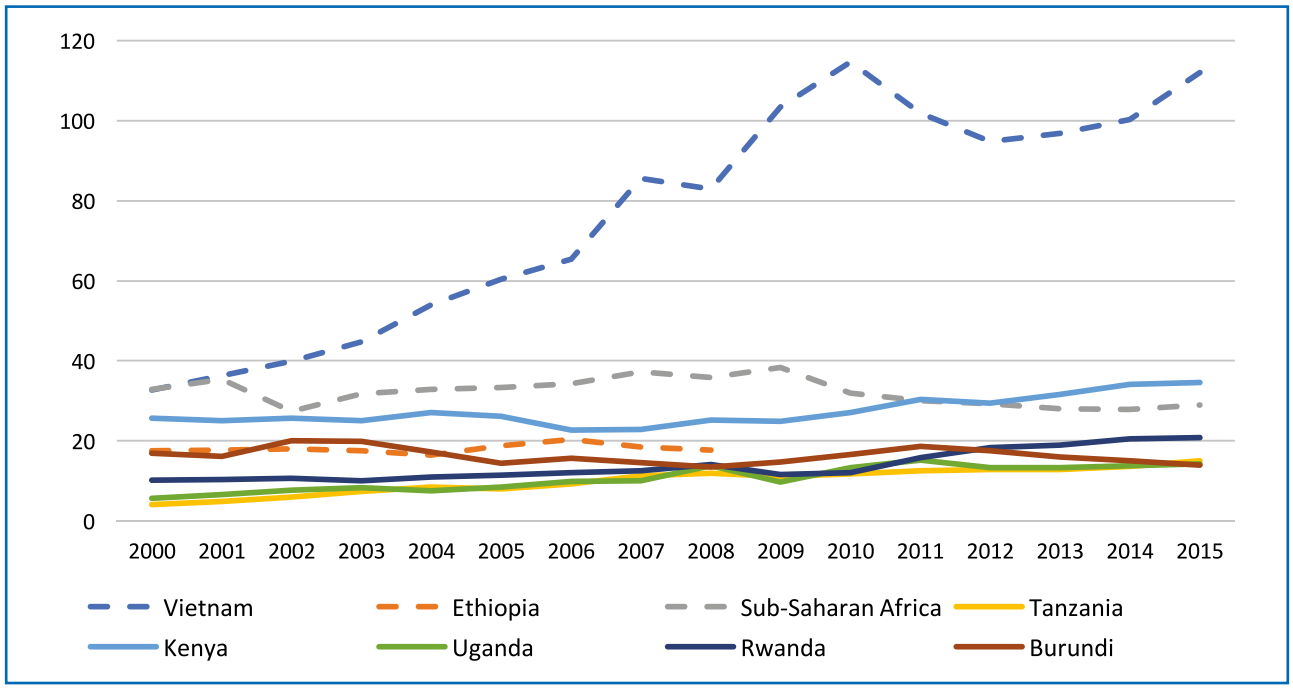
Source: WDI

E5 FINANCIAL INFRASTRUCTURE SUPPORTING INVESTMENTS

Investments in production, organisational and technological capabilities as well as in the expansion of production capacity are often constrained by limited availability of financial resources. At earlier stages of industrialisation, given their limited industrial competitiveness, firms are still unable to generate enough internal financial returns to reinvest in their business. In other terms, the profit-investment nexus is still weak (Andreoni, 2017b). This is particularly the case for medium enterprises. While micro enterprises might have access to microfinance schemes and dedicated programmes, and the big companies have stronger financial capacities and access, the medium-size firms are those struggling most. A production-oriented financial infrastructure is critical to boosting industrialisation in the EAC.

Figure 5.16 below shows the domestic credit to private sector trends as share of GDP for EAC countries and selected comparators. The first striking evidence is the key driving role played by banks in financing investments in the private sector in Vietnam. With the exception of Kenya, whose performance is higher than the Sub-Saharan Africa average, all the EAC countries present a quite low level of domestic credit reaching the private sector and, thus, allowing much needed investments.

Figure 5.16: Domestic credit to private sector by banks (% of GDP)



Source: WDI

While an expansion of domestic credit is critical to drive investments in the region, reforms in the financial infrastructure and the ways it relates to the manufacturing sectors might be equally important. This points to the need for financial institutions oriented towards productive investments, with appropriate (sector-specific) credit products, especially those boosting long-term investments, as well as financial instruments to manage portfolio risks.

E6 INFRASTRUCTURE FOR INDUSTRIAL DEVELOPMENT

Industrial development and competitiveness performances are finally affected by a number of other infrastructure such as roads, railways, ports as well as energy production and distribution systems. The first set of infrastructure is critical in opening up the economy and reducing a number of rents and transaction costs. Roads and rail networks, for example, allow investors to reach areas where land cost is low, and move industrial inputs and outputs across the region at a reasonable cost. Thus, infrastructure reduces land and rent cost for industrial development as well as the transportation cost components of final product prices.

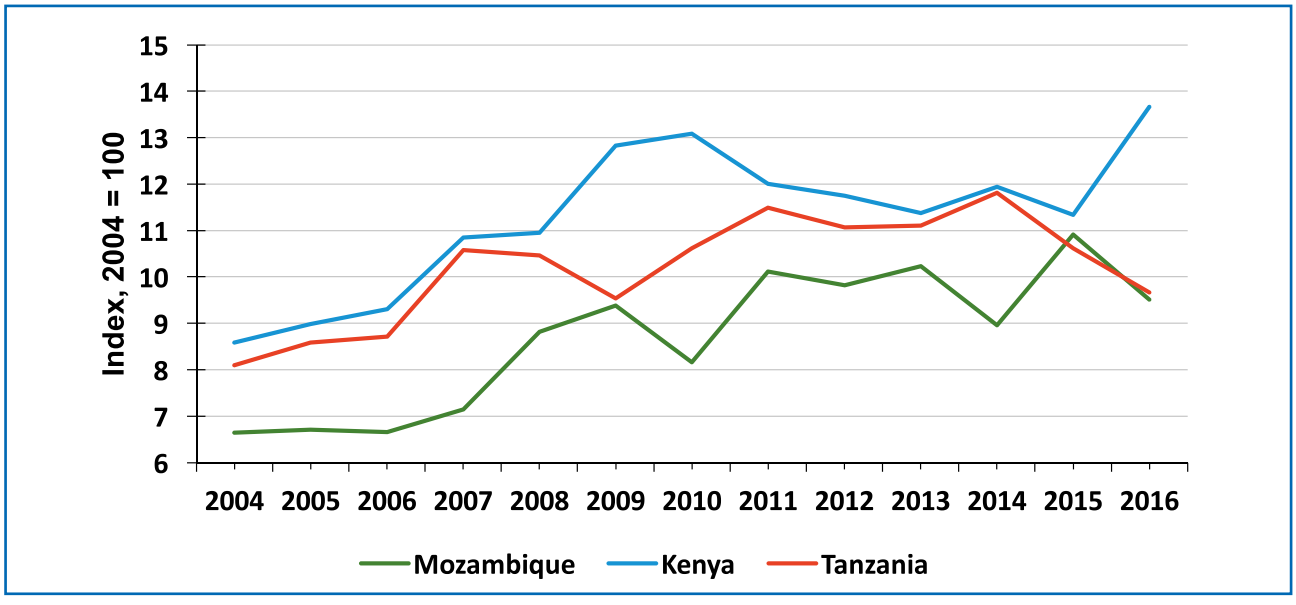
Data on the railway infrastructure in the region are quite outdated, however the EAC has not experienced dramatic investments in these infrastructures over the last ten years. For example Tanzania has two main railway systems - the central corridor between the port of Dar es Salaam built in 1907 and 1914 (linking central and western areas of the country) and the Tanzania-Zambia railway built in 1970s. The central corridor played an important role for the neighbouring countries of Rwanda, Burundi and the DRC as it provided a direct trade link

to the region's main port at Dar es Salaam. In 1928, a spur line was constructed northwards from Tabora to Mwanza on Lake Victoria, which also served Uganda via a rail-lake service. The development of the railway system plays a critical role as it provides cost-effective ways to move industrial raw materials and final goods across the region. Moreover, its development reduces the pressure on the road system and the maintenance cost. In 2008 Uganda was the country with the most developed railway followed by Kenya and Tanzania. The investments in roads, especially in urban and industrial areas, have been more significant and show again a relatively better performance in Uganda, Burundi and Tanzania.

The main gateways to the EAC region from other countries remain its two main competing ports of Mombasa in Kenya and Dar es Salaam in Tanzania.

The Liner Shipping Connectivity Index produced by UNCTAD captures how well countries are connected to global shipping networks. It is based on five components of the maritime transport sector: number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports. According to the very last updated figures, until 2008 the two ports maintained a similar level of connectivity. At that point in time Mozambique's ports (in particular the one in Pemba, the containerised port closest to the EAC) were significantly less developed. Despite Mombasa's strong expansion between 2008 and 2011, by 2014 the two main EAC ports were showing the same performance, although since then they have been diverging, with the Dar es Salaam port showing signs of reduced connectivity.

Figure 5.17: Linear shipping connectivity index (max value in 2004 = 100)



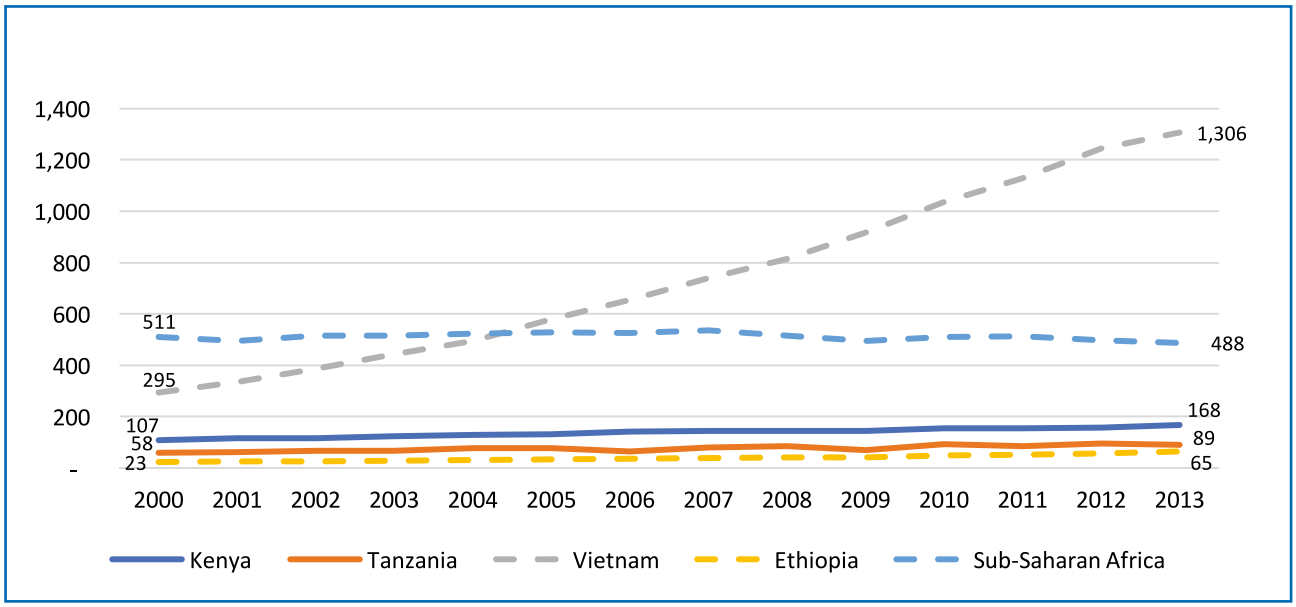
Source: UNCTAD

Alongside mobility infrastructures, the other key enabler of industrialisation is the energy production and distribution system. The availability of energy is a key pre-condition for industrialisation, and an increasing binding constraints for countries which want to invest in

the production of energy-intensive industrial materials, as well as key inputs for other sectors such as fertilisers and other chemical products. Moreover, efficiency in production and production capacity utilisation are dramatically affected by the availability of reliable energy. The lack of that forces manufacturing firms to rely on industrial diesel and other expensive sources of energy, especially to reduce the impact of discontinuous availability of energy on production lines and machinery performances.

Figure 5.18 shows the electric power consumption in the EAC countries (data are only available for Tanzania and Kenya), and comparators. While all countries have shown a positive trend, with Kenya outperforming Tanzania with 1/3 more electricity per capita consumed, the trends in the EAC are weak and certainly point to fundamental problems in energy production investments even significantly so when compared to the SSA average. While countries like Tanzania are now potentially entering a new phase of energy sector expansion thanks to recent explorations of oil and gas, their effective utilisation for energy production and distribution remain a challenge.

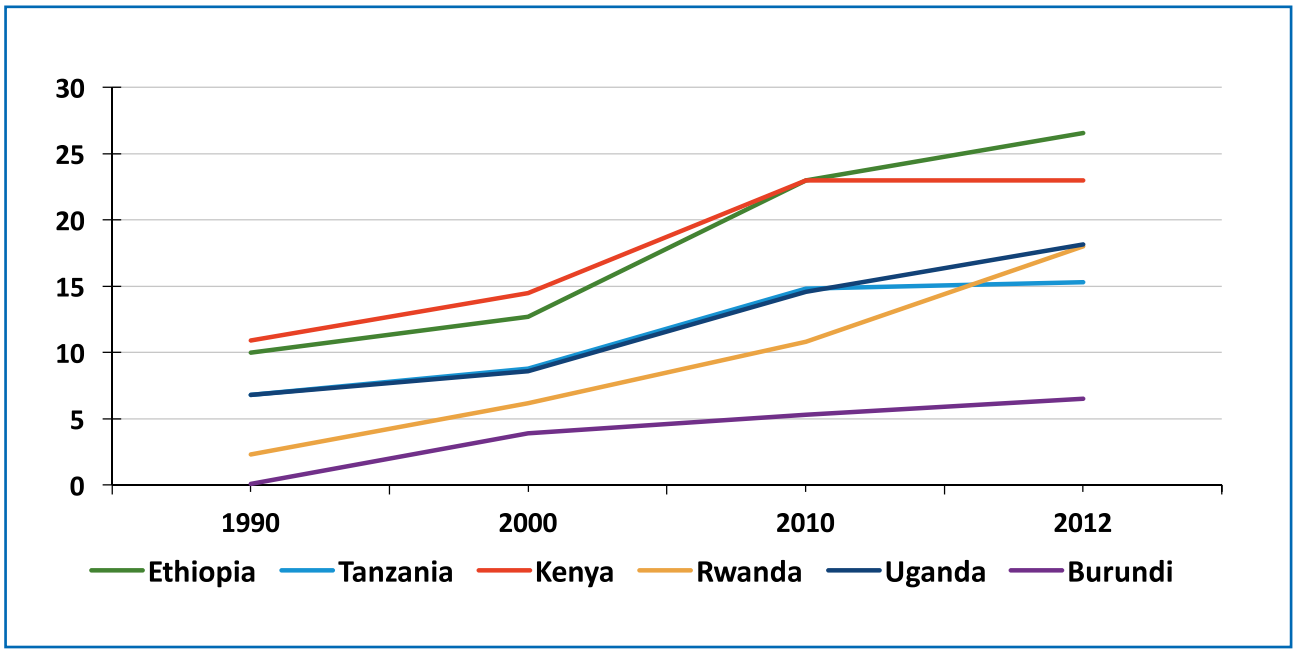
Figure 5.18: Electric power consumption (kWh per capita)



Source: WDI

Another key challenge is given by the fact that improvements in energy consumption have been fundamentally concentrated in few urban areas. The overall access to electricity as a percentage of the population in the EAC remains below 25%, with Ethiopia already outperforming all the other EAC countries since 2010. In comparison, Vietnam's share is 99%. The investments in the distribution network are thus as critical as the investment in the expansion of energy production capacity in the region.

Figure 5.19: Access to electricity as a % of the population



Source: WDI

E7 CONCLUSIONS

Despite the limited availability of comparable data on industrial drivers across countries in the EAC, the analysis has pointed to a number of key constraints to industrial competitiveness. It also shown how countries have been dealing with them differently, and how this has driven them along different industrial development pathways. Kenya is the country in the region which has shown more significant investments and outcomes in education (beyond primary). At the same time, however, less emphasis has been given in Kenya to supporting the development of vocational training. The comparison between the Tanzanian and Ethiopian cases, in this respect, has stressed two fundamental challenges. First, the need for reforming skills training programmes and curricula to reduce the skills gap and mismatches. Second, the involvement of the private sector alongside vocational training institutions appears critical, especially considering the need for very sector-specific skills profile development and more production and technical training facilities. Public-private partnerships in this area could offer opportunities for aligning interests and resources towards more skills, better skills, and higher level skills.

While the supply of skills is important, the increasing demand for them is equally important. Demand for skills comes from the expansion and full utilisation of the existing production capacity, as well as the attraction of new domestic and foreign investments. These investments are critical to increase skilled workforce productivity and develop organisational capabilities in manufacturing industries. Tanzania followed by Kenya are the two countries which showed

the highest level of gross fixed capital formation. In particular, the mineral sector in Tanzania has attracted dramatic foreign direct investments attracted by rents capture opportunities.

The attraction of further investments in non-extractive sector becomes a key priority in the region, alongside supporting domestic investors willing to expand the manufacturing capacity and target the emerging regional market demand. This demand is today largely captured by importers introducing products in the region, even in areas where countries would have a natural comparative advantage. Making sure that this comparative advantage is properly exploited, both from a static and dynamic point of view, requires supporting industrial investments in the region and reducing various forms of unfair competition of imported and smuggled products. This calls for reforms and enforcements of tariff systems, as well as favouring access to land, long term finance and other industrial infrastructure.

In order to respond to global competition, increasing investments in technologies, product and process upgrading are also critical. In this respect, the limited public resources should be concentrated in applied research and various forms of specialised extension services. The coordination of these services and public technology intermediaries in the region – technology, extension and demonstration centres – could play a very important role, especially for those medium enterprises already able to compete in the domestic market, and operating as OEM or second tier suppliers in various sectoral value chains.

At early stages of industrialisation, technological upgrading is often mediated by technology acquisition via capital goods import. While some of these imports are already favoured via tax incentives and exemptions, these should become smarter and target key related inputs such as spare parts, maintenance equipment, production and infratechnologies. The access to these technologies and their domestic adaptation and deployment are expensive and risky processes. The introduction of dedicated policies – long term finance, matching grants, ex post rewarding schemes – would encourage private investors, and partially de-risk their technological efforts. The management of these different financial support instruments would also require the potential development of regional level financial institutions specialised in industrial financing.

CHAPTER F: POLICY RECOMMENDATIONS

The findings from the report, as summarized above, call for increased efforts to boost industrial development in the region, particularly through the design and implementation of well-ground strategies and action plans, in order to achieve, or come close to, the EAC's industrialisation objectives at both regional and Partner State level. This chapter starts by illustrating four main policy recommendations stemming from the analysis to boost manufacturing as a whole; it then offers sector specific recommendations on cotton and leather (analysed in Chapter D). The final subsection dwells on the importance of industrialisation per se ranking as top national priority accompanied by a solid M&E system to ensure efforts in this direction can result in long-term impact on industrialisation and structural change.

F1 MAIN POLICY RECOMMENDATIONS

The report presents a wealth of evidence on the development of the manufacturing sector since the turn of the century. This subsection extracts the key findings and offers relevant and concrete policy recommendations. These are summarised in four groups:

1. Exploiting the opportunities offered by the dynamic EAC market
2. Diversifying and upgrading through realistic, well-defined and comprehensive strategies
3. Strengthening of forward and backward linkages to boost industrial and overall economic growth
4. Supporting the development of key industrial drivers to boost industrial production and exports

1. Exploiting the opportunities in the dynamic EAC market:

The EAC has a significantly larger capacity to produce manufactured goods than to export them (69 USD per capita and 38 USD per capita in 2015/2014 respectively). At the same time, the EAC provides a very dynamic market where demand for manufactured goods is growing annually at 16 %, and at double digits for all the 20 most demanded manufactured products of the region. The report explains that a fast-growing market increases the possibility of enlarging production scale. Currently, the EAC Partner States are together losing market share of manufactured goods from over 9% in 2010 to below 6% in 2014. Some of the products for which EAC provides plenty of opportunities given their dynamic demand trends are: fixed

vegetable oils, medicaments and pharmaceuticals, iron and steel products, fertilisers, cement, cotton apparel, leather footwear and heavy petroleum. Other attractive product groups to export to the region should be identified and all examined in more detail.

The region is also an important market for medium and high tech products, providing a better playing field for EAC firms to export this high-value added type of products compared to other markets (the analysis in Chapter C has shown that four of the five EAC Partner States export a higher share of MHT products to the EAC than elsewhere). Moreover, the fast growth in demand for a number of MHT products suggests firms' efforts to do so are indeed worthwhile. More analysis on the market for products of interest should be undertaken to learn about current opportunities.

a) **Further measures to ease intra-regional trade would benefit exporters and potential future exporters:** A number of interventions have already been put in place to reduce trade barriers across the EAC, such as the implementation of the Common Market Protocol, transport corridors, implementation of one-stop border posts, monitoring of NTBs, harmonisation of standards, single customs territory, a harmonised Export Promotion Platforms, common external tariffs, authorised economic operator and an e-single window for monitoring trade. Nonetheless, more can still be done, such as further reducing these TBTs and NTBs, improving road and rail infrastructure, cutting red tape and harmonising procedures, in order to incentivise firms to increase exports, or start exporting within the region. Box 3.4 in Chapter C provides some information on SADC's efforts to reduce trade barriers for reference. Currently some of the more specific recommendations for the EAC are the following, though these are by no means exclusive:

   i. To ensure better coordination of policy instruments across the region in order to enhance intra-regional trade (including in regard to CET).

   ii. To improve business environment instruments for the identified key sectors, including but not limited to, serviced industrial land (as in Vietnam or South Africa), investment promotion tools, phasing out of second-hand clothes trade.

   iii. To produce a further study for an EAC market recapturing strategy, which goes into significantly more in-depth analysis than the work undertaken in Chapter C and D of this report.

b) **Provide market information highlighting demand trends and opportunities:** Publishing regular information on demand trends across the region, together with updates on measures undertaken to further ease trade will ensure firms are aware of the opportunities to find end markets and/or link up with other enterprises in the region, thus increasing intra-

regional trade in manufactured goods, developing regional value chains and strengthening the EAC manufacturing base.

2. Diversifying and upgrading through realistic, well-defined and comprehensive strategies

Analysis in this report has shown that the pace of both manufacturing production and exports have slowed down since 2010. In the most recent years, manufacturing only accounted for 8.4% of GDP and 45% of manufactured exports, making the region vulnerable to fluctuations in demand and commodity prices. Furthermore, the trend in terms of the composition of GDP and exports is one which is currently moving away from the manufacturing sector, weakening its role as the backbone of the economy.

In addition to this, the region's manufactured exports are dominated by resource-based products especially agro-processing, metals and petroleum, which are also heavily influenced by global pricing. The negative effects from this have just been witnessed in the region, where the main reason for the significant drop in export growth was the plummeting of manganese ores/concentrates, heavy petroleum and copper waste/scrap. Resource-based and low-tech products still account for 78 % of EAC's manufactured exports. Strategically increasing the production and exports of medium and high tech products in the medium to long-run so as to enlarge their share in the manufacturing sector will boost the region's competitiveness and ensure it is on a sustainable growth path. The report therefore proposes three policy recommendations:

a) Upgrading within sectors/value chains primarily to increase manufacturing production and trigger structural change

The short term strategy should focus on upgrading within sectors/value chains, that is, undertaking processing activities to add value to agricultural products or goods with currently low prices. The report analysed in particular the cotton and leather value chains, suggesting to move from the production and exports of mainly unprocessed materials (raw cotton/hides and skins) to cotton yarn and apparel and leather footwear, where demand is high and fast-growing, particularly within the EAC. However, such analysis, and more in-depth studies should be done for other value chains as well. Upgrading within sectors where the region is already manufacturing products is also necessary to capture more value of the products within the region's borders, reduce vulnerability and move into more complex production processes creating also positive spill-over effects in terms of innovation and technology. The fast-growing demand for such products within the region is expected to entice firms to move into the production of higher value added goods, and this should be supported by further efforts to ease intra-regional trade. More policy coherence across the Partner States will strengthen joint efforts and benefit all countries, for example, for infrastructure development and imports of capital goods or technology.

b) **Shifting focus towards products with higher technological content and sophistication of production to reduce vulnerability and support industrial growth in the medium to long-term:** While three of the six priority sectors in the EAC Industrialisation Policy and Strategy are classified as medium and high tech (fertilisers and agrochemicals, pharmaceuticals, and energy and bio-fuels), the growth of these sectors since 2010 (2% vs. 5% of the whole manufacturing sector) was below average. This means that despite their prioritiation, the share of medium and high tech goods has been contracting. The EAC is still focusing more on sectors in which it has a comparative advantage, and by doing so it also hopes to be able to absorb a bigger workforce into the manufacturing sector. However, while these light-manufacturing sectors should indeed continue to grow, countries will generally aspire to restructure their export baskets towards an increased share of medium and high tech sectors in the long-run to ensure industrial competitiveness continues as countries develop further.

Developing medium and high tech sectors is not something countries can do overnight. In fact, economies that have done so successfully had forward looking plans to ensure a holistic set of capabilities and drivers were in place to enable firms to become competitive in such sectors. This requires significant government planning and intervention. While this can be done more effectively at national level, coordinating efforts at regional level could further enhance synergies and impact across EAC Partner States.

c) **Diversifying production to reduce vulnerability of the sector:**

The EAC experienced a strong reduction in the growth of exports since 2010, which was largely due to the contraction of three exports: Manganese ore/concentrate, heavy petroleum and copper waste and scrap, each declining between -29% and -74% annually during this period. This is an example of how vulnerable an economy can be if there is strong dependence on few export products. Relying on extractives can be particularly risky as prices and demand can fluctuate severely. The report also noted that some countries in the EAC have a less diversified export basket than others, these being mainly Rwanda and Burundi. While it is common that smaller countries find it more difficult to expand the production range, doing so will considerably strengthen their manufacturing sector.

In order to successfully upgrade and diversify, the EAC at regional level and each Partner State should:

i. Take into consideration short, medium and long term goals for industrial development separately, and select priority sectors, strategies and interventions accordingly

ii. (Re-)Assess the priority sectors identified in key policy and strategy documents, to ensure these are in line with current national/regional priorities and respond to global/regional/national dynamics

iii. Carry out detailed sectoral analysis which comprises quantitative as well as qualitative information on performance, key constraints and markets for evidence-based decision-making

iv. Develop and review sectoral strategies which have a comprehensive M&E system

3. Strengthening of forward and backward linkages to boost industrial and overall economic growth

The manufacturing sectors in the EAC are largely disconnected from any other sector in the economy. Chapter B of the report noted that, on average, only 22% of backward and 16% of forward linkages came from manufacturing sectors (although these represented 50% of sectors observed), compared to Vietnam, which has shares of 40% and 27% respectively. The sectors with the strongest linkages among the manufactured ones were food, beverages and tobacco. This means that in the EAC manufacturing (with the exception of food, beverages and tobacco) is not able to generate the broader economic benefits expected from the manufacturing sector, mainly by creating demand and indirect employment in the primary and service sectors and driving innovation and technological advances. Furthermore, the lack of linkages is also significant within the manufacturing sector itself. In order to create a positive spiral where sectors of the economy reinforce one another, particular effort to strengthen linkages will need to be made. This will be important to increase earnings and create new employment opportunities across a range of sectors. Furthermore, the region could do more in terms of leveraging on the rich natural resources of the region to support economic transformation without jeopardising diversification. To give an example, natural gas, nickel, uranium, steel and soda ash can drive the development of engineering, chemicals sector, and construction and building materials. The policy recommendations to tackle the lack of linkages are as follows:

a) **Increase capacities of local suppliers** to provide the products required by larger (exporting) firms in terms of product type, quality, quantity, price and reliability. Suppliers will require support in tackling their key constraints, which can range from access to finance, requiring skills development and technology upgrading to better infrastructure or simply the matching of firms to one another. Many such projects already exist, such as UNIDO's Subcontracting Partnership Exchange (SPX) programme (a supplier development programme), which profiles enterprises and supports suppliers to upgrade, however, given the low levels of linkages observed, efforts need to be stepped up further. Certain other

government interventions will be able to support the upscaling of MSMEs as well, where the development of clusters is a common approach to help small enterprises overcome the constraints which are more specific to their size. For this, the 'one village one product' notion can be encouraged, which will additionally have a positive impact on regional industrial balance within the Partner States. However, there is a wide range of options to be explored in this regard.

b) **Increase local content by putting in place local content policies/ preferential procurement schemes:** Increasing local content has been a priority for the region for some time. In fact, in the EAC Industrialisation Policy measures the share of local value added content in manufactured exports. Currently the EAC is discussing the drafting of a regional local content policy. Such a policy would support strengthening linkages between the different sectors, particularly the manufacturing and primary sectors. Preferential procurement schemes would also be beneficial, such as currently in place in Kenya and there would be the need to ensure these are harmonised across the region. Whether a local content policy or preferential procurement schemes, it is necessary to ensure that (potential) suppliers are able to meet the required demands. If this is not the case, such policy instruments could in fact hamper industrial growth.

4. Supporting the development of key industrial drivers to boost industrial production and exports

a) **Skills for industry:** The EAC region is characterised by a lack of adequate skills and skills demand and supply mismatches. Intervention is required at all levels of schooling as well as post-secondary education relevant for industry.

i. **Improving basic education:** Education is still a key constraint for the EAC region generally, with secondary enrolment being around 30% and expenditure on education relatively low for most Partner States, as the evidence in the report shows (4% of GDP on average). Quality of education at the primary and secondary level are key to developing a future of critical and creative thinkers and developers. Primary and secondary schools produce the workforce of the future, whether or not students decide to go into further education and it is therefore strongly advised to increase government spending on this. Clearly there are variations between the Partner States and this will be more relevant for some than for others.

ii. **Supporting TVET and universities produce more valuable skills for industry**: Although Tanzania and Rwanda in particular have been focusing on developing the TVET system in their respective countries (which can also be seen in the

data), the region needs to continue putting emphasis on supporting specialised institutions and courses which develop skills required in the industrial sector. In the EAC, Rwanda is the highest performer with 8 vocational students per 1,000 enrolled in secondary. Such institutions need to grow in size and quality, producing a larger pool of highly skilled and specialised workers. They should be supported financially, particularly in order to allow them to update curriculum and equipment (both often stated as major problems). A key constraint is the large disconnect between training institutions and industrial players, resulting in a large skills mismatch in terms of supply and demand. Interaction between authorities in education and training with the private sector is crucial for the design of the training curricula, as well as to deliver the trainings as well. Curricula is often outdated due to the fast-changing nature of the sector. Lastly, a critical review for vocational training authorities' legal framework will be required to ensure a high quality of capacity development is offered.

iii. **At regional level, the EAC should harmonise qualifications across the region so that these are recognised and should enhance the flow of skills where they are currently lacking**. Additionally, the EAC should take deliberate actions to promote courses to address skills shortage areas including mid- and high-level trained engineers and scientists.

b) **Investment incentives:** Incentives and other interventions to promote both foreign and domestic investments is one commonly used strategy to foster industrialisation, especially for countries that still cannot rely heavily on their own R&D. The report has seen that GFCF has been growing steadily since 2000, most countries having shares of above SSA average, reaching between 22% and 34% of GDP in 2014, although shares of private investments in fixed capital have been lower with increases observed in Tanzania and Burundi only. In terms of FDI net inflows little improvements can be seen in the region when taken as a share of GDP (with the exception of Rwanda), however, the share to which was directed to the manufacturing sector is unclear and due to the large extractive sectors in some Partner States such as Tanzania, may be significantly lower.

Factors which attract investment include labour skills, tax rates, infrastructure, access to SPZ or SEZs, in addition to friendly regulations, strong institutions and stable political situation. For effectiveness, it is recommended that the EAC should ensure incentives or interventions related to these should be time-bound and strictly linked to performance targets. Furthermore, as business opportunities are the main drivers of investment (both foreign and domestic), the EAC should accelerate its efforts to ease trade between Partner States, as the joint EAC market is large and fast-growing, making itself potentially very attractive for investors.

c) **Infrastructure:** There is high linkage between infrastructure and industrial development, thus there is need to strengthen the collaboration and cooperation between the ministry responsible for infrastructure and the ministry of industrialisation. The development of infrastructure projects at country level is severely constrained by the lack of properly prepared and packaged projects up to bankable level to enable them to be marketed for development through Public Private Partnerships or the private sector. Remembering that one of the key advantages of forming RECs is to be able to develop infrastructure projects which Partner States on their own would not have the resources to do, efforts should be strengthened particularly at regional level in this regard, and a special fund should be set up to support and facilitate adequate project preparation and development, to attract investment for these.

d) **Technology and Innovation:** Research and innovation are key to sustained industrial growth, to move past the initial successful stages which are often largely the result of FDI. It enables greater product diversification and competitiveness in the long-run. In the EAC, R&D is still weak. Gross expenditure on R&D per capita lies between 1 USD and 7 USD for most countries, while Kenya's was above 14 USD. The governments should direct more of the limited public resources to applied research and raise expenditure on R&D. Support in developing and making more effective industrial research and technology development centres and incubator services is important, and this will attract FDI inflows as well. Policy coherence in this regard is crucial across the EAC as well, in order to share efforts and benefit from economies of scale where possible. Strong collaboration between researchers across the region should be further encouraged.

e) **Industrial Financing:** Efficient and well-functioning financial systems are crucial in channelling funds to the most productive uses. Easing access to financial services remains a major challenge in the EAC, where all countries with the exception of Kenya perform well below SSA average (domestic credit to private sector by banks was roughly 30% of GDP for SSA average, 35% for Kenya and 15% for the rest of EAC). In general, manufacturing firms require long-term financing options, which financial institutions normally are less willing to offer. Banks should be incentivised to provide such firms with the type of financial support necessary for production. Similarly, SMEs in the manufacturing sector will again have specific needs which should be addressed, in order to foster a dynamic industrial sector.

Alleviating firms of some of the financial burden they are encumbered with will also need to be done directly though the government. Financial support can be provided in various ways such as well-designed matching grant schemes, ex-post rewarding schemes, among others. This will encourage more private investors.

f) **Energy:** The report finds that access to electricity is not only low (roughly between 6% and 23% of the population) but also growing slowly. Data from Kenya and Tanzania, if representative for the region, suggest that electric power consumption per capita is almost four times higher in SSA on average than in the EAC (488 kWh and 128.5 kWh respectively in 2013). As the industrial sector heavily relies on a constant supply of it, the key priority should remain to increase access to electricity where the reduction of energy costs is crucial. Regional efforts in this regard are crucial, such as the recently inaugurated Centre of Excellence for Renewable Energy and Energy Efficiency (EACREEE) in Kampala.

g) **Capital good imports:** Capital good imports are critical for countries at early stages of their industrialisation process, as locally developed technology is still weak or inexistent. In the EAC, however, increases of these have been very modest, especially if compared to Ethiopia. Capital goods imported made up roughly 0.005% of GDP in the EAC in 2014 for four Partner States excluding Kenya (where data is missing but values of previous years suggest it is higher), while that of Ethiopia is roughly 0.014%. Strategically easing access to a selected set of capital goods and inputs required for production, without hampering sales of local/regional producers, is therefore recommended.

F2 SECTOR-SPECIFIC POLICY RECOMMENDATIONS – COTTON AND LEATHER

Chapter D of the report carried an in-depth analysis of two key sectors: cotton apparel and leather. Policy recommendations related to these findings are presented below:

1. Cotton apparel value chain: The EAC should focus on upgrading its production and exports from raw, carded or combed cotton, to cotton yarn and apparel in particular.

The EAC is still focusing on the exports of cotton with little to no value addition (roughly 80% of all cotton-related exports). Exporting products that have undergone more processing will result in higher revenues. Furthermore, the EAC's fast growing demand for cotton apparel (18.5% annual growth), and apparel (8% annually), is not being exploited sufficiently by local producers. Instead, firms from other countries are taking away EAC's modest market share. When considering the large demand for second-hand clothing in the region, the potential market becomes even larger. It would hence be beneficial for suppliers from within the region to undertake more processing activities and produce cotton apparel. By doing so, they should be able to exploit and

cater for EAC's own vibrant demand. Simultaneously, it would make sense for some firms to engage in the production of cotton yarn, which does not require the same extent of processing as apparel. This can be exported to economies with high and fast growing demand outside the region, particularly East Asia, as well as within the EAC, and producers can still enjoy significantly higher prices than the exports of raw or carded/combed cotton. It is also expected that the production of cotton apparel will create demand for cotton yarn, textiles and other forms and materials used as inputs.

Due to the high competitiveness within this sector coming from outside the region, and the fact that the industry is still at a very young stage within the EAC, it will be necessary to provide substantial support to firms which operate within the cotton sector. They will require assistance in developing the necessary capacities, having access to the required inputs and having a conducive business environment to embark on a path of increasing competitiveness and cater for the regional demand for apparel. Among other points, it is advised to consider reviewing the CET on cotton related products as well as the CET structure to ensure they support the regional firms which produce cotton products ranging from cotton yarn to apparel.

a) Focus on attractive markets, while ensuring some level of market diversity

i. **Apparel:** The EAC should prioritise meeting the demand of its own regional market, as it is fast growing. EAC imports from the US, South Africa and Lesotho should be examined to better understand how they are achieving to capture large shares of the market. The US, for example, has increased its market share by more than 20 percentage points between 2008 and 2014. Expanding to other SSA and MENA countries will also make sense, as they too have a dynamic demand. Additionally, they are more accessible to EAC firms than markets further away. Ensuring some level of market diversification will reduce the risk of supplying predominantly to markets which are already saturated, such as North America.

ii. **Yarn:** Those firms not yet able to produce apparel and to engage in the processing of cotton yarn should continue relying on the East Asian market, where demand is very large and growing fast, and where the EAC has already established trading partners. Stepping into new markets, for example within the EAC or in other SSA countries where demand is growing would reduce the dependence on a single region and increase stability of exports

Furthermore, certain trade agreements and trends between countries or the EAC and individual countries should be assessed to understand the impact of trade agreements. The AGOA is to be pointed out here, where it seems the US is benefiting largely from the EAC market for cotton apparel, while the EAC is losing share in the overseas market.

b) **Develop a coherent regional strategy/policy on the cotton, textiles and apparels value chain:** The rapid development and transformation of the CTA sector in line with the Summit directive will require a streamlined and coherent region-wide approach that complements national efforts. In this regard it is proposed that a Regional CTA strategy/policy be prepared to enable coordinated development of the sector. EAC can draw lessons from other RECs such as COMESA which has developed a comprehensive regional strategy. Lack of policy focus and prioritisation of resources towards the development of cotton, textiles and apparels industry at national level partly explains the challenges the industry faced especially during the trade liberalisation period. In recent times, Partner States have sometimes taken policy actions which had adverse effects on the operation of the Customs Union or Common Market protocols. These include restrictions on raw materials, exemptions to application of CET on finished leather as well as non-harmonised positions with regard to importation of used clothes.

2. Leather value chain: The region should develop the leather footwear sector in order to exploit market opportunities and higher prices and diversify into other related finished leather products.

Within the region, the share of manufactured leather products exported of all leather-related products declined from the 9% in 2008 to 3% in 2014. The region needs to reverse this trend and strategically increase the share of manufactured leather goods in order to generate higher export earnings, create more employment opportunities and reduce the trade balance of finished leather products. The leather footwear sector has proven to be the most attractive to do so, as it has the highest regional demand of all leather-related products and one which has been growing fast. Additionally, trunks and suitcases have a very dynamic global demand as well as high unit prices, and it may therefore be interesting to understand why EAC exports of these have declined sharply since 2008.

a) **Focus on the EAC market for leather footwear, while continuing to diversify into other markets as well.** As earlier mentioned, the EAC has a very large

and dynamic market for footwear, including for leather footwear. Focusing on exporting such products within the EAC will allow firms to benefit from these opportunities. In fact, the region has already been able to increase market share in its own market from 4% to 7% between 2008 and 2014, indicating there is significant potential to continue being competitive in these countries. The thrust of intervention should aim at eliminating the distortions in the domestic footwear market created by cheap used footwear, smuggled imported footwear, and cheap non-leather shoes. These distortions create disincentives to invest in footwear manufacturing.

In order to diversify the export market, the EAC should simultaneously continue looking into other countries as potential markets. The large and dynamic demand in the majority of the regions (exceptions being Europe and to a lesser extent North America) offer great opportunities for EAC firms.

b) **Establish a regional leather and footwear platform.** The EAC should facilitate the establishment of a regional platform to promote dialogue and interactions among public, private sector and development partners on policy matters in the sector, as well as promote business partnerships, and information and knowledge exchange.

F3 ENSURING INDUSTRIALISATION AS A TOP PRIORITY WITH OWNERSHIP AT HIGHEST POLITICAL LEVEL AND A SOLID, WELL-FUNCTIONING M&E

Efforts to industrialise, such as those mentioned above and any others will have limited impact on long-term structural change and industrialisation if such an agenda is not driven from the highest political level. Additionally, a well-designed and implemented M&E and reporting system will help guide the efforts in the desired direction.

1. Ensuring industrialisation as a regional and national priority

Notwithstanding considerable efforts to boost the industrial sector, and some periods of accelerated production and export growth, recent trends indicate the latter has been slowing down and where growth has been registered it has not been at the desired pace as reflected in main EAC industrialisation strategies and plans. MVA growth (annually 4.6% between 2010 and 2015) is now below the SSA average and manufactured export capacity increased by a mere 1.7% per annum since 2010 (annual growth was 22.5% and 11.6% between 2000-

2005 and 2005-2010 respectively). Furthermore, there is no sign of structural change towards manufacturing, which is a key objective of the region but rather a contraction of the share of manufacturing in both GDP and total exports particularly since 2010 (now at 8.4% and 45% respectively). While policy recommendations were made above to support the growth of the sector, this may not suffice.

Experience has shown that successful industrial development has most commonly taken place when industrialisation became a national priority, and when the industrial policy was under the ownership of the highest political level (i.e. Head of State). This ensures oversight, coordination and accountability from the very top, allowing for stern monitoring and evaluation to take place, ensuring the different institutions in question are focused to achieving the same goals and reducing policy incoherence or inter-institutional competition (Rodrik, 2004). The successful cases of economic development in East Asian countries are said to be largely due to the prioritisation of industrial policy in such a way (Lall, 2003). Other more recent examples where industrialisation became top priority are Vietnam and Ethiopia. This does not mean that other important priorities (e.g. FDI, infrastructure, energy, TVET), will be dropped; rather the latter will be better aligned and coordinated around the same objective. Together with this, institutions should have clearly defined mandates, with one overarching institution for coordination. In Singapore, for example, the Economic Development Bank had the role of managing all activities related to industrial development and FDI. For this reason, it was also provided with the adequate resources to hire qualified and well-remunerated staff (Lall, 2003).

a) **Industrialisation to be EAC's priority at regional and national levels with ownership and leadership from the highest political level.** In the case of Tanzania, the Five Year Development Plan 2016/17-2020-21 has put industrial development at the forefront. The same would be desirable at the EAC regional level and in the other Partner States.

   Ensuring industrialisation is also a top priority at the regional level can further enhance the effectiveness and impact of industrial development-related policies from each Partner State, as combining efforts can bring synergies in terms of economies of scale, market access, R&D, attracting investment and increasing access to energy, to name a few.

   The EAC Industrialisation Policy and Strategy and the 4th EAC Development Strategy and Vision 2050 recognise industrial development as being one of the priorities of the region and recently there is more awareness about the need to focus on industrialisation. The 16th Summit of Heads of State directed the East African Community Council of Ministers to study the modalities for the promotion of textiles and leather industries in the region as well as mechanisms for stopping the importation of used clothes, shoes, and other leather products from outside the region and report to the 17th Summit.

   The increasing evidence of political will as reflected in the communiques and other statements, should now be reflected in the main EAC development documents and

plans and this should lead to a better realignment between trade/customs development instruments and the industrial development policy. Industrial development interests should be safeguarded in ongoing negotiations in local and international levels. This should then be mainstreamed in the national development plans and policies.

Furthermore, for successful implementation of the EAC Industrialisation Policy a supporting legal and regulatory framework should be adopted, such as the EAC Industrialisation Bill, including a structure for enforcement.

b) **Policies and related documents, and policy instruments should be aligned to achieving the industrialisation objectives.** While different policies are in place in each Partner State, coherence among these can be strengthened, both within and between Partner States. There is a need to take stock of existing policies, sectoral plans and instruments to assess the extent to which they are aligned and reinforce each other, or in fact are in conflict with one another. This will contribute largely to an effective review process of relevant policies and will significantly help shape effective action plans with well-defined and implementable instruments. Clearly, this process comes more naturally when industrialisation is the regional/national priority. As part of EAC/UNIDO's project on ***Strengthening Institutional Capacities for Industrial Policy*** there is an initial effort to map current policy instruments to provide transparency on what is currently being implemented. This is executed in the form of a pilot activity only at present, and if successful, should be scaled up.

c) **Each institution working towards industrialisation should have sufficient well-skilled and motivated staff and a clearly defined mandate.** A clear coordination structure should be identified, including the leading role. In general, existing institutions working towards industrial development should be strengthened. The EAC would benefit from putting in place a directorate of industrialisation, which should work closely with related ministries, departments and sectors, such as the currently existing directorate of trade and customs, and with a range of others as well. EAC should also establish a sectoral council of industrialisation to fast-track the developments of this sector.

d) **Budget allocation should reflect the prioritisation of industrial development.** The vision of EAC Partner States is to reach middle-income status through industrialisation. Adequate financial resources should therefore be allocated to implement the EAC Industrialisation Action Plan. For example, the annual budget for industrial development is usually set at about US $ 1,000,000. However, for the Financial Year 2014/2015 the approved budget was only US $377,950, to which development partners contributed US $307,500; while for the Financial Year 2015/2016 the approved budget was US

$324,175, and the same contribution figures from development partners stood at US $272,375. East Asian countries at a similar industrial development stage ensured to build their own capacities through their own resources. It would be ideal to reduce dependence on donors and fund the EAC Industrialisation Action Plan more from Partner States' resources.

Moreover, implementation of policies programmes and initiatives is weak at country and EAC levels on account of inadequate resource commitments. In order to increase support for interventions necessary for the promotion of industrial development in the EAC it is critical to establish time-bound targets for achieving a 10 per cent of government budgetary allocation to industrial development—similar to the CAADP framework for funding agriculture.

e) **Involvement of the private sector is key in the process.** There seems to already be a strong collaboration between the public and private sector in industrial development efforts in the region[34]. Nonetheless, enhancing this, and ensuring that the voice of the private sector is heard for sectoral strategies, and during the implementation of policy instruments will be important to the future of the industrialisation process. Strengthening the manufacturing associations of Partner States and, if identified as necessary, establishing sectoral associations at regional level would support advocacy and enhance the development efforts of priority sectors.

2. M&E as a tool to steer and accelerate industrial development together with the regular production of analytical outputs

The low growth rates of MVA and manufactured exports, the lack of structural change towards manufacturing and the large disconnect between the manufacturing sectors and others puts even more pressure on the need to set up a well-functioning monitoring and evaluation system which should guide the process of rebuilding momentum in the manufacturing sector. As one quote goes: "If you cannot measure it, you cannot improve it."[35]. Having constantly updated, unbiased, quantitative information on different aspects of the industrial sector will allow policy-makers and practitioners to make decisions based on evidence at any point. This is relevant at each stage of the policy cycle.

The monitoring exercises should act as a feedback mechanism to the policy process. The assessment of progress should induce the consideration of making adjustments to the implementation of policies as needed, in order to constantly keep the economy on track to reaching its targets. This information then becomes indispensable for the design of the next policy or related document. Monitoring should be done at macro as well as sector level (e.g. textiles, pharmaceuticals), and the production of analytical outputs on manufacturing will provide more information to help steer the sector in the desired direction.

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[34] As identified in the Needs Assessment of the EAC/UNIDO project on Strengthening Institutional Capacity for Industrial Policy.

[35] Sir William Thomso

a) **A set of harmonised indicators to regularly monitor industrial performance across the region.** In order for the EAC to be able to track industrial developments of the region as a whole and of Partner States, a harmonised set of indicators will be used across the region and throughout the years. The EAC/UNIDO project on Strengthening Institutional Capacities for Industrial Policy has developed the list of indicators which was validated by the EAC Secretariat and all Partner States in 2016, and can be found in Annex 3. A strategy needs to be put in place on who is responsible to monitor and report on these at regular intervals and how this information will be disseminated. Furthermore, there is need for the promotion of the harmonised indicators.

b) **Monitoring the implementation of policy measures and assessing sectoral performance, with a view to adjusting interventions in order to endeavour to meet the set targets.** While monitoring of activities is done to some extent by most Partner States, it tends not to be done regularly or frequently and does not adequately result in the required adjustments of interventions or shift of focus throughout the policy cycle[36]. It is advised for the EAC Secretariat to provide Partner States with guidelines on the interval in which implementation should be monitored. In addition to this, there should be a broad understanding of how activities are expected to influence different performance indicators. Sector level performance should be measured in order to track to the extent possible the impact of policy instruments on a sector's performance (e.g. provide technical assistance to SMEs in the textiles sector to boost production of apparel: Track MVA or Output of the apparel sector throughout the years).

c) **Regularly (biennially) produce analytical outputs to provide comprehensive and demand-driven information to decision-makers.** In addition to M&E exercises, regular production of quantitative analysis is required to guide policymakers as well as practitioners. As done in chapters B and C of this report, benchmarking exercises provide a comparative perspective on the industrial development trends of the economy and will help decision-makers in selecting priorities and setting realistic targets. Analytical outputs can be in the form of industrial competitiveness reports similar to this one, which are produced annually or biennially, or it can take the shape of shorter reports on specific topics or sectors (e.g. on FDI, the apparel sector and monitoring of second hand clothing imports, market opportunities), policy and market briefs or value chain studies, to name some examples.

[36]As observed in the Needs Assessment of the EAC/UNIDO project on Strengthening Institutional Capacities for Industrial Policy

The EAC ICR 2017 is an example of what can be produced within and for the region. It is the first such report that was drafted jointly by staff from the EAC Secretariat and all Partner States. As Partner States are all unique to one another and are undergoing different development trajectories, it is strongly advised that each Partner State regularly produces its own reports. Additionally, the EAC Secretariat should complement the work of the Partner States by producing additional studies/reports at regional level.

d) **Improved data availability and harmonisation of collection and reporting methods across the region.** In order to carry out sound M&E and produce quantitative analysis, reliable data needs to be available, as well as skilled staff to undertake M&E exercises and draft analytical outputs.

The report relies significantly on trade data. Statistics on production trends at sectoral level would have added a wealth of information key for policy making or adjustment. Having full sets of other related indicators would further shape decision-makers and practitioners picture of the sector. Countries should continue learning from one another. Tanzania, for example, now regularly produces the Annual Surveys of Industrial Production and recently updated its industrial census.

Data between the two is currently being merged and it is possible to obtain information on a range of indicators by sub-sector, firm size and region.

An observatory at regional level which houses all relevant data to measure different aspects of the industrial sector is necessary to increase coherence and efficiency. The EAC already has an online regional data portal which is publicly available. In this case it would be most effective to expand this data portal to include – at the very least -- the data required to monitor the set of harmonised performance indicators which were validated. The management and updating of this data portal needs to be well spelt out to ensure its relevance and sustainability.

Lastly, staff assigned to undertaking monitoring exercises and to producing analytical work should be well-skilled for this task and their work recognised within the institution.

SUGGESTIONS FOR FURTHER ANALYSIS

The EAC ICR attempts to present an overview of analysis regarding the industrial performance of the EAC. It looks at a range of issues and covers a set of topics, from MVA and manufactured export performance at regional and national level, to trends of the EAC regional market and market opportunities, industrial drivers and analysis on attractive products and markets in the cotton apparel and leather sectors. Nonetheless, further analysis will be beneficial to policymakers, the private sector and others working on industrialisation. The report therefore suggests additional and more in depth analysis to be carried out on key issues currently being

discussed in the region. The list of topics below is by no means exhaustive and these are suggestions only, deriving from the findings of this report. The output of such work can be published in different forms such as a report, policy or market briefs, studies or others:

- Issues on forward and backward linkages of manufacturing sectors to the local economy;
- Measuring intra-regional trade, a comparison of trends ex-ante and ex-post of EAC formation;
- Further analysis on production at sub-sector level, subject to data availability;
- Lessons learnt from study tours to Ethiopia, Vietnam and other comparators of interest;
- Market analysis on key markets for Partner States, such as DRC and others in and outside Sub-Saharan Africa;
- Sectoral analysis on key sectors, in particular:
    - Edible oils (veg oil)
    - Automobile
    - construction material
    - Pharmaceuticals
    - Iron and steel

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ANNEXES

ANNEX 1: TECHNOLOGICAL CLASSIFICATION OF EXPORTS USING THE STANDARD INTERNATIONAL TRADE CLASSIFICATION (SITC) THREE DIGITS, REVISION 3

TECHNOLOGY CLASSIFICATION PRIMARY PRODUCTS		
	Product Code	**Product Name**
A	001	Live animals except fish
A	011	Beef, fresh/chilld/frozn
A	012	Meat nes,fresh/chld/froz
A	022	Milk pr exc buttr/cheese
A	025	Eggs, albumin
A	034	Fish,live/frsh/chld/froz
A	036	Crustaceans molluscs etc
A	041	Wheat/meslin
A	042	Rice
A	043	Barley grain
A	044	Maize except sweet corn.
A	045	Cereal grains nes
A	054	Vegetables,frsh/chld/frz
A	057	Fruit/nuts, fresh/dried
A	071	Coffee/coffee substitute
A	072	Cocoa
A	074	Tea and mate
A	075	Spices
A	081	Animal feed ex unml cer.
A	121	Tobacco, raw and wastes
A	211	Hide/skin (ex fur) raw
A	212	Furskins/pieces, raw
A	222	Oil seeds etc - soft oil
A	223	Oil seeds-not soft oil
A	231	Natural rubber/latex/etc

TECHNOLOGY CLASSIFICATION PRIMARY PRODUCTS		
	Product Code	**Product Name**
A	244	Cork natural/raw/waste
A	245	Fuel wood/wood charcoal
A	246	Wood chips/waste
A	261	Silk
A	263	Cotton
A	268	Wool/animal hair
A	269	Worn clothing etc
A	272	Fertilizers crude
A	273	Stone/sand/gravel
A	274	Sulphur/unroastd pyrites
A	277	Natural abrasives n.e.s.
A	278	Other crude minerals
A	291	Crude animal mterial nes
A	292	Crude veg materials nes
A	321	Coal non-agglomerated
A	325	Coke/semi-coke/retort c
A	333	Petrol./bitum. oil,crude
A	343	Natural gas
A	681	Silver/platinum etc
A	682	Copper
A	683	Nickel
A	684	Aluminium
A	685	Lead
A	686	Zinc
A	687	Tin

TECHNOLOGY CLASSIFICATION RESOURCE BASED		
	Product Code	Product Name
B	016	Meat/offal preserved
B	017	Meat/offal presvd n.e.s
B	023	Butter and cheese
B	024	Cheese and curd
B	035	Fish,dried/salted/smoked
B	037	Fish/shellfish,prep/pres
B	046	Flour/meal wheat/meslin
B	047	Cereal meal/flour n.e.s
B	048	Cereal etc flour/starch
B	056	Veg root/tuber prep/pres
B	058	Fruit presvd/fruit preps
B	059	Fruit/veg juices
B	061	Sugar/mollasses/honey
B	062	Sugar confectionery
B	073	Chocolate/cocoa preps
B	091	Margarine/shortening
B	098	Edible products n.e.s.
B	111	Beverage non-alcohol nes
B	112	Alcoholic beverages
B	122	Tobacco, manufactured
B	232	Rubber synth/waste/etc
B	247	Wood in rough/squared
B	248	Wood simply worked
B	251	Pulp and waste paper
B	264	Jute/bast fibre raw/retd
B	265	Veg text fibre ex cot/ju
C	281	Iron ore/concentrates
C	282	Ferrous waste/scrap
C	283	Copper ores/concentrates
C	284	Nickel ores/concs/etc
C	285	Aluminium ores/concs/etc
C	286	Uranium/thorium ore/conc
C	287	Base metal ore/conc nes
C	288	Nf base metal waste nes
C	289	Precious metal ore/conc.

TECHNOLOGY CLASSIFICATION RESOURCE BASED		
	Product Code	Product Name
C	322	Briquettes/lignite/peat
C	334	Heavy petrol/bitum oils
C	335	Residual petrol. prods
C	342	Liquid propane/butane
C	344	Petrol./hydrocarbon gas
C	345	Coal gas/water gas/etc
C	411	Animal oil/fat
B	421	Fixed veg oil/fat, soft
B	422	Fixed veg oils not soft
B	431	Animal/veg oils proces”d
C	511	Hydrocarbons/derivatives
C	514	Nitrogen function compds
C	515	Organo-inorganic compnds
C	516	Other organic compounds
C	522	Elements/oxides/hal salt
C	523	Metal salts of inorg acd
C	524	Other inorganic chemical
C	531	Synth org colour agents
C	532	Dyeing/tanning extracts
C	551	Essent.oil/perfume/flavr
C	592	Starches/glues/etc.
C	621	Materials of rubber
C	625	Rubber tyres/treads
C	629	Articles of rubber nes
C	633	Cork manufactures
C	634	Veneer/plywood/etc
C	635	Wood manufactures n.e.s.
C	641	Paper/paperboard
C	661	Lime/cement/constr mat”l
C	662	Clay/refractory material
C	663	Mineral manufactures nes
C	664	Glass
C	667	Pearls/precious stones
C	689	Misc non-ferr base metal

TECHNOLOGY CLASSIFICATION MEDIUM TECHNOLOGY		
	Product Code	Product Name
G	266	Synthetic spinning fibre
G	267	Man-made fibres nes/wast
G	512	Alcohols/phenols/derivs
G	513	Carboxylic acid compound
G	533	Pigments/paints/varnish
G	553	Perfume/toilet/cosmetics
G	554	Soaps/cleansers/polishes
G	562	Manufactured fertilizers
G	571	Primary ethylene polymer
G	572	Styrene primary polymers
G	573	Vinyl chloride etc polym
G	574	Polyacetals/polyesters..
G	575	Plastic nes-primary form
G	579	Plastic waste/scrap
G	581	Plastic tube/pipe/hose
G	582	Plastic sheets/film/etc
G	583	Monofilament rods/sticks
G	591	Household/garden chemcal
G	593	Explosives/pyrotechnics
G	597	Oil etc additives/fluids
G	598	Misc chemical prods nes
G	653	Man-made woven fabrics
G	671	Pig iron etc ferro alloy
G	672	Primary/prods iron/steel
G	678	Iron/steel wire
H	711	Steam generating boilers
H	712	Steam/vapour turbines
F	713	Internal combust engines
H	714	Engines non-electric nes
H	721	Agric machine ex tractr
H	722	Tractors
H	723	Civil engineering plant
H	724	Textile/leather machinry
H	725	Paper industry machinery
H	726	Printing industry machny
H	727	Food processing machines

TECHNOLOGY CLASSIFICATION MEDIUM TECHNOLOGY		
	Product Code	Product Name
H	728	Special indust machn nes
H	731	Mach-tools remove mtrial
H	733	Mtl m-tools w/o mtl-rmvl
H	735	Metal machine tool parts
H	737	Metalworking machine nes
H	741	Indust heat/cool equipmt
H	742	Pumps for liquids
H	743	Fans/filters/gas pumps
H	744	Mechanical handling equi
H	745	Non-electr machines nes
H	746	Ball/roller bearings
H	747	Taps/cocks/valves
H	748	Mech transmission equmnt
H	749	Non-elec parts/acc machn
H	761	Television receivers
H	762	Radio broadcast receiver
H	763	Sound/tv recorders etc
H	772	Electric circuit equipmt
H	773	Electrical distrib equip
H	775	Domestic equipment
H	778	Electrical equipment nes
F	781	Passenger cars etc
F	782	Goods/service vehicles
F	783	Road motor vehicles nes
F	784	Motor veh parts/access
F	785	Motorcycles/cycles/etc
G	786	Trailers/caravans/etc
G	791	Railway vehicles/equipmt
H	793	Ships/boats/etc
H	811	Prefabricated buildings
H	812	Sanitary/plumb/heat fixt
H	813	Lighting fixtures etc
H	872	Medical/etc instruments
H	873	Meters and counters nes
G	882	Photographic supplies
H	884	Optical fibres
H	885	Watches and clocks

TECHNOLOGY CLASSIFICATION LOW TECHNOLOGY		
	Product Code	**Product Name**
D	611	Leather
D	612	Leather manufactures
D	613	Furskins tanned/dressed
E	642	Cut paper/board/articles
D	651	Textile yarn
D	652	Cotton fabrics, woven
D	654	Woven textile fabric nes
D	655	Knit/crochet fabrics
D	656	Tulle/lace/embr/trim etc
D	657	Special yarns/fabrics
D	658	Made-up textile articles
D	659	Floor coverings etc.
E	665	Glassware
E	666	Pottery
E	673	Flat rolled iron/st prod
E	674	Rolled plated m-steel
E	675	Flat rolled alloy steel
E	676	Iron/steel bars/rods/etc
E	677	Iron/steel railway matl
E	679	Iron/steel pipe/tube/etc
E	691	Iron/stl/alum structures
E	692	Metal store/transpt cont
E	693	Wire prod exc ins electr
E	694	Nails/screws/nuts/bolts
E	695	Hand/machine tools
E	696	Cutlery
E	697	Base metal h"hold equipms
E	699	Base metal manufac nes
E	821	Furniture/stuff furnishg
D	831	Trunks and cases
D	841	Mens/boys wear, woven
D	842	Women/girl clothing wven
D	843	Men/boy wear knit/croch
D	844	Women/girl wear knit/cro
D	845	Articles of apparel nes
D	846	Clothing accessories
D	848	Headgear/non-text clothg
D	851	Footwear
E	893	Articles nes of plastics
E	894	Baby carr/toy/game/sport
E	895	Office/stationery supply
E	897	Jewellery
E	898	Musical instrums/records
E	899	Misc manuf articles nes

TECHNOLOGY CLASSIFICATION HIGH TECHNOLOGY		
	Product Code	**Product Name**
J	525	Radio-active etc matrial
J	541	Pharmaceut exc medicamnt
J	542	Medicaments include vet
J	716	Rotating electr plant
J	718	Power generating equ nes
I	751	Office machines
I	752	Computer equipment
I	759	Office equip parts/accs.
I	764	Telecomms equipment nes
I	771	Elect power transm equip
I	774	Medical etc el diag equi
I	776	Valves/transistors/etc
J	792	Aircraft/spacecraft/etc
J	871	Optical instruments nes
J	874	Measure/control app nes
J	881	Photographic equipment
I	891	Arms and ammunition

TECHNOLOGY CLASSIFICATION OTHER		
	Product Code	**Product Name**
K	351	Electric current
K	883	Cine fild developed
K	892	Printed matter
K	896	Art/collections/antiques
K	961	Coin nongold non current
K	971	Gold non-monetary ex ore

TECHNOLOGICAL CLASSIFICATION FOR INDUSTRIAL INDICATORS (MVA) USING THE INTERNATIONAL STANDARD INDUSTRIAL CLASSIFICATION OF ALL ECONOMIC ACTIVITIES (ISIC), THREE DIGITS, REVISION 3

Technology Classification	ISIC Code	ISIC Definition
RB	151	Processed meat,fish,fruit,vegetables,fats
RB	1520	Dairy products
RB	153	Grain mill products; starches; animal feeds
RB	154	Other food products
RB	155	Beverages
RB	1600	Tobacco products
LT	171	Spinning, weaving and finishing of textiles
LT	172	Other textiles
LT	1730	Knitted and crocheted fabrics and articles
LT	1810	Wearing apparel, except fur apparel
LT	1820	Dressing & dyeing of fur; processing of fur
LT	191	Tanning, dressing and processing of leather
LT	1920	Footwear
RB	2010	Sawmilling and planing of wood
RB	202	Products of wood, cork, straw, etc.
RB	210	Paper and paper products
OTHER	221	Publishing
OTHER	222	Printing and related service activities
OTHER	2230	Reproduction of recorded media
LT	2310	Coke oven products
RB	2320	Refined petroleum products
MHT	2330	Processing of nuclear fuel
MHT	241	Basic chemicals
MHT	242	Other chemicals
MHT	2430	Man-made fibres
RB	251	Rubber products
MHT	2520	Plastic products
RB	2610	Glass and glass products
RB	269	Non-metallic mineral products n.e.c.
MHT	2710	Basic iron and steel
RB	2720	Basic precious and non-ferrous metals

Technology Classification	ISIC Code	ISIC Definition
RB	273	Casting of metals
LT	281	Struct.metal products;tanks;steam generators
LT	289	Other metal products; metal working services
MHT	291	General purpose machinery
MHT	292	Special purpose machinery
MHT	2930	Domestic appliances n.e.c.
MHT	3000	Office, accounting and computing machinery
MHT	3110	Electric motors, generators and transformers
MHT	3120	Electricity distribution & control apparatus
MHT	3130	Insulated wire and cable
MHT	3140	Accumulators, primary cells and batteries
MHT	3150	Lighting equipment and electric lamps
MHT	3190	Other electrical equipment n.e.c.
MHT	3210	Electronic valves, tubes, etc.
MHT	3220	TV/radio transmitters; line comm. apparatus
MHT	3230	TV and radio receivers and associated goods
MHT	331	Medical, measuring, testing appliances, etc.
MHT	3320	Optical instruments & photographic equipment
MHT	3330	Watches and clocks
MHT	3410	Motor vehicles
MHT	3420	Automobile bodies, trailers & semi-trailers
MHT	3430	Parts/accessories for automobiles
MHT	351	Building and repairing of ships and boats
MHT	3520	Railway/tramway locomotives & rolling stock
MHT	3530	Aircraft and spacecraft
MHT	359	Transport equipment n.e.c.
LT	3610	Furniture
LT	369	Manufacturing n.e.c.
OTHER	3710	Recycling of metal waste and scrap
OTHER	3720	Recycling of non-metal waste and scrap
	3999	Total manufacturing (D)

ANNEX 2: PRODUCT CLASSIFICATION ACCORDING TO SITC REV. 3 PER VALUE CHAIN

Cotton Apparel value chain product categories:

Product name	Name of product(s) in SITC rev. 3	SITC rev. 3 product code
Cotton seeds	Cotton seeds	2223
Raw cotton (excluding linter)	Raw cotton, excluding linters	2631
Cotton carded/combed	Cotton carded/combed	2634
Cotton yarn	Cotton yarn nest	6513
Cotton fabrics (woven)	Cotton fabrics, woven	652
Textile articles of cotton	Cotton sacks/bags Cotton blankets Bed linen of cotton nes	65812 65832 65842
Apparel of cotton	M/b trousers cotton wovn Men/b trouser cotton k/c	84151 84371

Leather value chain product categories:

Product name	Name of product(s) in HS 2007	HS 2007 product code
Raw hides & skins	Raw hides and skins of bovine (including buffalo or equine animals Raw skins of sheep or lambs Other raw hides and skins	4101 4102 4103
Tanned/crust wet	Tranned/crust hides & skins of bovine/sheep/lamb/ goats/kids/swine/nes … in wet state	4100411, 410419, 410510, 410621, 410631, 410691
Tanned/crust dry	Tranned/crust hides & skins of bovine/sheep/lamb/ goats/kids/swine/reptiles/nes … in dry state	410441, 410449, 410530, 410622, 410632, 410640, 410692
Leather further prepared	Leather further prepared after tanning or crusting, including parchment-dressed leather of bovine/sheep or lamb/other animals	4107, 4112, 4113

Finished leather products	<u>Trunks and suitcases:</u>	
	- Trunks, suit-cases, vanity-cases, executive-cases, brief-cases etc. with outer surface of leather/ composition leather/patent leather	420211
	- Handbags with outer surface of leather/ composition leather/patent leather	420221
	- Articles of a kind normally carried in the pocket/ the handbag, with outer surface of leather/ composition leather/patent leather	420231
	<u>Footwear:</u>	
	- Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of leather	6403
	- Footwear with outer soles of leather/ composition leather & uppers of textile material	640420
	- Footwear with uppers of leather/composition leather, n.e.s.	640510
	<u>Apparel and other:</u>	
	- Articles of apparel and clothing accessories, of leather or of composition leather	4203
	- Other articles of leather or of composition leather	4205

ANNEX 3: EAC PROPOSED HARMONIZED INDICATORS TO ASSESS INDUSTRIAL PERFORMANCE

	Category	Level (Macro, Subsector, VC)	Indicator	Reference Source	Means of Verification/ Data source
1	1. Mnf sector performance (general)	MACRO	MVA growth rate	EAC Industrialization Strategy	WDI
2	1. Mnf sector performance (general)	MACRO	MVA per capita and growth rate	Vision 2050, EAC Industrialization Policy	WDI
3	1. Mnf sector performance (general)	MACRO	Share of MVA in GDP	EAC Industrialization Policy	WDI
4	1. Mnf sector performance (general)	MACRO	Mnf exports (per capita) and growth rate	UNIDO CIP	UNCOMTRADE
5	1. Mnf sector performance (general)	MACRO	Share of EAC mnf exports in global mnf exp	Vision 2050	UNCOMTRADE
6	1. Mnf sector performance (general)	MACRO	Mnf exports as a share of total exports	EAC Industrialization Policy, Vision 2050	UNCOMTRADE, (WDI)
7	1. Mnf sector performance (general)	MACRO	LVAC (Local Value Added Content) of Mnf Exports	EAC Industrialization Policy, Vision 2050	*Data source unclear*
8	1. Mnf sector performance (general)	MACRO	Mnf export-import ratio (mnf exports as a percentage of mnf imports)	EAC Industrialization Policy	UNCOMTRADE

	Category	Level (Macro, Subsector, VC)	Indicator	Reference Source	Means of Verification/ Data source
9	2. Diversification and upgrading	MACRO	share of MHT in production and mnf exports (or share of specific subsectors, e.g. pharmaceuticals)	Vision 2050, EAC Industrialization Strategy	INDSTAT/UNCOMTRADE
10	2. Diversification and upgrading	MACRO	UNIDO product diversifiction measure (or simplified version)	Vision 2050, EAC Industrialization Strategy	UNCOMTRADE
11	2. Diversification and upgrading	MACRO	UNIDO market diversifiction measure (or simplified version)	EQUIP I	UNCOMTRADE

	Category	Level (Macro, Subsector, VC)	Indicator	Reference Source	Means of Verification/ Data source
12	3. Sectoral/VC	SECTOR/VC	Export values of complete VCs/sectors	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
13	3. Sectoral/VC	VC	Share of VC in total export basket	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
14	3. Sectoral/VC	VC	Share of Mnf (or high value added (HVA)) prods in VC	Communique' 17th EAC Summit	UNCOMTRADE
15	3. Sectoral/VC	SECTOR/VC	Export quantity (or value) of raw hides/skins outside EAC (or other products)	Communique' 17th EAC Summit	UNCOMTRADE
16	3. Sectoral/VC	SECTOR/VC	Import-Export Ratio of footwear (or other product groups e.g. textiles/apparel)	Communique' 17th EAC Summit	UNCOMTRADE
17	3. Sectoral/VC	SECTOR/VC	Import quantity (or value) of used footwear and textiles	Communique' 17th EAC Summit	UNCOMTRADE (only "used or second-hand merchandise" is available. I.e. not

	Category	Level (Macro, Subsector, VC)	Indicator	Reference Source	Means of Verification/ Data source
18	4. Regional Integration (general)	MACRO	Value of intra-regional exports of mnf products	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
19	4. Regional Integration (general)	MACRO	EAC/PS market share in EAC market for mnf products	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
20	4. Regional Integration (general)	MACRO	Mnf exports as a share of total exports (intra-regional)	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
21	4. Regional Integration (diversification and upgrading)	MACRO	Share of MHT in exports (intra-regional)	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
22	4. Regional Integration (diversification and upgrading)	MACRO	Diversification of export products (intra-regional, simplified)	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
23	4. Regional Integration (Sectoral/VC)	SECTOR/VC	Export values of complete VC/sectors (Intra-regional)	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
24	4. Regional Integration (Sectoral/VC)	VC	Share of VC in total export basket (intra-regional)	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
25	4. Regional Integration (Sectoral/VC)	VC	Share of mnf or (HVA - high value added) prods in VC (intra-regional)	EAC Industrialization Policy, EAC Industrialization Strategy	UNCOMTRADE
26	4. Regional Integration (Sectoral/VC)	VC	Share of imports from EAC member states for specific product groups within VCs (e.g. textiles and footwear) other than finished	Communique' 17th EAC Summit, EAC Industrialization Strategy	UNCOMTRADE

	Category	Level (Macro, Subsector, VC)	Indicator	Reference Source	Means of Verification/ Data source
27	5. Employment	MACRO	Employment composition (macro)	Vision 2050	WDI
28	5. Employment	MACRO	Employment in Mnf and growth rate	Vision 2050, EAC Industrialization Policy	INDSTAT, (EAC data portal)
29	5. Employment	SECTOR	Subsector share in mnf employment	EQUIP I	INDSTAT
30	5. Employment	MACRO/SECTOR	Employment elasticity (Change in employment associated with a one unit change in MVA)	Vision 2050	INDSTAT

	Category	Level (Macro, Subsector, VC)	Indicator	Reference Source	Means of Verification/ Data source
31	6. Industrial Capabilities	MACRO	FDI net inflows (% of GDP)	Vision 2050	WDI
32	6. Industrial Capabilities	MACRO	MVA per mnf establishment	EQUIP I	INDSTAT
33	6. Industrial Capabilities	MACRO	Share of mnf in GFCF (Gross Fixed Capital Formation)	EQUIP I	INDSTAT/WDI
34	6. Industrial Capabilities	MACRO	Share of Science and Engineering students in total tertiary graduates	EQUIP I	UNESCO
35	6. Industrial Capabilities	MACRO	Vocational students in secondary education as a share of population	Vision 2050	WDI
36	6. Industrial Capabilities	MACRO	Employment per mnf establishment	EQUIP I	INDSTAT
37	6. Industrial Capabilities	MACRO	ISO 9001 certificates per 1000 people	EQUIP I	ISO Data
38	6. Industrial Capabilities	MACRO	Gross expenditure on R&D per capita	Vision 2050, EAC Industrialization Policy	UNESCO
39	6. Industrial Capabilities	MACRO	Intellectual Property rights payments	EAC Industrialization Policy	WDI
40	6. Industrial Capabilities	MACRO	Capital good imports	EQUIP I	OECD
41	6. Industrial Capabilities	MACRO	Domestic credit to private setor by banks as share of gdp	EQUIP I	WDI
42	6. Industrial Capabilities	MACRO	Electric power consumption (kwh per capita)	EQUIP I	WDI
43	6. Industrial Capabilities	MACRO	Regional Infrastructure (road)	EAC Industrialization Policy, EAC Industrialization Strategy	???