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SPECIAL ISSUE

ECONOMIC DEVELOPMENT IN AFRICA

REPORT 2011 FOSTERING INDUSTRIAL DEVELOPMENT IN AFRICA IN THE NEW GLOBAL ENVIRONMENT

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UNITED NATIONS
New York and Geneva, 2011

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The $ sign refers to the United States dollar.

Sub-Saharan Africa: Except where otherwise stated, this includes South Africa.

North Africa: In this publication, Sudan is classified as part of sub-Saharan Africa, not North Africa.

ABBREVIATIONS

AFC	African Finance Corporation
AfDB	African Development Bank
AID	Africa Industrialization Day
AIDA	accelerated industrial development of Africa
BRIC	Brazil, Russian Federation, India and China
CAMI	Conference of African Ministers of Industry
CCS	carbon capture and storage
CDM	Clean Development Mechanism
DAC	Development Assistance Committee
DBSA	Development Bank of Southern Africa
DESA	Department of Economic and Social Affairs
EBA	Everything But Arms
ECOWAS	Economic Community of West African States
EITI	Extractive Industries Transparency Initiative
EPA	economic partnership agreement
EPZ	export processing zone
EU	European Union
FDI	foreign direct investment
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GHG	greenhouse gases
GSP	Generalized System of Preferences
GVCs	global value chains
HIPC	heavily indebted poor countries
IMF	International Monetary Fund
IPAP	Industrial Policy Action Plan
IPR	intellectual property protection regime
ISI	import substitution industrialization
LDCs	least developed countries
LT	low technology
MDG	Millennium Development Goals
MFN	most favoured nation
MHT	medium and high technology
MVA	manufacturing value added
NAMA	non-agricultural market access
NCPC	national cleaner production centers

NEPAD	New Partnership for Africa's Development
NIC	newly industrialized country
NIPF	national industrial policy framework
ODA	official development assistance
OECD	Organization for Economic Cooperation and Development
POSCO	Pohang Iron and Steel Company
PRSP	poverty reduction strategy papers
RB	Resource-based
SAP	structural adjustment programme
SCM	subsidies and countervailing measures
SEZ	special economic zone
SME	small and medium-sized enterprise
TRIMs	Trade-related Investment Measures
TRIPs	Trade-related Aspects of Intellectual Property Rights
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
WACIP	West African Common Industrial Policy
WTO	World Trade Organization

CHAPTER 1
INTRODUCTION

THE POLITICAL COMMITMENT TO INDUSTRIALIZATION IN AFRICA

After gaining political independence, which occurred mainly in the 1960s, most African countries started to promote industrialization. The emphasis on industrialization was based on the political conviction by African leaders that it was necessary to ensure self-reliance and reduce dependence on advanced countries. Furthermore, there was the expectation that industrialization would hasten the transformation of African countries from agricultural to modern economies, create employment opportunities, raise incomes as well as living standards, and reduce vulnerability to terms of trade shocks resulting from dependence on primary commodity exports. But during the 1970s, with successive oil shocks and an emerging debt problem, it started to become clear that import substitution industrialization was not sustainable. With the introduction of structural adjustment programmes in the 1980s, African countries curtailed specific policy efforts to promote industrialization and focused on removing anti-export biases and furthering specialization according to comparative advantage. It was expected that competitive pressures would revitalize economic activity by leading to the survival of the fittest. But whilst these policies were certainly intended to have structural effects, the conventional view is that they did not boost industrialization in the region (Soludo, Ogbu and Chang 2004).

In recent years, African countries have demonstrated renewed commitment to industrialization as part of a broader agenda to diversify their economies, build resilience to shocks, and develop productive capacity for high and sustained economic growth, the creation of employment opportunities and substantial poverty reduction. For instance, in January 2007, the South African Government adopted the National Industrial Policy Framework (NIPF) aimed at diversifying the production and export structure, promoting labour-absorbing industrialization, moving towards a knowledge economy, and contributing to the industrial development of the region. It has also unveiled Industrial Policy Action Plans (IPAP) to implement the framework. The first IPAP was adopted by the National Cabinet in August 2007 and was for the period 2007/08 while the second IPAP was adopted in February 2009 and covers the period 2010/11 to 2012/13. Other countries in the region have also taken steps recently to build a modern, competitive, and dynamic industrial sector. For example, industrialization is a component of recent national development programmes unveiled by Egypt, Ethiopia, Kenya, Namibia, Nigeria and Uganda (Altenburg, 2011).

The commitment of African countries to industrialization is also evident at the regional level. The New Partnership for Africa's Development (NEPAD) adopted by African leaders in 2001 identified economic transformation through industrialization as a critical vehicle for growth and poverty reduction in the region. Furthermore, in February 2008, African Heads of State adopted a Plan of Action for the Accelerated Industrial Development of Africa (AIDA). Implementation strategies for the Plan were subsequently endorsed by African Ministers at the 2008 Conference of African Ministers of Industry (CAMI).[1] At the 2011 CAMI organized by the African Union, the United Nations Industrial Development Organization (UNIDO) and the Government of Algeria, participants deliberated on the effective implementation of AIDA and how to achieve sustainable industrial development in Africa. The new commitments build on past regional initiatives such as the Lagos Plan of Action (1980), the Abuja Treaty establishing the African Economic Community (adopted in 1991), and the Alliance for Africa's Industrialization (1996), which also stressed the need for diversification and economic transformation as a critical vehicle for achieving African self-reliance.

At the global level, there is also interest in drawing attention to issues and challenges of industrial development in Africa as evidenced by the fact that at the 85th plenary meeting of the United Nations General Assembly held in December 1989, the international community adopted Resolution 44/237 proclaiming 20 November as the Africa Industrialization Day (AID). The AID is an annual event coordinated by UNIDO and the first celebration was held in 1990. The AID is used to mobilize support and commitment of the international community to the industrialization of Africa. It is also an occasion for African countries to review progress made in industrial development and chart a way forward. The theme for the AID varies from year to year. In 2010 the event was held under the theme *Competitive Industries for the Development of Africa*.

THE RATIONALE FOR RENEWED COMMITMENT TO INDUSTRIALIZATION

The renewed commitment to promoting industrial development in Africa is timely. African countries have been buffeted by three very serious and interrelated external shocks, namely hikes in food prices, increases in energy prices and the global financial and economic crisis triggered by events in the United States housing market in the fall of 2007. The economic and social costs of the triple

crises in Africa have been quite substantial. The growth rate of real output fell from an annual average of 5.2 per cent over the period 2000–2006 to 2.6 per cent in 2009. Similarly, the growth rate of real output per capita fell from 2.7 per cent to 0.3 per cent over the same period. The crises have also eroded recent gains made by African countries in poverty reduction and reduced prospects of achieving the Millennium Development Goals (MDG) by the target date (Osakwe 2010).

The triple crises have refocused attention on Africa's high vulnerability to external shocks and the need for policymakers to take urgent action to diversify their production and export structure to build resilience to shocks. The region is currently the least diversified in the world and, more importantly, has made relatively very slow progress in this area in the last two decades. The export diversification index for the region improved slightly from 0.61 in 1995 to 0.58 in 2009.[2] In developing countries in Asia, it fell from 0.32 to 0.26 and for developing America it fell from 0.36 to 0.33.

Recent research suggests that economic development requires structural change from low to high productivity activities and that the industrial sector is a key engine of growth in the development process (Lall, 2005; Rodrik, 2007; Hesse, 2008). Virtually all cases of high, rapid and sustained economic growth in modern economic development have been associated with industrialization, particularly growth in manufacturing production (Szirmai 2009). Commodity exports can lead to high but not sustained economic growth.

The necessity of structural change also arises from the fact that Africa needs high and sustained economic growth in order to make significant progress in reducing poverty. One of the major challenges which African countries currently face is to generate productive jobs and livelihoods for the 7–10 million young people entering the labour force each year. This is difficult to achieve simply through commodity exports but rather requires a complementary process of agricultural productivity growth and development of non-agricultural employment opportunities in both industry and services. If African countries are to achieve substantial poverty reduction and also the Millennium Development Goals (MDGs), they have to go through a process of structural transformation involving a decrease in the share of agriculture and an increase in the share of industry and modern services in output, with a shift between and within sectors from lower productivity to higher productivity activities.

THE STRATEGIC IMPORTANCE OF MANUFACTURING

The industrial sector is, in general, defined as being composed of manufacturing, mining and construction. However, there is a large literature that suggests that the manufacturing sector is the component of industry that presents greater opportunities for sustained growth, employment and poverty reduction in Africa.

The United Nations Department of Economic and Social Affairs (DESA) defines manufacturing as the physical or chemical transformation of materials, substances or components into new products. The materials, substances or components transformed are raw materials that are products of agriculture, forestry, fishing, mining or quarrying or products of other manufacturing activities. Substantial alteration, renovation or reconstruction of goods is generally considered to be manufacturing.

The strategic role of manufacturing in the development process can be ascribed to a variety of factors. The first is that technology and innovation are crucial for economic development and manufacturing has historically been the main source of innovation in modern economies (Lall, 2005; Gault and Zhang, 2010). The research and development activities of manufacturing firms have been the key source of technological advances in the world economy (Shen, Dunn and Shen, 2007). Furthermore, manufacturing is a major conduit for diffusion of new technologies to other sectors of the economy.

Another advantage of manufacturing relative to other sectors is that there are very strong linkage and spill-over effects associated with manufacturing activities. For example, it is well known that manufacturing is a critical source of demand for other sectors. In particular, manufacturing firms are important consumers of banking, transport, insurance and communication services. Furthermore, manufacturing provides demand stimulus for growth of the agricultural sector. Consequently, manufacturing has high forward and backward linkages, thereby contributing to domestic investment, employment and output in the development process.

Manufacturing is also attractive because, following Engel's law, the share of agriculture in total household expenditure falls as per capita income rises while the share of manufactures increases. This implies that manufactures offer significant opportunities for export market expansion and therefore is a key driver of growth in merchandise trade. Interestingly, countries that have derived significant benefits from the tremendous increase in merchandise trade over the past three decades

are those that have been able to increase their exports of dynamic products, particularly manufactures, with high income elasticity of demand. Consequently, what a country produces and exports matters (Hausmann, Hwang and Rodrik 2007).

Manufacturing also has a higher potential for employment creation relative to agriculture and traditional services. In particular, the existence of diminishing returns to scale in agriculture (due to fixed factors such as land) implies that the opportunities for employment growth in the sector are limited. Consequently, as a country's population grows and urbanization takes place, there is the need for growth in manufacturing employment to absorb labour displaced from agriculture.

Despite the critical role of manufacturing in the development process, it is important that African policymakers do not seek to achieve industrial development at the expense of the agricultural sector because the latter can contribute to industrial development through, for example, the supply of wage goods that enhance the competitiveness of domestic firms in global export markets. Rattso and Torvik (2003) show that discrimination against the agriculture sector could lead to the contraction of industry, through trade linkages. De Janvry and Sadoulet (2010) stress the need for complementarity between agriculture and industry. They also argue that agricultural development can contribute to the creation of competitive advantage in industry. Furthermore, in the short-to-medium term, the agriculture sector will continue to be an important source of foreign exchange required to import intermediate inputs needed by domestic industries. It is also important to recognize that the provision of producer services also matters for the competitiveness of the manufacturing sector. In this context, the challenge for policymakers is how to create mutually supportive linkages between the industrial and non-industrial sectors of the economy.

THE NEW GLOBAL ENVIRONMENT

The global environment for African industrialization is also changing in several significant respects and efforts to promote industrialization in the twenty-first century must also take account of this new environment. First, multilateral trade rules as well as bilateral and regional trade agreements are shrinking the policy space available for promoting industrial development in African countries that are not classified as Least Developed Countries (LDCs). For example, the rules of the World Trade Organization (WTO) prohibit the use of industrial policy instruments

such as quotas and local content requirements. The use of export subsidies have also been banned, except for the LDCs (Chang, 2009; Rodrik, 2004). Furthermore, as a result of the Economic Partnership Agreements (EPAs), African countries are under increasing pressure to abandon the use of tariffs as a measure of protection. Consequently, African industrialization is taking place in an environment in which the use of some industrial policy instruments applied by the developed and emerging economies are either banned or regulated.

Second, the global environment in which manufacturing production takes place has also changed in the sense that firms are increasingly facing stiff competition in global export markets due to the reduction in tariff and non-tariff barriers to trade in industrial products coupled with the significant decrease in transport costs and improvements in information and communication technology. For African countries, the new environment is challenging because of the rise and growing role of large developing countries such as China, India and Brazil in labour-intensive manufactures (Kaplinsky, 2007). These new competitive pressures imply that an effective response to competition is no longer just about selling products at lower cost. It is also about producing better products and getting them to consumers in a timely manner.

Third, increasing concerns over climate change are forcing firms to adopt or switch to new technologies and methods of production. In particular, manufacturers are under increasing pressure to adopt climate-friendly technologies and methods of production. Consequently, if African industrialization is to be sustainable it cannot rely on the old technologies and methods of production used by the developed countries when they were at a similar stage of development.

THE FOCUS AND ORGANIZATION OF THIS REPORT

Against this background, the 2011 *Economic Development in Africa Report* focuses on the topic *Fostering Industrial Development in Africa in the New Global Environment.* The Report provides an overview of the stages, performance and lessons learned from previous attempts at promoting industrial development in Africa (chapter 2). It then goes on to discuss key elements for a new industrial policy for Africa. This must begin with a careful diagnosis of the current situation and strategy design. A framework for this, as well as a typology of African countries, is set out in chapter 3. Chapter 4 goes on to discuss the why and the how of industrial policy, whilst chapter 5 indicates how the policy may be calibrated with the new

global environment. The concluding chapter summarizes the major findings and policy messages of the Report.

The Report is the product of joint work, and is jointly published by UNCTAD and the United Nations Industrial Development Organization (UNIDO). It builds on the 2009 *Economic Development in Africa Report* on *Strengthening Regional Economic Integration for Africa's Development* and the 2010 Report on *South-South Cooperation: Africa and the New Forms of Development Partnerships*. It also builds on the 2009 UNIDO Industrial Development Report on *Breaking in and Moving up: New Industrial Challenges for the Bottom Billion and the Middle-income Countries*.

CHAPTER 2

PROMOTING INDUSTRIAL DEVELOPMENT IN AFRICA: STAGES, PERFORMANCE AND LESSONS LEARNED

This chapter presents a short overview of attempts to promote industrialization in Africa and then discusses the past performance and current characteristics of Africa's manufacturing sector with a view to drawing lessons for the future.

A. STAGES OF INDUSTRIAL DEVELOPMENT IN AFRICA

While there are differences across countries in terms of the starting dates for the industrialization programmes, it is evident that industrial development in Africa has gone through three broad phases or stages since independence. The first phase which began in the 1960s and ended in the late 1970s is the import substitution industrialization (ISI) phase. The second phase, which represents the structural adjustment programme (SAP) phase, began in the early 1980s and ended in the late 1990s. The third phase, the poverty reduction strategy papers (PRSP) phase, began in 2000.

The import substitution industrialization phase

The ISI phase of industrial development in Africa began after political independence in the 1960s up until the late 1970s. As in other developing country regions, ISI in Africa started with the domestic production of consumer goods that were previously imported. The idea was that the domestic markets for these goods already existed and could form the basis for initiating an industrialization programme. While the initial focus was on consumer goods, there was the expectation that, as the industrialization process proceeds, there will also be domestic production of intermediate and capital goods needed by the domestic consumer goods industry. There was also the expectation and hope that the replacement of imported goods with domestically produced goods would, over time, enhance self-reliance and help prevent balance-of-payments problems.

The implementation of ISI involved substantial government support as well as protection of domestic firms from foreign competition. In particular, domestic infant industries were identified and nurtured through trade protection and other domestic economic policies. This was rationalized on the grounds that domestic firms have the potential to be competitive but require a temporary period of protection before they could withstand international competition.[3] Although there are country-specific differences in policies adopted, the implementation of ISI in Africa generally involved the following elements: (a) restriction of imports to intermediate inputs and capital goods required by domestic industries; (b) extensive use of tariff and non-tariff

barriers to trade; (c) currency overvaluation to facilitate the import of goods needed by domestic industries; (d) subsidized interest rates to make domestic investment attractive; (e) direct government ownership or participation in industry; and (f) provision of direct loans to firms as well as access to foreign exchange for imported inputs (Mkandawire and Soludo, 2003; Wangwe and Semboja, 2003).

The share of manufacturing in African gross domestic product (GDP) rose substantially between 1970 and 1980 (table 1). However, it became evident in the late 1970s that industrial development through the ISI model could not be sustained for a variety of reasons. First, very few of the domestic firms supported actually became fully competitive in international markets (Wangwe and Semboja, 2003). Second, ISI has a high foreign exchange requirement in the early phase since it involves imports of intermediate inputs and capital goods needed by domestic industries. However, the implementation of ISI in most African countries did not lay emphasis on the generation of foreign exchange. Agriculture was also neglected. In particular, the focus of ISI was more on setting up factories rather than building the entrepreneurial capabilities that would foster industrial dynamism and the development of competitive export sectors. In addition, the domestic economic policies adopted during the period implicitly taxed agriculture and exports thereby reducing foreign exchange earnings. Consequently, in the late 1970s, the scarcity of foreign exchange became a serious constraint on industrial development in the region. It should be noted, however, that while the implementation of ISI in Africa generally had an anti-export bias, there is evidence suggesting that in countries such as Mauritius and Zimbabwe, the protection of the domestic market allowed firms to accumulate resources and invest in the development of capabilities needed for exporting (Wangwe, 1995; Lall and Wangwe, 1998).

The structural adjustment programmes phase

The SAP phase in Africa began in the early 1980s and ended in the late 1990s. In particular, its origin could be traced back to the early 1980s, when African countries experienced severe balance of payments crisis resulting from the cumulative effects of the oil crisis, the decline in commodity prices, and the growing import needs of domestic industries. In response to the crisis, many countries sought financial assistance from the International Monetary Fund (IMF) and the World Bank. The IMF/World Bank interpretation of the crisis and Africa's industrial development problems were that it had to do with poor domestic policies and so the recommendation was that African countries adopt SAPs (Soludo, Ogbu and Chang, 2004). This

interpretation and policy prescription was based on the findings of the Berg Report on *Accelerated Development in Sub-Saharan Africa: An Agenda for Action* published by the World Bank in 1981. The report argued that Africa's economic and industrial performance was poor because of policy inadequacies in the form of overvalued exchange rates, interest rate controls, overemphasis on industry at the expense of agriculture, and trade protectionism. In addition, the report was of the view that Africa's comparative advantage lay in agriculture and not industry. Consequently, it did not share the popular view among African policymakers that industry should be promoted through deliberate government intervention.

African countries that adopted SAPs were expected to implement certain policy reforms as a condition for receiving financial assistance from the IMF and the World Bank. The policy conditions included among other things: (a) deregulation of interest rates; (b) trade liberalization; (c) privatization of State–owned enterprises (parastatals); (d) withdrawal of government subsidies; and (e) currency devaluation. One of the key objectives of SAPs was to reduce the role of the State in the industrialization and development process and give market forces more room in the allocation of resources. The assumption was that markets are more efficient than the State in resource allocation and that the appropriate role of the latter should be to provide an enabling environment for the private sector to flourish.

Critics of SAP argue that it placed Africa on a low-growth path, undermined economic diversification efforts, and led to an erosion of the industrial base in the region (Sundaram and von Arnim, 2008; Mkandawire, 2005; Soludo, Ogbu and Chang, 2004; Stein, 1992). In particular, the focus on liberalization of markets coupled with the phasing out of various forms of interventionist policies supporting manufacturing drove many domestic firms out of business. This resulted in the destruction of what remained of the local industry base despite the potential of technological upgrading in some of the existing domestic firms (Lall, 1995). In Mozambique, for example, the reduction in the strategic role of the State during the SAP period undermined attempts to promote industrial development. There is also evidence that in Ghana, Nigeria and Zambia, trade liberalization under SAP exposed domestic firms to import competition and led to the closure of some manufacturing firms (Lall and Mwangwe, 1998).

To summarize, the expectation that SAP would make African firms more competitive, trigger industrial development, and lay the foundation for sustained economic growth has not been realized. As was the case with ISI, the adoption

of SAP did not lead to the attainment of the objective of structural transformation and export diversification in Africa. Against this backdrop, in the late 1990s African policymakers began to reappraise their development strategies with a view to avoiding some of the mistakes made in the ISI and SAP phases.

The PRSP phase

By the second half of the 1990s, many African countries had accumulated enormous foreign debt and the burden of debt service became an obstacle to growth and development. In response to this challenge, in 1996 donors launched the Heavily Indebted Poor Countries (HIPC) initiative designed to provide relief to severely indebted countries. Dissatisfaction with the slow progress of the HIPC initiative in reducing the debt of poor countries led to the adoption of the enhanced HIPC initiative in 1999 (Booth, 2003). As a precondition for participation in the enhanced HIPC initiative, potential recipients were required to prepare PRSPs detailing how the resources made available through debt relief would be used to reduce poverty in the recipient country. In particular, recipient countries were encouraged to invest the resources from debt relief in the social sectors such as health and education (particularly at the primary and secondary levels). Consequently, since 2000, most African countries considered eligible for participation in the HIPC programme have prepared PRSPs, giving priority to spending on health as well as primary and secondary education. Therefore, the year 2000 marked the beginning of another phase of policy design and implementation that had implications for industrialization in the region.

While the PRSP differs from the ISI and SAP in the sense that it was specifically designed as a debt relief programme, it is evident that it did have consequences for industrial development in Africa because the first generation PRSPs led to a shift of resources from the production to the social sectors. The second generation PRSPs have tried to address the social sector bias problem associated with the first generation PRSPs. However, interest in the productive sectors in second generation PRSPs in Africa tends to be in agriculture and its related industries, reflecting largely the widespread view that African countries have a comparative advantage in these industries and that agriculture is an important source of pro-poor growth. For an in-depth analysis of the implications of the PRSP for Africa's economic development see UNCTAD (2006).

B. THE PERFORMANCE AND CHARACTERISTICS OF AFRICAN MANUFACTURING

This section examines the past performance and current characteristics of Africa's manufacturing sector with a view to identifying some stylized facts on the development of manufacturing in the region. It should be noted however that there is a high degree of heterogeneity across African countries and so manufacturing performance will vary across countries. The main stylized facts identified in the data are as follows.

The contribution of manufacturing to GDP peaked in 1990 and fell thereafter

The share of African manufacturing in GDP rose from a low of 6.3 per cent in 1970 to a peak of 15.3 per cent in 1990 (Table 1). Since then, there has been a significant decline in the contribution of manufacturing to GDP. In particular, the share of manufacturing in GDP fell from 15.3 per cent in 1990 to 12.8 per cent in 2000 and 10.5 per cent in 2008. It is interesting to note that the decline in the contribution of manufacturing to GDP since 1990 has been observed in all subregions of the continent. In Eastern Africa, the share of manufacturing in GDP fell from 13.4 per cent in 1990 to 9.7 per cent in 2008. In West Africa it fell from 13.1 to 5 per cent over the same period. Furthermore, in Southern Africa, it fell from 22.9 to 18.2 per cent and in Northern Africa it fell from 13.4 to 10.7 per cent.

Africa still accounts for a very low share of global manufacturing

As indicated by the small bubble sizes in figures 1 and 2, Africa continues to be marginalized in global manufacturing production and trade. The share of the region in global manufacturing value added fell from 1.2 per cent in 2000 to 1.1 per cent in 2008. In developing Asia, it rose from 13 per cent to 25 per cent and in developing countries in Latin America it fell from 6 per cent to 5 per cent over the same period. There has also been no significant change in the region's share of global manufacturing exports in recent years. In particular, while Africa's share of global manufacturing exports rose slightly from 1 per cent in 2000 to 1.3 per cent in 2008, in low- and middle-income countries in East Asia and the Pacific it rose from 9.5 per cent in 2000 to 16 per cent in 2008. Furthermore, in low-

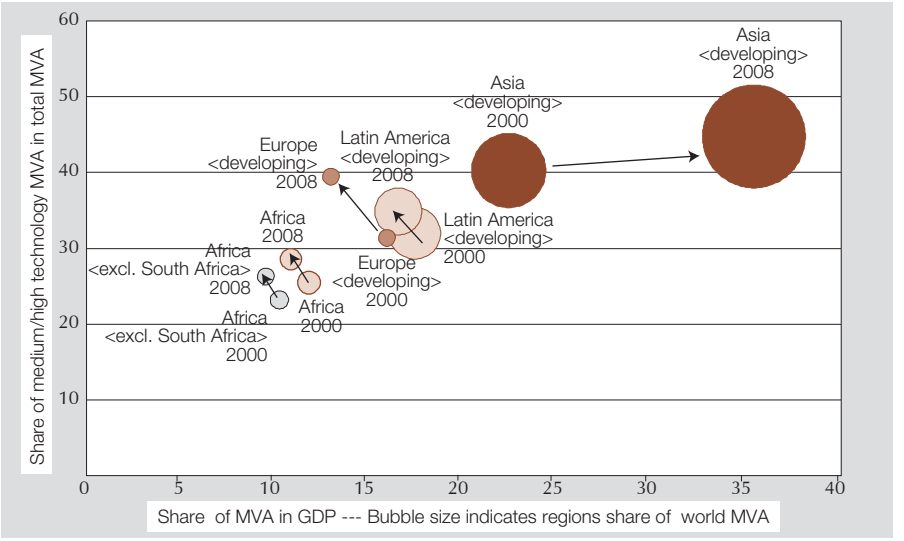
Table 1.Contribution of industry to GDP, 1970–2008

	% share of GDP	1970	1980	1990	2000	2005	2008
World	Industry	36.9	38.1	33.3	29.1	28.8	30.1
	Manufacturing	26.7	24.4	21.7	19.2	17.8	18.1
	Mining & utilities	3.9	7.1	5.2	4.5	5.5	6.2
Developing economies	Industry	27.3	41.1	36.8	36.3	38.9	40.2
	Manufacturing	17.6	20.2	22.4	22.6	23.3	23.7
	Mining & utilities	5.7	14.7	8.9	8.3	10.1	10.9
African developing economies	Industry	13.1	35.6	35.2	35.5	38.8	40.7
	Manufacturing	6.3	11.9	15.3	12.8	11.6	10.5
	Mining & utilities	4.8	19.3	15.2	18.4	23.0	25.8
Eastern Africa	Industry	3.1	7.8	20.6	18.6	20.6	20.3
	Manufacturing	1.7	4.9	13.4	10.4	10.3	9.7
	Mining & utilities	0.8	1.5	3.3	3.1	3.6	3.7
Middle Africa	Industry	34.2	38.4	34.1	50.4	57.9	59.8
	Manufacturing	10.3	11.8	11.2	8.2	7.3	6.4
	Mining & utilities	19.1	21.2	18.9	39.3	47.9	50.5
Northern Africa	Industry	34.2	50.0	37.4	37.8	45.0	46.0
	Manufacturing	13.6	9.7	13.4	12.8	11.3	10.7
	Mining & utilities	15.7	33.0	17.2	19.5	28.2	29.8
Southern Africa	Industry	38.2	48.2	40.6	32.7	31.7	34.5
	Manufacturing	22.0	20.9	22.9	18.4	17.9	18.2
	Mining & utilities	12.0	24.0	14.3	11.7	11.2	13.1
Western Africa	Industry	26.7	43.3	34.5	39.8	36.7	37.4
	Manufacturing	13.3	16.8	13.1	7.8	6.0	5.0
	Mining & utilities	7.7	21.3	18.8	29.3	27.7	29.6

Source: UNCTAD/UNIDO.

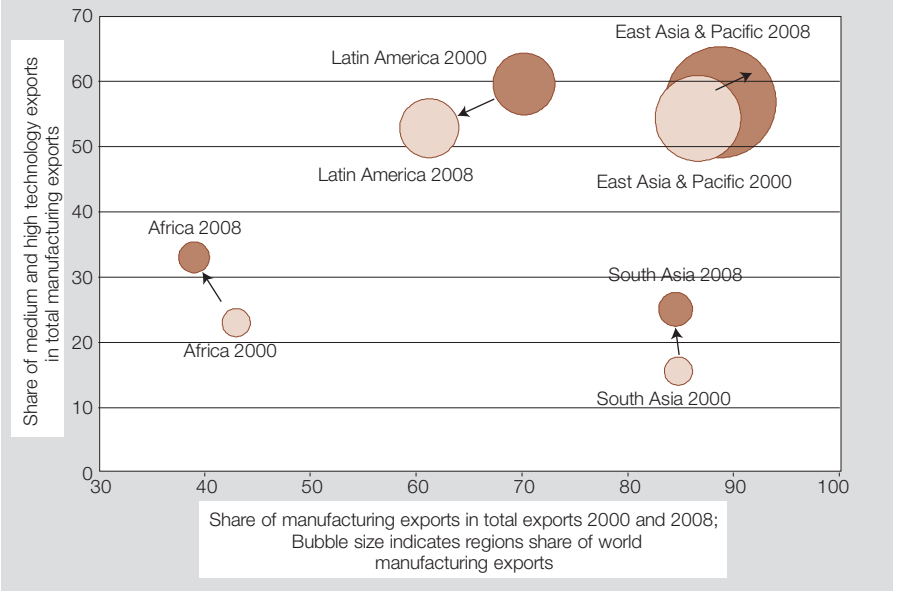
and middle-income countries in Latin America it fell from 5 per cent to 4.5 per cent over the same period. These facts suggest that African countries have not taken full advantage of the opportunities offered by manufacturing for growth and development. They also suggest that the region continues to be marginalized in global manufacturing trade.

Figure 1. Structural transformation of Africa's economy vis-à-vis other developing regions



Source: UNCTAD/UNIDO.

Figure 2. Structural transformation of Africa's exports vis-à-vis other developing regions



Source: UNCTAD/UNIDO.

Manufacturing in Africa is small relative to other developing-country regions and has been falling as a share of both GDP and exports

It makes sense to analyse the relative degree of structural transformation of African economies from the domestic as well as the international perspective in more detail. On the one hand, from the domestic production perspective (figure 1), two levels of transformation can be distinguished: (a) an increase in the relative contribution of manufacturing to the whole economy as well as (b) an increase in the relative contribution of more technology intensive manufacturing activities to total manufacturing. On the other hand, it is also necessary to look into the structure of African manufacturing exports, in order to understand the competitiveness of African manufactures in global markets (figure 2). From this perspective, we can also distinguish between two levels of transformation: (a) an increase in the relative contribution of manufacturing exports to total exports as well as (b) an increase in the relative contribution of more technology intensive manufacturing exports to total manufacturing exports.

One of the important features of manufacturing in Africa today is that, relative to other developing economies, the sector plays a very limited role in African economies (figure 1). In particular, the share of manufacturing value added (MVA) in Africa's GDP is small relative to what is observed in other developing-country regions. In 2000, manufacturing accounted for 12.8 per cent of GDP in the region and in 2008 it accounted for 10.5 per cent. Unlike the situation in Africa, manufacturing seems to play a more important role in economic activities in both developing Asia and Latin America. In Asia, the share of MVA in GDP rose from 22 per cent in 2000 to 35 per cent in 2008 while in Latin America it fell from 17 per cent to 16 per cent over the same period.

The slow pace of manufacturing development in Africa is also evident at the international level. Manufacturing exports represent a relatively low percentage of total African exports and, more importantly, the share has declined over the years (figure 2). While the share of manufactures in Africa's exports was 43 per cent in 2000, it fell to 39 per cent in 2008. The decline in the importance of manufacturing in Africa's exports can be explained in part by the growing trade between Africa and non-African developing countries, which has led to a substantial increase in commodity exports in recent years. It should be noted that the share of manufacturing exports in Africa's total exports is also low when compared to other developing regions. For example, in 2008, the share of manufacturing exports in

total exports was 89 per cent in low and middle income countries in East Asia and the Pacific, 61 per cent in low and middle income countries in Latin America, and 85 per cent in low- and middle-income countries in South Asia.

But progress has been made in boosting medium and high technology manufactures

Figures 1 and 2 indicate that Africa has made some progress in boosting medium and high technology manufacturing activities in recent years. The share of medium and high technology (MHT) activities in total MVA in the region increased from 25 per cent in 2000 to 29 per cent in 2008. Furthermore, the share of medium and high technology exports in total manufacturing exports rose from 23 per cent in 2000 to 33 per cent in 2008. The growing share of medium and high technology activities in both African MVA and manufacturing exports is important because technology-intensive manufacturing sectors grow faster, have greater learning prospects, and have more spillover effects on the rest of the economy. Furthermore, they generate higher value added and impose higher entry barriers. In contrast, simple sectors such as resource-based (RB) and low technology (LT) manufacturing generate lower and less sustainable margins as competition is much tougher. These simple sectors generally do not need a strong human capital base and have been the main entry points in industry by most developing countries (UNIDO, 2009).

Despite the recent progress made, it should be noted that the shares of medium and high technology activities in both Africa's MVA and manufacturing exports are still low relative to those of Asia and Latin America (figures 1 and 2). Furthermore, Africa's medium and high technology manufacturing activities are highly concentrated in the chemical industry. In particular, chemicals account for almost one fifth of African MVA today, giving the continent a share of 2.2 per cent of the world chemical manufacturing capacity (table 2). In contrast, other MHT activities play a relatively minor role in African manufacturing. In terms of exports, Africa is mostly active in the medium technology rather than the high technology product groups. Table 3 shows that the top three products (pig iron, passenger cars and fertilizers) in the medium technology category account for 10.3 per cent of African manufacturing. On the other hand, the top three products in the high-technology category (valves and transistors, telecommunication equipment, and aircraft/spacecraft) account for only 1.9 per cent of African manufacturing.

Table 2. African manufacturing by sector and technological classification, 2000–2009 (%)

ISIC rev. 3 manufacturing sectors	African MVA structure		African growth	African share in the world	
	2000 share of total MVA	2009 share of total MVA	Compound anual growth 2000–2009	Share in World MVA 2000	Share in World MVA 2009
15 – Food and beverages	20.0	16.6	1.1	2.4	1.9
16 – Tobacco	3.0	2.6	1.6	3.4	2.5
20 – Wood	2.8	1.8	-1.9	1.7	1.5
21 – Paper	3.1	3.0	2.9	1.3	1.5
23 – Refined petroleum and coke	5.9	6.1	3.6	2.0	2.1
25 – Rubber and plastics	2.7	2.9	4.1	1.0	1.1
26 – Glass and other non metallic minerals	6.8	10.1	7.9	2.2	3.3
27 – Basic metals	7.3	5.6	0.4	1.7	1.0
Subtotal RBM (resource-based manufacturing)	***51.6***	***48.8***	***2.6***	***2.0***	***1.8***
17 – Textiles	6.8	4.7	-0.9	3.1	2.3
18 – Apparel	4.7	4.3	2.3	3.0	3.3
19 – Leather	1.5	1.2	0.8	2.7	2.3
22 – Publishing and printing	2.9	2.7	2.7	0.8	1.0
28 – Fabricated metal products	5.2	5.1	3.0	1.1	1.3
36 – Furniture and manufacturing n.e.c.	1.8	1.8	3.2	0.7	0.7
Subtotal LTM (low technology manufacturing)	***22.9***	***19.9***	***1.6***	***1.5***	***1.5***
24 – Chemicals	12.4	19.2	8.4	1.6	2.2
29 – Machinery and equipment	3.7	3.6	2.9	0.6	0.6
30 – Office machinery	0.3	0.3	3.9	0.1	0.1
31 – Electrical machinery	2.0	2.5	5.9	0.6	0.6
32 – Radio, TV and communication equipment	0.9	0.8	2.2	0.1	0.0
33 – Medical, precision and optical instruments	0.3	0.3	3.3	0.1	0.1
34 – Motor vehicles	4.9	3.8	0.4	0.9	0.7
35 – Other transport equipment	1.0	0.9	1.8	0.5	0.4
Subtotal MHTM (medium/high technology manufacturing)	***25.5***	***31.4***	***5.7***	***0.6***	***0.6***
TOTAL Manufacturing	**100.0**	**100.0**	**3.2**	**1.2**	**1.1**

Source: UNCTAD/UNIDO.

Table 3. Structure of African manufacturing exports (top 10 export products by technology category)[4]

Top 10 resource-based manufactured export products			Top 10 low technology manufactured export products		
SITC Product code	Product	Share in total manufacturing exports (2008)	SITC Product code	Product	Share in total manufacturing exports (2008)
334	Heavy petrol/bitum oils	12.4	845	Articles of apparel nes	2.9
342	Liquid propane/butane	4.6	842	Women/girl clothing woven	1.8
667	Pearls/precious stones	4.5	841	Mens/boys wear, woven	1.7
522	Elements/oxides/hal salt	4.2	673	Flat rolled iron/st prod	1.0
287	Base metal ore/conc nes	2.8	699	Base metal manufac nes	0.9
281	Iron ore/concentrates	2.2	851	Footwear	0.8
335	Residual petrol. prods	1.0	675	Flat rolled alloy steel	0.8
283	Copper ores/concentrates	1.0	611	Leather	0.7
37	Fish/shellfish, prep/pres	0.9	893	Articles nes of plastics	0.7
112	Alcoholic beverages	0.8	821	Furniture/stuff furnishg	0.7
Concentration level (combined share of top 10 products)		34.3	Concentration level (combined share of top 10 products)		12.0
Top 10 medium technology manufactured export products			**Top 10 high technology manufactured export products**		
SITC Product code	Product	Share in total manufacturing exports (2008)	SITC Product code	Product	Share in total manufacturing exports (2008)
671	Pig iron etc ferro alloy	4.2	776	Valves/transistors/etc	0.7
781	Passenger cars etc	3.3	764	Telecomms equipment nes	0.6
562	Manufactured fertilizers	2.8	792	Aircraft/spacecraft/etc.	0.6
773	Electrical distrib equip	2.4	542	Medicaments include vet	0.3
743	Fans/filters/gas pumps	2.3	874	Measure/control app. nes	0.3
793	Ships/boats/etc	1.5	771	Elect power transm equip	0.2
782	Goods/service vehicles	1.3	752	Computer equipment	0.2
772	Electric circuit equipmt	1.1	716	Rotating electr plant	0.1
784	Motor veh parts/access	0.9	759	Office equip parts/accs.	0.1
598	Misc chemical prods nes	0.7	525	Radio-active etc. material	0.1
Concentration level (combined share of top 10 products)		20.6	Concentration level (combined share of top 10 products)		3.3

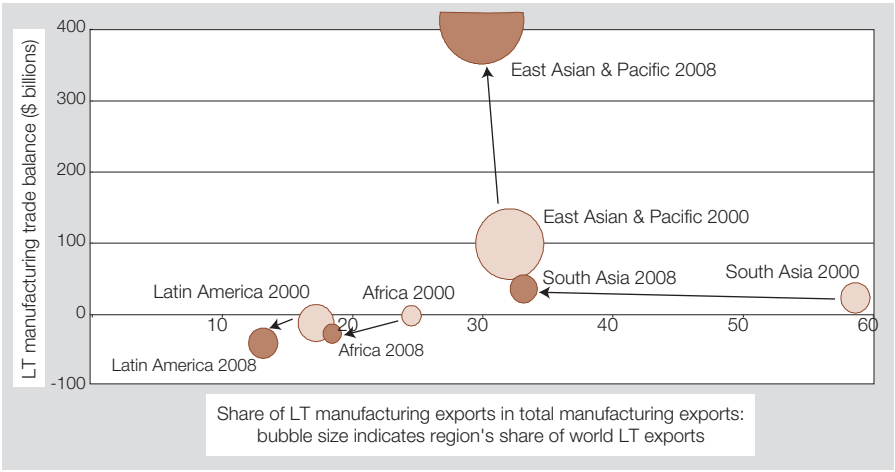
Source: UNCTAD/UNIDO.

Africa is losing ground in labour-intensive manufacturing sectors

Given the fact that most African countries are at an early stage of industrial development, one would expect the region to have very good performance in LT or labour-intensive manufacturing activities that tend to be especially important for early industrializing countries. However, the labour-intensive sectors (e.g. textiles, apparel and leather products) play a rather limited role in African manufacturing today, both in terms of domestic manufacturing production as well as exports. At the domestic level, LT manufacturing activities account for roughly one fifth of African manufacturing value-added only and its share has decreased from 23 per cent in 2000 to 20 per cent in 2009. A large part of this change is due to a decline in the share of textiles, from about 7 per cent in 2000 to 5 per cent in 2009 (table 2). The three most important LT manufacturing activities in Africa today are fabricated metals, textiles and apparel.

In terms of exports, the share of LT manufacturing exports in Africa's total manufacturing exports has also decreased, from 25 per cent in 2000 to 18 per cent in 2008 (figure 3). As a result of this decline, the region's share of global LT exports fell from 1.5 per cent to 1.3 per cent while the share of East Asia and the Pacific rose from 17 per cent to 26 per cent over the same period. Table 3 shows

Figure 3. Importance of low technology manufacturing exports and trade balance



Source: UNCTAD/UNIDO.

that the top 10 products in the LT category accounted for only 12 per cent of Africa's manufacturing exports. Furthermore, the largest three LT product groups alone (i.e. various apparel products) accounted for about half of this share. Given that many developing countries in other regions have managed to experience significant growth through exporting LT manufactures, it is also relevant to consider Africa's trade balance in LT manufactures. Although Africa's exports and imports in LT manufactures were balanced in 2000, the region had a trade deficit in LT manufactures in 2008. The fact that Africa is increasingly dependent on other regions for LT manufacturing products is significant for two reasons. First, the trade deficit indicates that African economies have a sizeable domestic market for LT products which could form a basis for the expansion of LT manufacturing activities in some African countries. Second, LT sectors are a stepping stone towards MHT sectors. Increased involvement and export growth in LT industries could stimulate capital deepening and thus facilitate structural transformation into more advanced sectors.

Africa is heavily dependent on resource-based manufactures

In 2009, resource-based (RB) manufacturing accounted for about 49 per cent of total MVA in the region, compared with 20 and 31 per cent respectively for LT and MHT manufacturing (table 2). The most important products in RB manufacturing in Africa based on their contributions to MVA are food and beverages (17 per cent) and glass and other non-metallic minerals (10 per cent). In terms of exports, Africa also has a strong dependence on resource-based manufactures. In particular, the share of RB manufactures in total manufacturing exports was 52 per cent in 2000 and 49 per cent in 2008. Furthermore, the top 10 RB manufactures accounted for 34 per cent of Africa's total manufacturing exports in 2008. Africa's high dependence on RB manufactures contrasts with the situation in Latin America and East Asia and the Pacific, where the shares of RB in total manufacturing exports were 34 and 13 per cent respectively in 2008. While RB manufacturing exports can contribute to high growth rates (Kjöllerström & Dallto 2007), they involve relatively low value addition and also make exporting countries highly vulnerable to external price shocks. Furthermore, natural resource-based sectors exhibit lower productivity growth and have few linkages with the rest of the economy (Lall, 2004c). In sum, resource-based manufactures show only very limited product differentiation and thus share several characteristics of commodities.

African manufacturing is dominated by small firms

An important feature of African economies is that the industrial structure is very weak in terms of both the number of firms and of their average size. While there are differences across countries, the large majority of industrial firms are small or micro enterprises operating side by side with a few large-scale (often foreign or State-owned) firms found mostly in the raw material and extractive sectors. It should be noted that a significant proportion of the small or micro enterprises in Africa are informal as opposed to formal firms. Furthermore, African economies are characterized by a "missing middle" in the size distribution of firms in the sense that there are very few medium-sized firms (Bigsten and Söderbom, 2006). The small average size of African firms is a problem from the perspective of long-run growth since the size of firms is correlated with export activity and productivity (Rankin *et al.*, 2006). In particular, small firms tend to be less productive than large firms.

In addition to the size distribution of firms in African countries, which is highly skewed towards micro and small firms, there is the fact that firms are also characterized by extremely low size mobility. In other words, it is difficult either for micro and small firms to become medium-sized firms or for the latter to become large firms (Sandefur, 2010; van Biesebroeck, 2005b). Furthermore, there is a high degree of concentration in the sense that a few large and mid-sized firms account for the bulk of manufacturing value-added and exports in Africa. For example, in Ethiopia, 31 large and mid-size firms account for about half of total exports (Sutton and Kellow, 2010).

With the exception of firms involved in industrial clusters, there is relatively very low interaction among African firms. The lack of interaction is a concern because linkages among firms have positive effects that enhance firms' competitiveness. Both cooperation (which allows exploitation of economies of scale as well as scope and favours innovation, learning and skills development) and agglomeration (which increases the local availability of skilled labour, inputs and machinery) are beneficial to firms (Altenburg and Eckhardt, 2006).

African firms have weak technological capabilities

Another interesting feature of manufacturing in Africa is that domestic firms have weak technological capabilities and are embedded in fragmented learning and innovation systems. Oyelaran-Oyeyinka (2006) suggests that African countries

have weak capabilities in mechanical or engineering industries, are trade-based commodity economies, and are largely users rather than developers of new technologies. Lall (2004b) attributes the weak technological capability of African firms to lack of technological support and infrastructure for domestic enterprises. Furthermore, he argues that most African enterprises do not make significant investments in technological effort. Consequently, they have difficulties entering into, as well as competing in, export markets for medium and high technology manufactures.

Industrial clusters play an important role in African manufacturing

Industrial clusters play an important role in African manufacturing.[5] An industrial cluster may take different forms: in its simplest form it is an agglomeration of (usually) small and medium-sized firms which belong to the same sector. One or more large firms may also be part of the cluster. A major advantage of being part of a cluster is that it reduces geographical and informational costs for firms. This type of organizational form is particularly advantageous in the African context characterized by poor infrastructure and weak information systems. Based on the international experience, clusters are believed to play a significant role in the promotion and development of small and medium-sized enterprises (SMEs). In general, clusters (a) make market access easier; (b) are characterized by labour pooling; (c) facilitate technological spillovers; and (d) create an environment conductive to joint actions. McCormick (1999) provides a detailed analysis of six clusters in three African countries (Kenya, Ghana and South Africa). The cases considered show that African clusters, far from being homogeneous, vary in both internal structure and level of industrialization. Furthermore, research on African economies has shown that belonging to clusters, particularly in the case of SMEs, is associated with an increase in firm's competitiveness (Zeng, 2008). Interestingly, African clusters belong to very different sectors, from natural resource-based activities, such as fishing, to high-tech industries, such as auto parts and computer manufacturing.[6]

Informality is a feature of African manufacturing

Another characteristic of African manufacturing is the preponderance of informal enterprises. While it is difficult to obtain recent and reliable data on informality in the region, there is some evidence that it is quite high. For instance, Bigsten, Kimuyu and Lundvall (2004) show that in Kenya informal manufacturing enterprises

account for about 83 per cent of total manufacturing employment. Furthermore, over the period 1998–2002, the informal manufacturing sector growth rate was 10.5 per cent compared to the growth rate of formal manufacturing sector which was 1.5 per cent. Meagher (2009) provides an account of informal industrialization of the Igbo States in Nigeria. She argues that the expansion of local manufacturing in Nigerian cities (such as Aba and Nnewi) could be ascribed to the widening of markets made possible by informal trading and transport networks.

The extent of informality is relevant to the issue of industrial development because it has been shown that there is correlation between the legal status of a firm and its production characteristics. La Porta and Shleifer (2011) provide an analysis of informality in Africa. They define informal firms as those that are not registered with the government. In other words, they operate outside the legal framework. Using data from 24 African countries, they find that informal firms have lower productivity than small formal firms. Furthermore, they are smaller in size, produce to order, are run by managers with low human capital, do not have access to external finance, do not advertise their products, and sell to largely informal clients for cash. The analysis also highlights something very important from an industrial policy point of view. Informal and formal firms occupy very different market niches and the former rarely become formal since there is very little demand by formal firms for informal products. Most importantly, it seems that informal firms do not become formal as they grow.

It should be noted that the informal sector is not homogenous in the sense that informal firms have very different characteristics. For instance, evidence for Mozambique shows there are substantial differences among informal enterprises in the country, which implies that effective policy interventions should take into consideration the heterogeneity of firms (Byiers 2009). There are various reasons for the informality of firms: it may offer a means of survival in the absence of social security nets, it may be a way to earn income while searching for a formal job, or it may be a strategy to compete with formal firms. A distinction should also be made between informal firms that would prefer to be formal if they could (involuntarily informal) and those that choose to be informal as a strategy (voluntarily informal). Policy intervention should take into consideration these two very different types of informality.

Manufacturing performance varies across African countries

Heterogeneity amongst countries is an important feature of African manufacturing. In particular, there is a wide variance across countries in terms of both the level and growth of MVA per capita (table 4). In 1990, 6 of the 52 African countries for which data are available had MVA per capita of at least $200 and in 2010 the number of countries with an MVA per capita of at least $200 was 9. In terms of manufacturing growth, 23 African countries had negative MVA per capita growth over the period 1990–2010 and 5 countries had an MVA per capita growth above 4 per cent. This issue of heterogeneity is taken up in more detail in the next chapter.

C. LESSONS LEARNED

The review of the history of attempts to promote industrial development in Africa and the analysis of the performance of African manufacturing presented in this chapter suggests that, in general, the strategies adopted did not achieve the broad objective of inducing structural transformation and economic diversification in the region. While some progress was made in several countries at the different industrial development phases, this has not been enough to trigger and sustain significant structural transformation in the region. In addition, the limited progress made so far has not led to a significant change in the region's share of either global exports or manufacturing value-added. Consequently, the region remains marginalized in world trade. Notwithstanding this drawback, there are important lessons to be learned from the four decades of attempts to promote industrialization in the region.

The nature and implementation of domestic policies matter

One of the lessons from the industrial development experience of African countries is that the form and the implementation of domestic policies affect development outcomes. Policy failures both in design and implementation during the ISI, SAP and PRSP phases did contribute to the poor industrial performance of African countries (Soludo, Ogbu and Chang 2004; Lall and Mwangwe 1998). In the ISI phase, government policies and efforts focused more on providing support to entrepreneurs than on getting them to perform. Furthermore, the emphasis was on setting up industries rather than on building dynamic capabilities that would allow firms to be competitive and survive in export markets. With regard to SAP, the withdrawal of government support even in the presence of pervasive market

Table 4. Manufacturing performance of African countries

Country	MVA per capita (1990)	MVA per capita (2010)	MVA per capita (Compound annual growth rate 1990–2010)	RB manufacturing share of MVA (2009)	LT manufacturing share of MVA (2009)	MHT manufacturing share of MVA (2009)
Algeria	179	136	-1.4	67	20	13
Angola	26	66	4.8	46	41	12
Benin	21	23	0.4			
Botswana	124	171	1.6			
Burkina Faso	26	37	1.9			
Burundi	16	9	-2.9			
Cameroon	126	148	0.8	75	24	2
Cape Verde	108	139	1.2			
Central African Republic	21	16	-1.3	76	16	8
Chad	22	15	-1.8			
Comoros	14	12	-0.9			
Congo	62	83	1.5	81	6	13
Côte d'Ivoire	112	99	-0.6	70	13	17
Dem. Rep. of the Congo	16	5	-5.7			
Djibouti	37	20	-3			
Egypt	177	369	3.7	37	16	48
Eritrea	9	9	0.2			
Ethiopia	8	9	0.3	67	20	13
Gabon	163	200	1	76	16	8
Gambia	19	16	-0.7			
Ghana	20	28	1.6	86	7	6
Guinea	12	17	1.7			
Guinea-Bissau	26	16	-2.2			
Kenya	49	47	-0.3	68	19	13
Lesotho	44	103	4.3	36	55	9
Liberia	34	17	-3.6			

Table 4 (contd.)

Country	MVA per capita (1990)	MVA per capita (2010)	MVA per capita (Compound annual growth rate 90-10)	RB manufacturing share of MVA (2009)	LT manufacturing share of MVA (2009)	MHT manufacturing share of MVA (2009)
Libyan Arab Jamahiriya	319	237	-1.5	81	8	11
Madagascar	30	25	-0.8	79	13	7
Malawi	21	17	-1	38	48	14
Mali	13	7	-3.3	28	61	11
Mauritania	27	22	-0.9			
Mauritius	522	801	2.2	35	48	16
Morocco	180	246	1.6	45	30	25
Mozambique	15	52	6.2			
Namibia	92	348	6.9			
Niger	13	10	-1.5			
Nigeria	15	24	2.4	26	53	21
Rwanda	56	17	-5.9			
Sao Tome and Principe	34	50	1.9			
Senegal	57	54	-0.3	80	6	14
Seychelles	692	1,193	2.8			
Sierra Leone	9	6	-2.4			
Somalia	8	7	-0.1			
South Africa	551	581	0.3	52	17	31
Sudan	19	34	2.8	84	9	7
Swaziland	311	451	1.9			
Togo	22	25	0.5			
Tunisia	253	493	3.4	51	26	22
Uganda	9	26	5.6	58	29	13
United Republic of Tanzania	19	29	2.2	68	6	26
Zambia	36	44	1.1	74	11	15
Zimbabwe	106	34	-5.5	44	44	12

Source: UNCTAD/UNIDO.

failures and the liberalization of trade without taking account of the capabilities of domestic firms are some examples of policy failures during this phase. In the case of the PRSP, the main policy failure was the fact that it shifted resources away from the productive sectors which are necessary for sustained growth and poverty reduction.

Structural constraints have to be dealt with

Although policy failures and exogenous shocks did contribute to poor industrial performance in Africa, structural factors also played a role and have to be addressed to enhance the likelihood of success in industrial development. The structural factors are manifest in the form of poor infrastructure, low human capital, small size of domestic markets, and a low entrepreneurial base (Lall 2004a). Infrastructure is critical to the development of manufacturing. But African countries have very poor transport, communication and energy infrastructure. Furthermore, Africa lags behind other developing country regions in skills and vocational training, reflecting largely the impact of the relative neglect of tertiary education. With regard to the other structural factors, there is the recognition that more effort has to be geared towards the development of entrepreneurship as well as building robust regional markets to address the limitation imposed by the small size of domestic markets.

Ownership of the development process is important

Another lesson from the experience of African countries is that, if they are to make significant progress in boosting and sustaining industrialization, they must take effective leadership of the development process. Because of Africa's high dependence on official flows, external actors have had significant influence on the choice of policies and development paths in the region and this has had serious consequences for the attainment of national development goals (UNCTAD, 2006; UNECA and African Union Commission, 2008: OECD, 2008). The experience of the SAP and PRSP phases indicates that, when countries do not have the space to adopt development policies and path they deem necessary, they are unlikely to achieve their industrialization objectives. Promotion of industrial development requires active government policies to build domestic capabilities and direct investment and resources to priority areas. External influences in the form of policy and process conditionalities limit the policy space available to governments and make the achievement of industrial development more difficult (UNCTAD, 2009c).

Exclusively inward-looking industrialization strategies have severe consequences

The experience with ISI in Africa suggests that an industrialization programme that focuses exclusively on the domestic market and does not have an export promotion component is likely to run out of steam. The small size of domestic markets in most African countries implies that they are unlikely to sustain an industrialization programme without access to external (regional and global) markets. External markets would provide an opportunity for African countries to expand production as well as exports, and reap the benefits of scale economies. It would also provide access to foreign exchange needed to import intermediate inputs and capital goods for domestic industries. In this context, it is important that industrial development in Africa be part of an overall process of integration into the global economy rather than inward-looking as in the ISI period. This means that both the domestic and external (regional and global) markets are important in the industrialization process.

Technological capabilities of domestic firms have to be developed

Technology and innovation are important in building the capabilities of domestic firms and preparing them to compete in export markets for medium and high technology manufactures. One of the lessons from past attempts to promote industrialization in Africa is that governments did not pay more attention to the building of technological capabilities of domestic firms to enhance their ability to produce medium and high technology goods (Oyelaran-Oyeyinka 2006). Lall (2004b) argues that African countries lag behind other regions in the provision of technological support and infrastructure to domestic firms. Furthermore, he suggests that the establishment of institutions for quality standards and testing, support for research and development, and provision of services to improve productivity are important government measures that could contribute to enhancing the technological capabilities of domestic firms.

Linkages are needed between agriculture and industry

The need to enhance food security implies that agricultural development should be part of Africa's development agenda. Furthermore, given the region's current endowment structure and stage of development, it is evident that the

agriculture sector will continue to be a major source of revenue, employment and foreign exchange in the short-to-medium term. Therefore, it is important that the promotion of industry is not done at the expense of agriculture. The experience of industrialization in Africa has shown that promoting industry through discrimination against agriculture will ultimately lead to agricultural as well as industrial stagnation, with dire consequences for growth and poverty reduction. There has been the tendency for policymakers to treat agriculture and industry as competitive alternatives. However, they are not necessarily substitutes and could be complements. In this regard, African countries can exploit the potential complementarities between both sectors through judicious use of policies to create mutually reinforcing linkages between them.

Avoid a top-down industrialization process

The government and the executive branch of government in particular, has been the main actor in the industrialization process of African countries. It allocates resources and makes decisions on which activities or sectors should be accorded priority, often with little or no consultation with the private sector. The experience of African countries, particularly during the ISI period, suggests that effective State–business relations are needed for effective design, implementation and monitoring of industrial development programmes. Interaction and coordination between the State and the private sector will ensure that policymakers have a good idea of the constraints facing businesses which should have a positive impact on policy design and implementation.

Political stability is a necessary condition

Another important lesson from the decades of implementation of industrial development strategies in Africa is that political stability is a necessary condition for the success of any industrial development programme. Addressing policy failures and lifting structural constraints will not have any substantial impact on industrialization if the political environment is not conducive to investment. In particular, domestic and foreign entrepreneurs are unlikely to invest in a society that is politically unstable. In addition, political instability hampers the development of manufacturing because it is often associated with the destruction of infrastructure and an increase in the cost of credit through rising risk premium.

Sustainability is as important as initiating an industrial programme

The lesson from the ISI period is that it is easier to start an industrial programme than to sustain it. Past attempts at industrialization in Africa and some parts of Latin America failed in part because they were based on a short-term view of the industrialization process and paid less attention to enhancing capacity to generate the foreign exchange needed to ensure sustainability. If industrial policy in Africa is to achieve the twin objective of promoting and sustaining industrialization, policymakers must adopt a long-term view of the development process. They also have to make informed decisions and either have or develop the capacity to effectively implement them.

CHAPTER 3

TOWARDS A NEW INDUSTRIAL POLICY IN AFRICA: INDUSTRIAL DIAGNOSIS AND STRATEGY DESIGN

A. INTRODUCTION

The analysis of Africa's industrial performance in the previous chapters suggests that most countries in the region are still struggling to develop a competitive manufacturing sector. But there is at the same time a growing consensus that African countries have to diversify their production and export patterns to reduce vulnerability to shocks, to boost growth, to provide employment opportunities and to enhance their integration into the global economy. Against this background, there is an increasing interest amongst African policymakers in the potential role of industrial policy in the region. But at the same time they are searching for a new approach which does not repeat the mistakes of the past. The rest of this Report discusses key elements of new industrial policy in Africa.

There is no convergence of views on what should constitute industrial policy.[7] In this Report, the term is used to describe *government measures aimed at improving the competitiveness and capabilities of domestic firms and promoting structural transformation.* Industrial policy involves a combination of strategic or selective interventions aimed at propelling specific activities or sectors, functional interventions intended at improving the workings of markets, and horizontal interventions directed at promoting specific activities across sectors (Lall and Tuebal, 1998). An important aspect of a new industrial policy is that it should be part of a broader productive development strategy which is concerned with enhancing capital accumulation and knowledge accumulation. But the focus in this Report will be on developing the manufacturing sector.

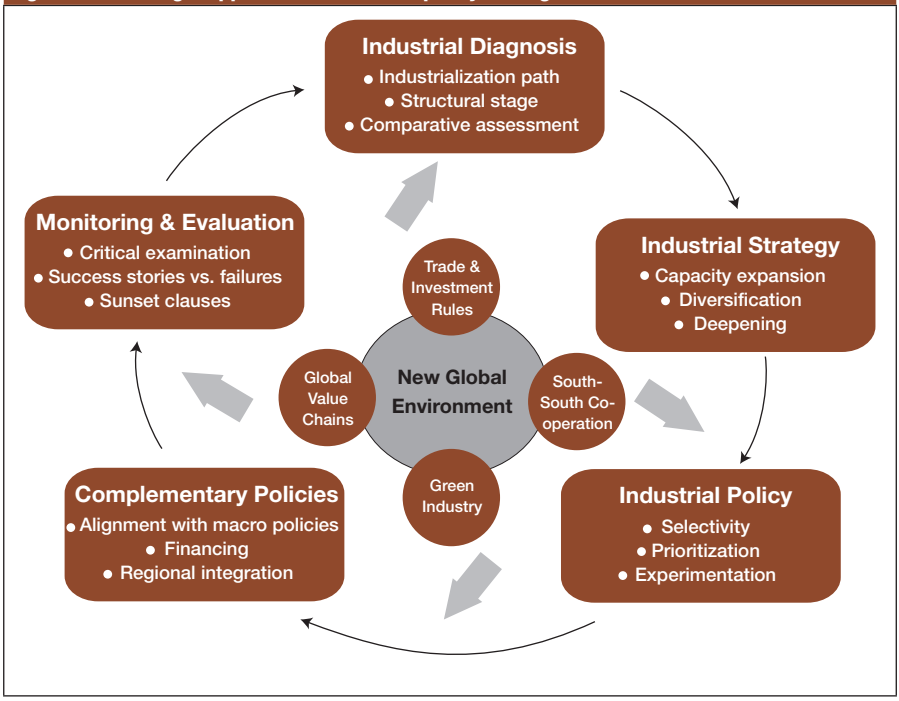
The present Report advocates a strategic approach to industrial policymaking which is tailored to specific country circumstances. A one-size-fits-all approach has not worked in the past and will simply not work in the future. Country specificities necessitate flexibility in the strategy design and also the policymaking process. A new industrial policy should not follow a universal blueprint approach. Instead, it has to build on the initial conditions and deliberately target the country specific economic constraints that are the key obstacles to a sustained industrial growth path.

Taking into account the importance of country specificities, an industrial strategy has to be designed on the basis of the country's current situation or starting position. Most importantly, the already existing manufacturing activities have to be taken into consideration as well as differing development stages, endowment structures, country and population size, etc. This implies that the design of an industrialization

strategy has to be based on a thorough evaluation of the country's present industrial base, i.e. an industrial diagnosis.

Figure 4 summarizes this policymaking process. It starts with an industrial diagnosis and the design of an industrialization strategy, and then moves to consider the industrial policies needed to implement the strategy. The figure also indicates that industrial policies have to be aligned with other policy areas that should complement the decisions taken, in particular macro-economic policies and financial policies. Another important feature of this strategic approach to industrial policymaking relates to the feedback loop from policymaking to the diagnosis stage. Essentially, it has to be ensured that a critical examination of prior policy decisions (i.e. an independent monitoring and evaluation process) identifies success stories and failures that can inform the next policymaking cycle. Through such monitoring and evaluation, a systematic process of policy learning can take place, enabling

Figure 4. A strategic approach to industrial policymaking in Africa



Source: UNCTAD/UNIDO.

adaptation and better performance. On top of that, the decision-making process needs to take serious account of the challenges and opportunities of the new global environment.

The rest of this chapter focuses on the first two stages of the strategic approach to industrial policymaking – industrial diagnosis and industrial strategy. This is concerned specifically with the strategic or selective dimension of industrial policy. Chapter 4 considers the why and how of industrial policy, including monitoring and evaluation, and also the importance of complementary policies. Chapter 5 discusses the new global environment and considers how the strategy and policy might take into account new trade and investment rules, climate change challenge, South–South cooperation and the potential of integrating into global value chains.

B. THE QUESTION OF STRATEGIC CHOICE AND SELECTIVITY IN FACILITATING STRUCTURAL CHANGE

Following Lall (1996) and Lall and Teubal (1998), industrial policy can take three forms: functional, vertical and horizontal. Functional policy refers to government interventions aimed at improving the operation of markets, in particular factor markets, without favouring activities. Examples would be interventions to prevent collusion and facilitate entry by entrepreneurs into markets, or measures to reduce the transaction costs of doing business. Vertical policy, on the other hand, refers to interventions that favour specific sectors, industries or firms. Examples are sector-specific subsidies and giving certain firms or sectors preferential access to capital. In contrast with vertical policy, horizontal policy is geared towards promoting specific activities across sectors. For example, the provision of support for research and development or finance for innovative activities is a horizontal policy.

Efficient industrial policies normally include some mix of functional, horizontal and vertical elements. However, if African governments want to steer productive activities in a particular direction, they must decide on a specific way forward. Selectivity of course raises difficult issues which are often summarized with the advice that governments are wrong to “pick winners”. But African countries face serious technical, capacity and time constraints. Thus, it is impossible for them to tackle all economic constraints in all industries simultaneously. Also, whilst financial capital is quite fungible, much fixed physical capital and human capital is often specific to certain products and sectors. One cannot grow pineapples on cocoa trees. Moreover, while the upgrading of the food industry will definitely

require advanced capabilities in food processing, testing, etc., that only agricultural engineers possess, a diversification into electrical machinery will most probably be impossible without a critical number of electrical engineers. It is therefore necessary to make strategic choices and to prioritize the identified needs for action. How that is done is then the critical issue.

One approach which has been proposed by Lin and Monga (2010: 17–19) involves six steps:

- First, the government identifies the list of tradable goods and services that have been produced for about 20 years in dynamically growing countries with similar endowment structures and a per capita income that is about 100 per cent higher than their own;
- Second, among the industries in that list, the government may give priority to those in which some domestic private firms have already entered spontaneously and try to identify (a) the obstacles that are preventing these firms from upgrading the quality of their products; or (b) the barrier that limit entry to those industries by other private firms;
- Third, for those industries which are completely new to domestic firms, the government could adopt specific measures to encourage FDI from higher-income countries and incubation programmes to catalyse private domestic firms into these industries;
- Fourth, support should also be given to industries not on this list but which are successful self-discoveries by private enterprises in the country to enable the scale up of these industries;
- Fifth, in countries with very weak infrastructure, and an unfriendly business environment, the government should invest in industrial parks or export processing zones and attempt to attract domestic firms and foreign firms that are willing to invest in the targeted industries;
- Sixth, the government can provide time- and cost-limited incentives to pioneer firms or foreign investors that work within the industries identified in step 1 to compensate for non-rival public knowledge created by their investments.

Whilst this approach is quite sophisticated in many respects, it focuses particularly on identifying the most promising activities that match a country's

current comparative advantage. Whilst this is certainly an important aspect of industrial policy, successful industrial policies have often involved a combination of "leading the market" and "following the market". In the former case, government encourages investment decisions that private actors would not make, whilst in the latter, the government supports some of the investments and innovation of private firms to encourage a marginal extension of the production frontier in specific areas of production. Leading the market seeks to anticipate the future, in which existing comparative advantages in natural resource based and cheap labour are used up, and also seeks to create comparative advantages in particular products and sectors by building technological capabilities at the firm level and clusters of activity. In such cases, the government not only exploits current comparative advantage but also, in certain sectors, seeks to "defy" current comparative advantage at a particular moment in time in order to ensure that gradually, over time, its comparative advantage is extended and upgraded (see debate between Lin and Chang, 2009).

What this implies in practice is, as Lauridsen (2010) points out, the nurturing of a new generation of industries. This can be done in various ways, including in particular (a) fostering new industrial capacity, (b) diversifying production, (c) creating inter-sectoral and inter-industry linkages, (d) promoting learning, (e) improving productivity, (f) shifting economic activity towards higher value added activities that provide access to more dynamic and rewarding niches in the world. Although it is not easy to draw the exact boundaries between these dimensions in reality, Lauridsen broadly distinguishes three complementing and interlinked strategic approaches:

- *Industrial diversification* implies the creation of new industrial capacity through the nurturing of hitherto non-existent manufacturing activities, thus leading to sectoral diversification;
- *Industrial deepening* aims at the creation of more backward- and forward-linkages and complementarities within a country between sectors and industries;
- *Industrial upgrading* aims at fostering a more advanced and competitive industrial structure through product upgrading, process upgrading and functional upgrading.

In other words, when designing industrial strategies, governments have to decide which existing manufacturing industries they want to strengthen, which new

industries they want to stimulate and in which industries they want to improve the internal integration of existing involvements.

As indicated earlier, this cannot be done according to a recipe. But Africa can learn from the experiences of earlier industrialization success stories, at least to some extent. One promising way to use this historical knowledge relates to the anticipation of the structural change process (Altenburg, 2011). Although Africa's future will obviously not resemble the industrial development path of other regions, earlier successful industrial growth trajectories can certainly provide reference points. A comparative analysis with suitable comparators can thus shed light on options for proactive measures to shape Africa's industrialization.

C. A FRAMEWORK FOR INDUSTRIAL STRATEGY DESIGN

Figure 5 provides a framework for identifying industrial development priorities, which takes account of the potential of current comparative advantage and also activities that can become viable in the medium and long run. The framework is based on two dimensions. Firstly, it has to be acknowledged that the relative potentials that different industries offer to a certain country depend on their *feasibility*, namely the requirements that these industries have with regard to technological capabilities and endowment structures. Secondly, the decision on which industries to support should be based on a detailed understanding of the relative *attractiveness* of individual manufacturing sectors for the country in question, at its current and future stages of development.

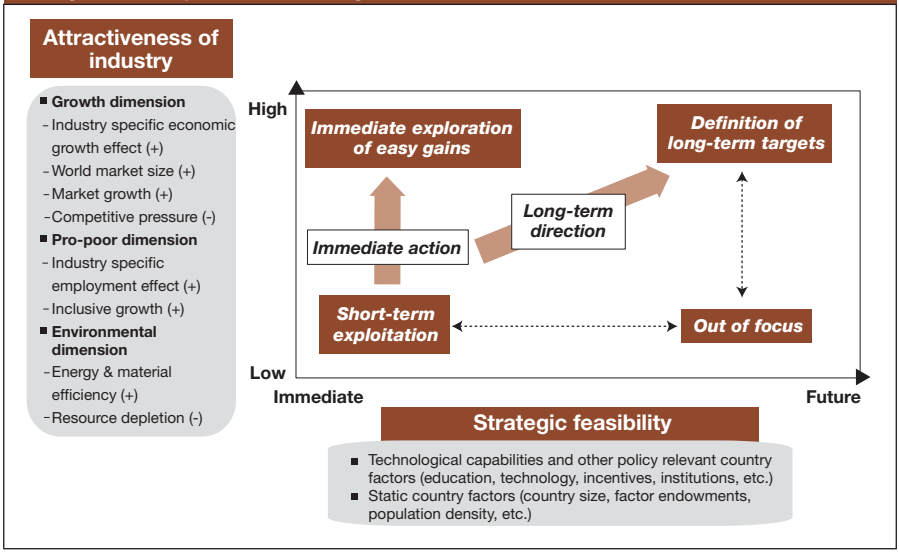
The attractiveness of industries can be evaluated in several dimensions. The growth dimension of attractiveness looks at the economic growth potentials that certain sectors offer to countries that are at a certain development stage and have certain endowment structures as well as technological capabilities.[8] In addition, global market factors such as market size, market growth and the intensity of competition also influence this dimension. For example, the fact that China is extremely dominant in the world market for several products today certainly reduces the attractiveness of these activities for African countries. However, industrial policies for African low-income countries should always balance economic with social and environmental goals and thus need to comprise a social and environmental impact assessment (Altenburg *et al.,* 2008).

In order to ensure a poverty reduction focus, the attractiveness evaluation should include a pro-poor dimension. With the aim of ensuring equal opportunities for the African poor to participate in manufacturing, the employment effect of individual sectors as well as growth inclusiveness aspects have to be factored in. In this respect, it is important to highlight the finding that resource-based industrialization usually goes hand in hand with a more unequal growth path than labour-intensive manufacturing (UNIDO, 2009). As far as the environmental dimension is concerned, the ecological impact of individual industries has to be considered because environmental concerns and especially climate change will increasingly affect the industrialization path of African countries in the near future. One promising way to take the environmental implications of structural change into consideration is to compare the energy efficiency (UNIDO, 2011), material efficiency as well as resource depletion effects of the relevant sectors. In sum, it has to be acknowledged that industrial strategies will always face the trade-off between economic, social and environmental targets. Although a detailed comparative analysis of the attractiveness of industries in the three dimensions can certainly inform policy decisions, the ultimate necessity to execute a judgement will never disappear.

Apart from the attractiveness assessment, industrial strategies have to take the strategic feasibility of manufacturing activities into consideration. While some activities are immediately viable because they are in line with the country's current endowments, capabilities, etc., other activities will only be feasible in the future, e.g. because they require a substantial enhancement of the technological capabilities. Some opportunities within current comparative advantage might also not be fully utilized. A major error which countries can make in formulating industrial policies is that they rush to promote sophisticated industries without the requisite accumulation of skills and scale economies. While Lin & Monga (2010) do not consider potentials in industries that are not in line with a country's current comparative advantage in their identification framework, this approach provides additional insights into activities that might require "defying" the current comparative advantage in order to build the necessary technological capabilities for activities that will be viable in the medium to long-run (Lin & Chang, 2009).

On the basis of this framework, it is possible to compare the relative attractiveness and strategic feasibility of various manufacturing industries for a specific country case. In addition, it is also necessary to get an idea of the scale of the output potentials that these industries have for the respective country.

Figure 5. Framework for the comparative assessment of the relative attractiveness and strategic feasibility of manufacturing activities for African countries



Source: UNCTAD/UNIDO.

Figure 6 illustrates the current as well as future potentials in individual manufacturing industries for a hypothetical country. A large bubble represents a relatively high immediate or future output potential, while a small bubble represents an industry in which the output potential is rather limited. On top of that, the brown share of the bubbles indicates the potential that is already being exploited, while the grey share indicates the potential that is not being exploited yet.[9] Generally, the following assertions can be made with regard to potentials at the four combinations of high and low industry attractiveness as well as immediate and future strategic feasibility that can be distinguished:

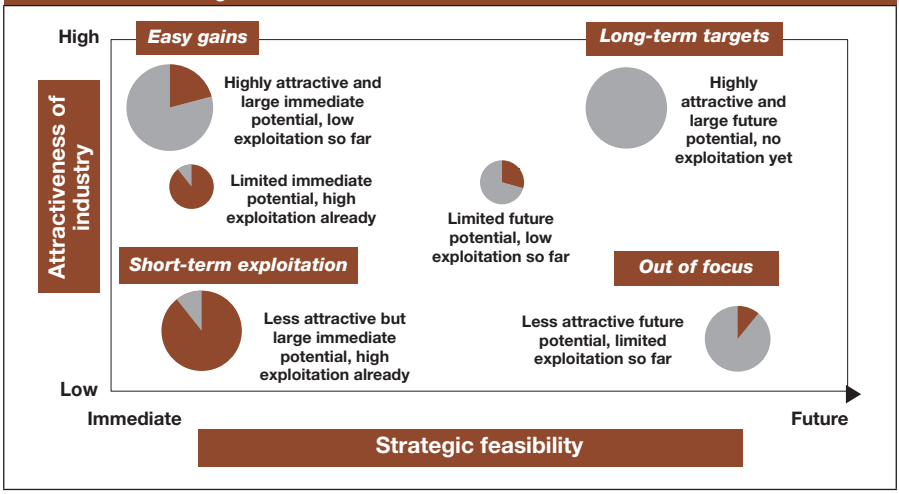
1. Industries that have an immediate strategic feasibility but a relatively low attractiveness, e.g. because of their limited growth potential. In these sectors, the short-term exploitation of currently unused potentials should be the focus. If there are still large potentials that are not being exploited at the moment, capacity expansion measures play a major role here. If the exploitation ratio is already very high, process and product upgrading as well as deepening measures could be considered. However, given their low attractiveness, these activities have a low priority in African industrialization strategies;

2. Industries that have an immediate strategic feasibility and a high attractiveness, e.g. because of their rapid growth prospects. If countries are underrepresented in these sectors, i.e. they have a *latent* comparative advantage (Lin & Monga, 2010), immediate action is required to take advantage of the potential. When the country already covers these activities to a certain extent, capacity expansion and upgrading as well as deepening measures are highly relevant. If these sectors are not existing yet, short-term diversification measures towards these industries could be considered. Essentially, governments have to remove the constraints that impede the expansion of the identified industries to create the conditions that allow them to become the country's actual comparative advantage.[10] Given their high attractiveness, African governments should give a high priority to these activities in their industrialization strategies;

3. Activities with high attractiveness but which are only feasible in the future, e.g. because they require advanced technological skills. Although the country does not have a current (*latent/static*) comparative advantage in these sectors, African countries cannot afford to disregard the future potentials that these industries can offer. Instead, they should carefully select the most promising industries as long-term targets and deliberately invest in developing the lacking technological capabilities that are crucial to succeed in these sectors in the future. Long-term diversification measures are obviously essential in this respect. Deepening measures can also be considered at a certain stage – e.g. the creation of clusters to foster linkages between the new entrepreneurs and already existing relevant domestic suppliers of key inputs. Several authors argue that government intervention should exclusively focus on sectors with latent comparative advantage. This more dynamic approach to the design of industrialization strategies will also give a high priority to the definition of long term targets instead;

4. Industries which are only feasible in the future and have a low relative attractiveness, e.g. because they do not have major growth prospects. These industries are obviously no priority for African industrialization strategies. However, the distinction between these sectors and the long-term target sectors is perhaps the most crucial exercise for the long-term direction of an industrialization strategy.

Figure 6. Illustration of the relative attractiveness and feasibility of unused potentials in various manufacturing industries



Source: UNCTAD/UNIDO.

D. APPLYING THE FRAMEWORK: A TYPOLOGY OF AFRICAN COUNTRIES' INDUSTRIAL PERFORMANCE

In order to discuss and assess future industrialization possibilities and opportunities, country-specific details have to be taken into account. In practice, this must be done on a country-by-country basis. However, recognizing the heterogeneity of African countries, this section presents a typology of industrial performance of African countries which might be used at an initial stage to consider possible strategic options for different countries.

The typology is based on two indicators: their industrialization level in 2010 and industrial growth performance 1990-2010:[11]

- The *industrialization level* of each country is captured by its manufacturing value added per capita. This indicator allows us to identify African countries which have a substantially higher manufacturing capacity than the regional average as well as those that do not possess any sizeable manufacturing activities yet. Since the regional average MVA per capita is $100, African countries that have an MVA per capita level of $200 and above are considered

to have a relatively advanced industrialization level. It should be noted that the threshold level used is twice the regional average;

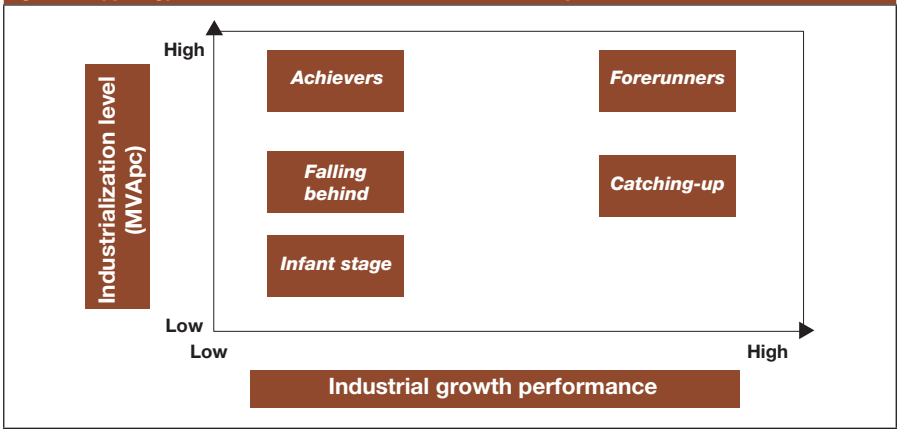
- The *industrial growth performance* is captured by the compound annual growth rate of MVA per capita. This indicator allows us to identify the most dynamic African industrializers as well as stagnating and de-industrializing countries. Countries that have an MVA per capita growth rate higher than 2.5 per cent are regarded as having relatively very high growth performance. The 2.5 per cent threshold is about 3.5 times the African average MVA per capita growth of 0.7 per cent.

Based on these indicators, African countries can be divided into five groups (figure 7):

- The first group of countries (*Forerunners*) is on a long-term sustained-growth path with an industrialization level at least twice the African average and an industrial growth performance that is at least 2.5 per cent;
- The second group of countries (*Achievers)* also attained a comparatively high industrialization level in per capita terms. However, their industrial growth performance is below the 2.5 per cent threshold;
- The third group of countries (*Catching-up)* is on a fairly promising fast growth path which, if sustained, has the potential to take them to a substantially higher industrialization level in a relatively short timeframe;
- The fourth group of countries (*falling behind)* has a relatively low industrialization level and unlike the catching-up countries did not manage to achieve an industrial growth rate high enough to significantly improve their situation;
- The final group of countries (*Infant stage)* has a very low industrialization level as well as very poor industrial growth performance. Many countries in this group have had negative MVA per capita growth in recent years. It is not clear whether or not they can manage to initiate an industrialization process successfully. So far, their manufacturing capacity amounts to less than one tenth of the achievers and forerunners and there are very little signs of improvements in manufacturing growth performance.

Figure 8 shows where individual African countries fit in the five groups discussed above. It indicates that, while some countries have made significant progress in both industrialization level and industrial growth performance, the majority of African countries are seriously struggling to industrialize. Only 10 African countries have a

Figure 7. Typology of African countries based on industrial performance



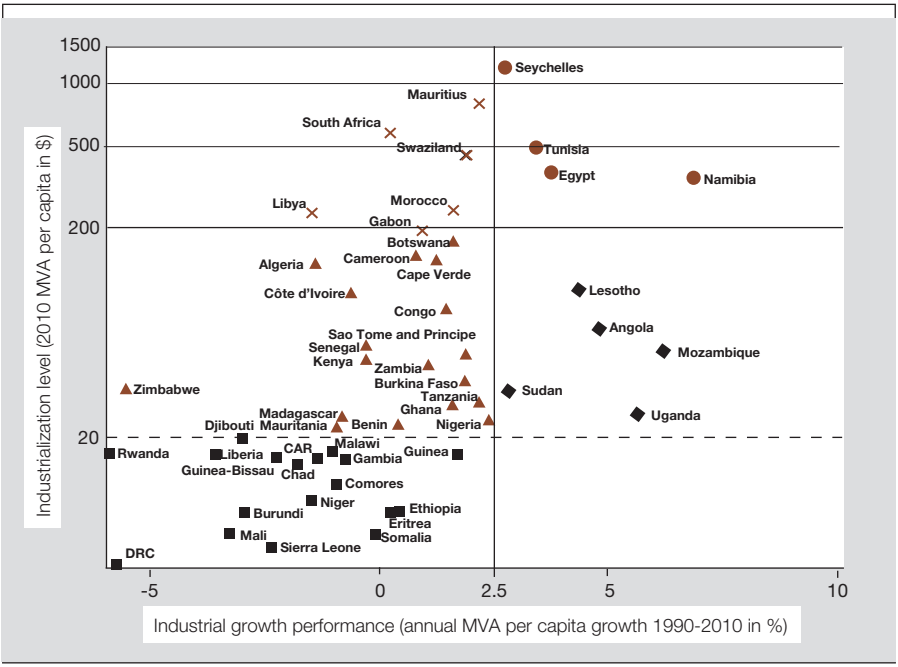
Source: UNCTAD/UNIDO.

relatively more advanced manufacturing base. Among these, 4 countries had an average annual MVA per capita growth rate of at least 2.5 per cent and are thus classified as forerunners while the remaining 6 are in the less dynamic achiever group. In addition, 5 are classified as catching-up countries. They have high industrial growth rates but have not reached the $200 MVA per capita threshold level yet. Finally, 70 per cent of African countries (36 countries) have not made significant progress. Among these countries, 18 are in the falling-behind category with at least some existing manufacturing activities that they could build on while the others have MVA per capita of less than $20 and hence no industrial base to build on. The geographical location of the countries in the different groups is shown in figure 9.

Forerunners

Based on the data presented, Egypt, Namibia, Seychelles and Tunisia are the countries classified as Forerunners. Of the four countries, the experience of Seychelles is quite interesting. It has the highest MVA per capita level in the region and although it had an MVA per capita growth rate of 7.7 per cent in the period 1990–2000, its industrial growth was negative for the period 2000–2010. Consequently, its growth rate over the full period 1990–2010 was about 2.8 per cent. Of the four countries in this category, Namibia has the best industrial growth

Figure 8. An overview of African countries' industrialization level and growth performance

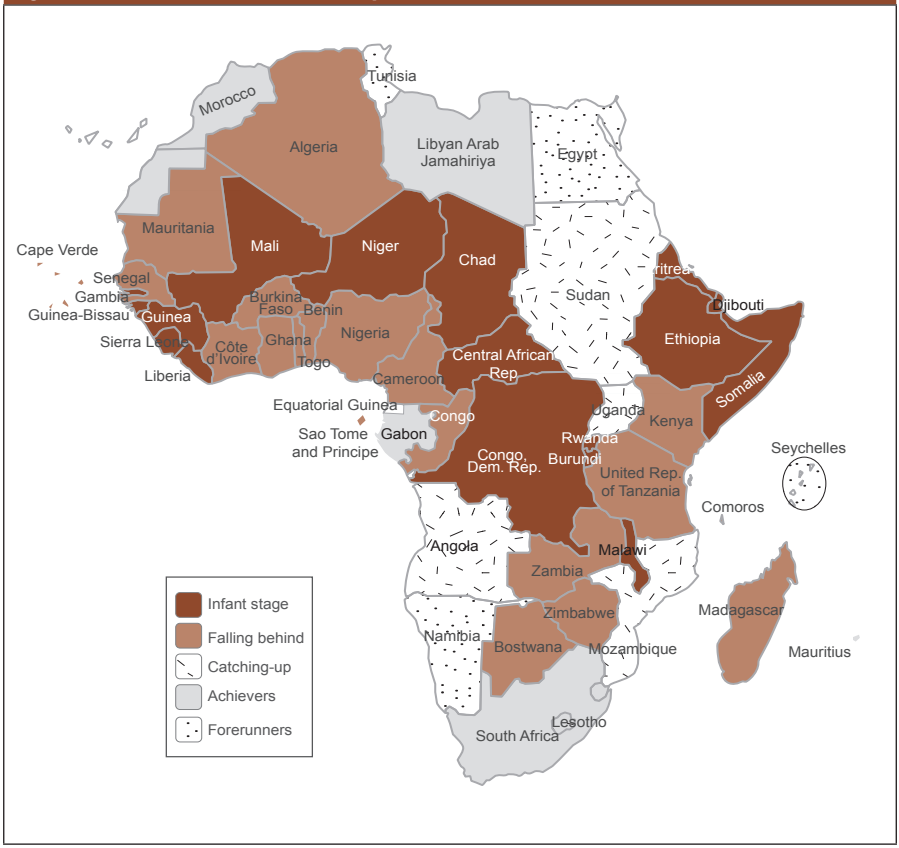


Source: UNCTAD/UNIDO.

performance, with an average growth of 7 per cent between 1990 and 2010. In 1990, it had an MVA per capita of $92, which was less than the figures for Morocco, the Libyan Arab Jamahiriya and Gabon. However, as a result of its impressive industrial growth, it has managed to surpass the MVA per capita level of these countries. Although Namibia has had an impressive industrial growth performance, it is heavily dependent on a few resource-based manufacturing activities. In particular, pearls and precious stones as well as uranium products account for almost two thirds of Namibia's manufacturing exports today. Consequently, a challenge for this country is how to move into medium and high technology manufacturing activities and or increase value addition in existing activities (Rosendahl, 2010).

The two North African countries (Egypt and Tunisia) have also made significant progress in industrialization. Their experience shows that it is feasible for African countries to substantially increase their manufacturing activities and eventually catch-up with more successful developing countries. Egypt expanded its manufacturing

Figure 9. African countries' industrial performance



Source: UNCTAD/UNIDO.

capacities rapidly during the last 20 years and thus increased its share of African MVA by more than 10 per cent. In the case of Tunisia, it almost doubled its manufacturing capacity in per capita terms during the last two decades and thus has an MVA per capita level close to that of South Africa. A critical challenge facing these North African countries is how to sustain and improve on their industrial performance, given the recent political turmoil in the subregion.

Egypt and Tunisia managed to develop a manufacturing sector with a relatively high share of GDP and also have an above average diversification into medium and high technology manufacturing and exports. In the case of Egypt, the chemical

industry is by far the most important sector among MHT manufacturing activities and accounts for more than one third of the country's MVA today. In addition, the machinery and electrical machinery industries also account for a considerable share of Egypt's manufacturing capacities (table 5). However, the country has made less progress in terms of structural transformation towards MHT manufacturing exports. In 2008, one third of Egypt's manufacturing exports stemmed from petroleum products, which are the country's major resource-based manufacturing exports. Fertilizers and other chemicals accounted for more than 10 per cent and electrical distribution equipment accounted for 3.5 per cent.

Due to the fact that Tunisia has a relatively large textile and apparel industry, its manufacturing activities are less focused on MHT industries than Egypt's. On the other hand, Tunisia is less reliant on petroleum products, which account for only 5 per cent of the country's manufacturing exports (dominated by apparel as well as several more technology intensive products such as fertilizers, electrical distribution and electric circuit equipment). Erdle (2011) ascribes Tunisia's progress in industrial development to its industrial policy as well as its geographical proximity to the European market. Despite the progress that has been made by the Forerunners, it should be noted that they still have to make up a lot of grounds in order to catch-up with the more advanced developing countries in Asia and Latin America.

Achievers

South Africa is one example of the countries classified as Achievers. It accounted for about a third of African manufacturing capacities during the 1990s. In addition, with a 2010 MVA per capita level of $581 it has a substantially higher industrialization level than other African countries, except Seychelles and Mauritius. Despite these achievements, it has had a very poor industrial growth performance the last two decades. In particular, its MVA per capita growth rate over the period 1990–2010 was 0.26 per cent, reflecting largely the fact that it suffered significant declines in industrial growth over the period 1990–2000. With regard to the other Achievers, Swaziland had MVA per capita growth rates of about 1.9 per cent over the last two decades while Morocco and Gabon had growth rates of 1.6 and 1 per cent respectively. The Libyan Arab Jamahiriya is the only Achiever that had a negative growth rate over the period 1990–2010. Although Mauritius had an MVA per capita growth rate of 4 per cent in the 1990s, its average growth over the period 2000–2010 was only 0.3 per cent. Consequently, its growth performance of 2.2 per cent over the full sample period 1990–2010 was not as strong as in the group of Forerunners.

Table 5. Industrial structure of selected African countries, 2009

Low Technology manufacturing country (LT share of MVA)	LT industry 1	LT industry 2	LT industry 3
Mali (61%)	Apparel (47%)	Furniture and n.e.c. (9%)	Fabricated metal (5%)
Lesotho (55%)	Apparel (18%)	Leather (11%)	Printing (4%)
Nigeria (53%)	Furniture and n.e.c. (16%)	Fabricated metal (14%)	Textiles (10%)
Mauritius (48%)	Apparel (27%)	Textiles (8%)	Fabricated metal (7%)
Malawi (48%)	Fabricated metal (20%)	Printing (16%)	Textiles (8%)
Angola (41%)	Textiles (25%)	Fabricated Metal (6%)	Printing (6%)
Medium and high technology manufacturing country (MHT share of MVA)	**MHT industry 1**	**MHT industry 2**	**MHT industry 3**
Egypt (48%)	Chemicals (36%)	Machinery (5%)	Electrical machinery (4%)
South Africa (31%)	Chemicals (13%)	Motor vehicles (7%)	Machinery (6%)
Morocco (25%)	Chemicals (16%)	Machinery (3%)	Electrical machinery (2%)
Tunisia (22%)	Electrical machinery (9%)	Chemicals (7%)	Radio, TV, com. equipment (2%)
Tanzania, Untied Rep. of (26%)	Chemicals (25%)	Radio, TV, com. equipment (0.2%)	Electrical machinery (0.2%)
Nigeria (21%)	Motor vehicles (16%)	Chemicals (2%)	Electrical machinery (2%)
Resource-based manufacturing country (RB share of MVA)	**RB industry 1**	**RB industry 2**	**RB industry 3**
Ghana (86%)	Food (44%)	Refined petroleum (13%)	Wood (13%)
Sudan (84%)	Food (61%)	Refined petroleum (15%)	Rubber & plastics (2%)
Libyan Arab Jamahiriya (81%)	Refined petroleum (25%)	Tobacco (22%)	Food (19%)
Madagascar (79%)	Food (55%)	Refined petroleum (11%)	Tobacco (6%)
Gabon (76%)	Food (44%)	Refined petroleum (17%)	Wood (10%)
Kenya (68%)	Food (28%)	Glass & non-metallic minerals (16%)	Refined petroleum (15%)

Source: UNCTAD/UNIDO.

The case of the Libyan Arab Jamahiriya illustrates the specific challenges that Achievers face. Although it managed to build a sizeable manufacturing capacity in the past, it is falling behind most of the other North African countries because it has had negative manufacturing growth over the last two decades. This indicates that African Achievers definitely have to rethink their industrialization strategies if they do not want to fall behind more dynamic African countries and rapidly industrializing nations from other developing regions. While manufacturing activities already account for a relatively high share of the economies of Mauritius and Swaziland, they have not diversified their manufacturing base into medium and high technology sectors to a large extent yet. Thus, they need to seriously consider supporting entrepreneurial activities in more technology-intensive sectors in the future as this might be the only way to accelerate the expansion of manufacturing capacities. In this context, it has to be noted that Mauritius has already made some progress in expanding its activities in chemicals and machinery, as well as medical, precision and optical instruments manufacturing over the last decade. This has reduced its dependence on low technology (textile and apparel) sectors to a certain degree. Nevertheless, Mauritius still has a very strong focus on apparel as well as sugar and fish products, and telecommunication equipment is the only sizeable high technology product group in the country's manufacturing export basket. In summary, further industrial diversification efforts as well as the deepening of involvement in technology-intensive sectors is needed to re-accelerate the industrial growth of African achievers.

Catching-up

While the Achievers and Forerunners already possess noteworthy manufacturing bases, many African countries are still at a catching-up stage of industrialization. Thus, they are more vulnerable to a sudden deterioration of their industrial growth path. For instance, despite its rapid industrial growth over the period 1990–2010, Sudan remains one of the least industrialized countries in the world and it is facing challenges because of its dependence on RB manufacturing as well as a slowdown in industrial growth in recent years. Angola also witnessed one of the most dynamic manufacturing growth processes of all African countries during the last two decades. However, with an MVA per capita of $66, its industrial base is still very low. Thus, Angola's situation is similar to that of Sudan's in many respects. The Government is facing the challenge of how to promote industrial development given the fact that it has a thriving oil sector that largely overshadows manufacturing. A careful

monitoring of industrial progress and a change in industrial strategy are needed to respond to the challenges and opportunities facing the country.

Industrial growth in Mozambique and Uganda has also been fast, although both countries still have very low MVA per capita. As in the case of Angola and Sudan, a continuation of the growth path of these countries cannot be taken for granted. In particular, efforts are needed to transform the few existing manufacturing activities into a well-established industrial base. Lesotho's industrialization progress is also relatively stable and is based on a strong labour-intensive, low-technology manufacturing sector. It is not clear whether it will manage to diversify its manufacturing activities towards more technology-intensive sectors that could complement the success of the apparel and leather industries in the future (table 5). Apart from achieving substantially higher MVA per capita growth rates than the African average, several catching-up countries also managed to further increase their growth rate during the last ten years compared to the period 1990–2000. For example, in the last 10 years, Angola and Mozambique had industrial growth rates of 13 and 8 per cent respectively. This indicates that these countries not only created the essential basic prerequisites to develop their manufacturing sectors but also successfully fine-tuned their approach as the industrialization process proceeded.

In summary, it should be noted that, despite their relatively good industrial growth performance, African catching-up countries have an MVA per capita level less than $100. This means that they still need some time to develop a strong manufacturing sector. Currently, manufacturing does not account for a major part of their economies and medium and high technology activities do not play a major role in their manufacturing exports. In general, these countries have to monitor their progress and adapt to emerging challenges and opportunities in order to establish themselves as competitive industrial nations. The diversification of their manufacturing activities to encompass additional sectors and higher value-added processes will play a crucial role in accomplishing this goal.

Falling behind

A large group of African countries are increasingly falling behind the more successful groups discussed above. Most of these countries have an MVA per capita level below the African average of $100 and did not show considerable industrial growth during the last 20 years (figure 8). In general, these countries are

characterized by a strong reliance on unprocessed natural resource exports and low contribution of manufacturing activities to GDP. In addition, food production and petroleum refining dominate the industrial activities of these countries.

The countries in this group have not made significant progress in industrialization. In both Kenya and Senegal, for instance, MVA per capita stagnated at about $50 during the last 20 years. In addition, manufacturing value added accounts for about one tenth of their GDP and the existing manufacturing activities are almost exclusively in resource-based sectors. While Senegal is strongly dependent on the export of manufactured petroleum products, Kenya's MVA and manufacturing exports are strongly concentrated in the food and non-metallic mineral sectors. Although Botswana stands at a slightly higher industrialization level and has had moderate industrial growth, it is also heavily dependent on resource-based manufacturing. In fact, MVA accounts for only 4 per cent of its GDP and more than 90 per cent of its manufacturing exports stem from diamonds and nickel processing. In order to reap the full benefits of industrial development, these countries should consider substantially increasing their efforts to support manufacturing activities in general. However, they also need to simultaneously start to build the basic technological capabilities that are essential to move to more technology intensive sectors at a later stage.

The experience of Cameroon shows that it is possible for African countries in this category to reduce their dependence on resource-based manufacturing. Cameroon has developed its textile industry during the last couple of years and reduced its dependence on wood products substantially. With regard to their growth performance and industrial structure, the United Republic of Tanzania and Nigeria are exceptions in this group of countries. Although both countries had MVA per capita growth slightly below 2.5 per cent over the period 1990–2010, they had rapid industrial growth in the last decade. In particular, the United Republic of Tanzania had a growth rate of 4.8 per cent and Nigeria 6.2 per cent in the period 2000–2010. Furthermore, both countries are more active in technology-intensive sectors than other countries in the same group. While the United Republic of Tanzania diversified into the chemical industry, which now accounts for one quarter of its total MVA, Nigerian activities in the motor vehicles, chemicals and electrical machinery sectors account for about one fifth of its total MVA.

In summary, this group of countries is characterized by several cases of deteriorating growth performance and some cases of de-industrialization. Cote d'Ivoire, Senegal and Mauritania have a lower MVA per capita level today than

they did 20 years ago. But the most serious case of de-industrialization in this category is Zimbabwe, which seems to be caught in a downward spiral with a substantially lower MVA per capita today than 20 years ago. Furthermore, in the last 10 years, its manufacturing output per capita decreased by more than 8 per cent. The case of Zimbabwe points to the importance of political stability in the industrial development process.

Infant stage

The last group in the typology (the Infant stage) comprises a large number of countries that have either relatively insignificant or no manufacturing base. These countries have an MVA per capita of less than $20 and are mostly countries classified as Least Developed Countries (LDCs). Some of the countries in this category include Rwanda, the Democratic Republic of the Congo, Burundi, Mali, Sierra Leone, Liberia, Niger, Guinea, Guinea-Bissau, and Djibouti. These countries face the risk of being further marginalized in the global as well as the African manufacturing landscape.

In general, manufacturing firms do not play a significant role in domestic value addition or export activities during the Infant stage. However, in Niger and Guinea, the share of manufacturing exports in total exports is quite high. In the case of Niger, the high share of manufactures in exports stems almost exclusively from the export of uranium products, which account for more than 86 per cent of manufactured exports. In Guinea, aluminium products account for over 90 per cent of manufactured exports. Although these product groups are classified as resource-based manufacturing exports, they still resemble primary commodities in the sense that their value stems mostly from the raw material rather than the limited manufacturing value addition. This also explains the fact that both countries have very small shares of MVA in GDP.

There are also positive developments in manufacturing development in some countries in this group. For example, Ethiopia has made progress in the development of the horticulture industry. Its rank among top exporters of cut flowers improved from 24th in 2001 to 5th in 2007 (Sutton and Kellow, 2010). Malawi has also made some progress in the development of the textile and apparel sector. Despite these positive developments, it is evident that countries in this group are facing serious challenges in initiating and developing manufacturing industries. It is unlikely that they will make significant progress in this area without deliberate government action to give industrial development a big push.

E. APPLYING THE FRAMEWORK: LINKING COUNTRIES WITH DIFFERENT STRATEGIC CHOICES

With the help of this framework, industrial policymakers can understand their countries' relative position in the relevant industries in order to define an industrial strategy that covers industrial expansion/upgrading, diversification and deepening measures. Although this Report does not include a detailed diagnosis of individual African countries' industrialization patterns, it is possible to suggest some general policy directions based on this typology. In short, different types of African countries need to consider different alternatives with regard to the mix of expansion, upgrading, diversification and deepening measures. Thus:

- African Forerunners already developed sizeable manufacturing activities and are on a sustained industrial growth path. This indicates that measures to expand the existing production capacities will probably have a lower priority than deepening measures that aim at creating linkages and complementarities among the individual firms within the key industries. Thus, measures to improve coordination between large and small firms as well as domestic and foreign or State-owned and private firms in the most attractive industries deserve particular attention in the strategy design process. In addition, medium-term diversification measures aiming at industries with higher technological intensity and value addition have to be taken very seriously. Considering the countries' comparatively more advanced stage of development, early sectors such as apparel and resource-based manufacturing will probably reveal diminishing growth potentials in the near future. In this case, it will be crucial to accomplish the shift towards sectors that still offer considerable growth prospects – e.g. late sectors such as machinery and equipment or precision instruments. This re-allocation process will, however, be contingent on extensive improvements in the countries' technological capabilities, which in turn require time. Accordingly, the governments have to consider these long-run prospects already now in order to warrant a smooth transition in the future. The specific attractiveness of individual industries will, however, depend on country characteristics as well as a judgement on the trade-off between economic, social and environmental considerations. A close dialogue between the government and private sector, as well as academia and market experts – possibly facilitated by an independent mediating organization – is an essential success factor for this undertaking;
- African Achievers are in a somewhat similar situation as far as their industrialization level is concerned. Thus, diversification measures to

accelerate the shift from early to late sectors that has been discussed in the context of Forerunners are at least equally important. Actually, the fact that they did not accomplish this transition to a large degree yet might be one of the explanatory factors for their deteriorating growth performance in recent times. For this reason, measures to facilitate the advancement of technological capabilities and entrepreneurial activities in new manufacturing sectors should be addressed with high priority in these countries. To complement these diversification efforts, measures to foster more complex activities *within* core industries through processes of technological advance and organizational learning could be considered. Bearing in mind that the per capita output did mostly stagnate in these countries recently, industrial upgrading efforts have the potential to enhance productivity which in turn translates into increased output performance. Next to product and process upgrading, functional upgrading to enter into high-margin segments of the production chain that domestic firms are not covering yet – e.g. design, marketing and logistics – seems particularly promising in this respect;

- African Catching-up countries stand at a considerably earlier stage of industrial development and might thus consider a somewhat differing focus in their industrialization strategy. While they recorded remarkable growth rates in certain industries over the past two decades, these successes are mostly based only on the activities of a small number of firms. Thus, it seems likely that the countries are not exploiting their full potential in these sectors yet – making capacity expansion measures a promising strategic option. On top of that, it is also critical to estimate the prospects of deepening measures to create linkages between the few dynamic large firms on the one hand and the large number of mostly unorganized or informal small companies on the other. In contrast, although upgrading measures could also be considered, it needs to be ensured that highly sophisticated process or functional upgrading targets will not overburden the private sector, which does not have advanced technological capabilities at its disposal yet. As far as diversification strategies are concerned, the respective stakeholders have to assess the potentials that new sectors could offer and critically examine their strategic feasibility. However, while activities in the machinery or precision instruments industries are possibly in relatively easy reach for Forerunners or Achievers, they will require substantial and prolonged efforts from Catching-up countries. Presumably labour-intensive activities could be identified as medium-term targets while selected technology-intensive sectors might offer long-term prospects;

- African countries that are Falling behind as well as Infant stage countries are in general facing more fundamental challenges than the groups discussed above. For example, given the fact that there is not a critical number of firms in most manufacturing industries, it has to be called into question whether deepening measures should have a high priority at this stage. Instead, strong government initiatives to support the emergence of entrepreneurial activities as well as the generation of basic technological and managerial capabilities could be considered. While diversification strategies that target more complex sectors are definitely important to develop a long-term vision, immediate action could be perceived to deserve a higher priority in these countries. In this case, it will be particularly important to identify unused potentials in manufacturing activities that are attractive and feasible for these countries in the short-run. Accordingly, it is promising to learn from the past experiences of more advanced industrializers that have similar characteristics in order to identify potential easy diversification gains. In addition, it is conceivable that the existing resource-based manufacturing activities are already exploiting the existing output potentials to a relatively large extent. Thus, on the one hand, mere capacity expansion measures in these less attractive sectors might not be sufficient. However, on the other hand, it is still advisable to investigate opportunities for upgrading in these sectors. For example, moving from natural resource extraction or agricultural commodity production to a higher degree of processing could be a promising starting point.

F. STEPS IN THE INDUSTRIAL STRATEGY DESIGN PROCESS

Based on this international benchmarking framework, industrial policymakers have to understand their countries' relative position in order to define an industrial strategy that covers manufacturing capacity upgrading, diversification and deepening issues. Thus, the following five steps are essential for the design process of a forward-looking strategy that aims at sustainable industrial development:

1. *The identification of the most relevant comparators (country-benchmarks) for the given country case*

   In most cases, policymakers tend to look at the most successful cases of industrial development when designing national industrial development strategies. This means that many African countries aim to imitate the

development paths of countries such as the Republic of Korea or China. However, from an economic perspective, it makes more sense to carefully select benchmarks that more closely resemble their country. Structural change analysis is an approach to pursue this exercise. So far, the selection is based on three exogenous variables (country size, resource endowments and population density). UNIDO is currently developing a more detailed classification based on additional variables.

2. *The identification of the most relevant industries for the given country case at its current and future stages of development*

   So far, this identification is based on industries' relative growth potential (i.e. sectoral growth elasticity), considering stage of development and endowments (country size, resource endowments and population density). Potentially, additional information will have to be included in the analysis in order to provide a more accurate picture and cover other aspects of development as already indicated in the general framework in this Report – for example, industries' relative effect on a country's employment creation (i.e. sectoral employment elasticity), environmental sustainability, gender mainstreaming, and so forth.

3. *A comparative assessment of a country's relative performance in the identified most relevant industries (i.e. the level of efficiency in each industry) in relation to the identified comparators*

   This analysis helps us to understand a country's performance in a selected industry relative to its country-comparators with the same endowment structure and development stage as well as the global average. In this way, it helps us to understand whether countries are using their current potential in these industries in an efficient way. Essentially, the currently unused potentials or, in other words, the latent comparative advantages of a country, as well as future potentials can be identified.

4. *A comparative assessment of the structure of a country's manufacturing portfolio in relation to its identified comparators*

   Apart from the comparison of a country's production capacity in individual industries, it is also important to compare the structure of MVA of a given country case with the manufacturing structure of its comparators, when they were at the same stage of development. This exercise enables us to identify the sectors which can be considered the most severe impediments to this

country's manufacturing performance, or in other words, the country's most serious structural bottlenecks. In the above framework, this means that we compare all sectors at a single strategic feasibility level (e.g. "immediately") and identify the sectors which are most severely underrepresented.

5. *The prioritization of the actions needed to facilitate a sustainable industrialization, both in the short and long run*

   Due to resource constraints, African countries are not able to focus on all lagging manufacturing activities simultaneously. Thus, they have to consider the sectoral evolutionary path[12] (growth and decline) of individual sectors and conduct a feasibility study to prioritize their actions based on their current capabilities and endowments. Based on the country's capacity and structural performance in the most relevant sectors (steps 3 and 4), it is possible to prioritize the most urgent actions. This can cover a prioritization of the immediate as well as the long-term demand for action.

The next chapter will take up in more detail the why and how of industrial policy design. But to conclude this chapter, it must be stressed that the processes of industrial diagnosis and industrial strategy design, which have been discussed here, need to be embedded within a pragmatic approach to policy formulation which gives priority to policy learning and consultation. One of the most critical success factors for this undertaking is collaboration among the key stakeholders. On the one hand, a top-down approach with the government dictating the priorities is not advisable because African governments do generally not have all the relevant information about potentials in all manufacturing activities at their disposal (Altenburg, 2011). Furthermore, from a political economy perspective, rent-seeking behaviour and adverse incentives should never be underestimated (Robinson, 2009). On the other hand, a collective decision-making process still requires a committed and visionary leader as well as a supporting technocratic elite that takes responsibility for the industrialization path of the country. This leadership is also essential for the coordination of the relations among all stakeholders, including various ministries and agencies, central and local governments, the private sector as well as donors (Ohno, 2009; UNCTAD, 2009c). In sum, the design of an anticipatory and selective industrial strategy can only be successful if the search and prioritization process is participatory, transparent and collaborative. Industrial diagnosis and international benchmarking need to be integrated with close consultation between the government and private sector.

CHAPTER 4

TOWARDS A NEW INDUSTRIAL POLICY IN AFRICA: THE WHY AND THE HOW OF POLICY-MAKING

This chapter focuses on the justification for industrial policy, particularly on its functional and horizontal dimensions, and how it can be implemented. It draws on an extensive recent literature to distil lessons from past experience in industrial policy, identify principles behind success and define the most effective new approaches to implementation. In general the debate on industrial policy has over the years evolved from a focus on the rationale (the why) to a focus on how it could be made to work (the how). However, these two are interrelated, as the content of policy is inevitably linked to its justification.

A. THE RATIONALE FOR INDUSTRIAL POLICY

The case for industrial policy rests firstly on the proposition that structural transformation, and in particular the development of competitive manufacturing activities, is a necessary condition for sustained and inclusive economic growth rather than simply a side-product of this process, and secondly, on the argument that government action is necessary to promote structural transformation.

The first step in this rationale was addressed in the introduction to this Report and will not be repeated here. However, it is important to note that those who are sceptical of the benefits of industrial policy see the economic growth processes in terms of an aggregate production function in which added inputs of various kinds (capital, labour) and productivity growth (through disembodied technological progress) lead to economy-wide increments to output. They do not think economic structure matters, do not see some leading sectors as having more propulsive effects on aggregate activity than others and do not conceptualize economic change as a process of creative destruction in which some activities are in decline, while other new activities are introduced into the economy through the innovative activities of entrepreneurs. From this perspective, industrial policy is perceived as irrelevant from the outset because structural transformation is not an integral aspect of a successful growth process.

This Report is not based on this view, but then the question arises as to why government action is necessary to promote structural transformation and in particular the development of manufacturing capabilities. In the past, the justification for industrial policy in developing countries rested on the need to protect infant industries (Soludo, Ogbu and Chang, 2004). However, in recent years, the economic case for industrial policy has focused on either the need to counteract market failures, or more broadly the need to address systemic failures and build capabilities.

One important market failure identified in the literature is the presence of information, learning and production externalities (Harrison and Rodriguez-Clare, 2009; Lin and Chang, 2009). For example, Hausmann and Rodrik (2003) show that when there is information spillover associated with discovering which goods could be profitably produced in a country, entrepreneurial entry will be suboptimal because the first entrepreneur to invest in cost discovery bears the cost, but cannot appropriate the full social benefits. In such an environment, industrial policy is called for to encourage entrepreneurial entry and promote self-discovery. The need to overcome coordination failure also provides justification for industrial policy (Aiginger, 2007; Rodrik, 2008). Coordination failure could arise, for example, when the profitability of an activity depends on whether or not there are simultaneous investments by other agents acting independently. In such settings, social welfare could be enhanced through collective action. Another type of market failure that is becoming more significant is the existence of environmental externalities, which imply that environmental goods such as clean air or biodiversity are not taken into account in private investment decisions. In the presence of market failures, markets alone cannot be relied upon to promote industrial development because they are either unable or too slow to bring about structural change and technological progress, or do so in a way that ignores environmental costs.

While there is a strong theoretical case for industrial policy based on the existence of market failures, it has been very difficult to provide conclusive and robust econometric evidence on the impact of industrial policy due in part to estimation problems and the absence of counterfactuals (Harrison and Rodriguez-Clare, 2009). In this context, some analysts have presented a broader case for government action that does not identify market failures according to deviations from some abstract equilibrium in economic theory but rather identify such failures in terms of the inability of the free play of markets to provide the goods and services that are deemed necessary by society. Moreover, some authors have gone even further and suggested that the issue is not market failure per se, but rather system failure. System failure arises when the economic system as a whole fails to achieve the development goals set by the government. This view draws attention not simply to market institutions, but also to the weaknesses of non-market institutions, for example, the capabilities of the firms and the networks in which they are embedded (see Cimoli, Dosi and Stiglitz, 2009).

There are particularly strong arguments why the technological capabilities of firms do not develop automatically through market forces. Firms do not have full knowledge of technical alternatives and developing the requisite know-how, much

of which comes as tacit knowledge that is gained through experience and practice, is both costly and time-consuming. For firms in developing countries at early stages of industrialization, mastering existing technologies is more significant than introducing products and processes that are new to the world. However, firms may not even know how to search and learn about global technological opportunities. There are also major externalities in technological learning that mean that inter-firm linkages are important to the process (see Lall and Teubal, 1998).

Until recently, the conventional wisdom was that African countries and developing countries in general, should not attempt to induce structural change through industrial policy. The idea is that industrial policy is susceptible to capture by vested interest groups. Furthermore, it is argued that governments cannot successfully pick winners in fast-growing industries and that they do not have the information and capacity necessary to conduct effective industrial policy. The view that governments should not use industrial policy is based on the assumption that: (a) self-regulating markets produce efficient outcomes and (b) government failure is more costly than market failure. However, the recent financial and economic crisis suggests that self-regulating markets can result in socially undesirable outcomes and that the private sector is not necessarily more efficient than the government. The capacity of African governments to successfully implement industrial policy is an important issue that will be discussed below (see 4.D., Institutional and governance issues).

Critics of industrial policy often argue that governments should move away from targeting specific sectors and focus on providing an enabling environment for firms to flourish. There are also economists who recognize the need for industrial policy in developing countries, but stress that the role of governments in such endeavours should be to create incentives for the private sector to exploit the country's current comparative advantage (Lin, 2009; Harrison and Rodriguez-Clare, 2009). There are both theoretical and empirical problems with this line of thought. At the theoretical level, it treats comparative advantage as a static rather than a dynamic concept. It assumes that a country cannot change or create comparative advantage in products other than those it currently produces. Redding (1999) shows that comparative advantage evolves over time and that selective trade and industrial policies that move an economy from low to high productivity exports may be welfare improving.

Empirically, the history of industrialization of currently advanced countries as well as emerging economies suggests that export specialization is determined not only by factor endowments but also by policy. In other words, policy matters.

Comparative advantage can indeed be created in new products through industrial policy. Examples are legion, but a few cases will suffice. Before the 1970s, Chile was not an exporter of salmon. However support provided by a public agency (Fundación Chile) since the late 1970s, has made it one of the world's leading salmon exporters. In the 1960s, the Republic of Korea was not deemed to have a comparative advantage in production of steel. However, in 1973 the Government established the Pohang Iron and Steel Company (POSCO) and offered it various forms of assistance. Consequently, by 1985 the Republic of Korea became a major producer of steel with lower unit costs of production than Japan and the United States of America (Redding, 1999). In Brazil, public ownership of the domestic aircraft company EMBRAER and government support in the form of subsidized credit and investments in R&D played an important role in the development of the aircraft industry (Rodrik, 2008). There are also cases in Africa where industrial policy has led to success in either developing new export products or adding value to existing products. For instance, in Ethiopia, State activism played a critical role in the successful development of the cut flower industry (box 1). In Côte d'Ivoire, government support led to an increase in the share of cocoa grinding in cocoa exports, making the country the world's third largest cocoa processing country since 1998/99 (Kjollerstrom and Dallto, 2007).[13]

Box 1. Floriculture in Ethiopia: an African Success Story

Ethiopia is a major exporter of primary commodities. However, with government support, it has successfully developed a globally competitive floriculture industry. The country's rank among top exporters of cut flowers improved from twenty-four in 2001 to fifth in 2007. The domestic floriculture industry began in the 1980s with exports by two State-owned enterprises: Horticultural Development Enterprise and Upper Awash Agro-Industry Enterprise. Since then, foreign investors (particularly, British, Dutch, and Kenyan) and local entrepreneurs have entered the industry.

The Government provides incentives to exporters in the industry through various channels, including export credit guarantees and foreign exchange retention schemes. The industry employs about 50,000 people but the government's target is to increase it to 70,000. In 2008/09, Ethiopia exported 1.3 trillion flower stems and earned $130.7 million in export revenue. The main export destinations for Ethiopia's flowers are the Netherlands, Germany, the United States and Japan.

In terms of flower type, roses are the most important, accounting for over 80 per cent of firms and 60 per cent of total cultivated land. Field flowers account for 26 per cent of total cultivated land and flower cuttings represent 14 per cent of total cultivated land.

Source: Sutton and Kellow (2010).

B. KEY PRINCIPLES OF NEW INDUSTRIAL POLICY

A consensus is slowly emerging in the literature on the key principles which policymakers should consider in the formulation and implementation of industrial policy to enhance the likelihood of success. These include:

Supporting and challenging entrepreneurs

There is the understanding that government support to private firms is necessary to influence and direct their investments to activities or sectors deemed critical for long-term economic growth and development. However, new thinking on industrial policy also recognizes that the role of the government is not only to support entrepreneurs. It is also to challenge them to perform better and become more competitive in export markets. This implies that any support that businesses receive from the government is made conditional on the achievement of certain overall policy goals, such as increased investment or exports. Governments that have had success in using industrial policy to enhance competitiveness and promote industrialization are those that have been able to enforce discipline and terminate assistance to firms when there is evidence that they are not performing. In this context, there is a need for sunset clauses to ensure that inefficient firms are not supported indefinitely. This reflects the view that industrial policy is not about picking winners per se, but also about letting the losers exit the market.

Encouraging experimentation, search and learning by both governments and the private sector

An important feature of the new thinking on industrial policy is the emphasis on industrial policy as a social learning or search process in which the government interacts with the private sector to identify the key constraints facing domestic firms and how to overcome them (Wade, 2009; Rodrik, 2008). The idea here is that governments do not have enough information about the market failures that constrain industrial development and would need to interact with the private sector on an ongoing basis to elicit the relevant information. In doing so, however, there is a need for transparency and accountability on the part of the government to ensure that its involvement with the private sector does not encourage rent-seeking and corruption. The new emphasis on industrial policy as a learning process rather than a list of policy instruments differs from the traditional top-down mode of implementing industrial policy, in which the government sets sectoral priorities and uses certain

policy instruments to support the preferred sectors. Industrial policy is also oriented to encourage search processes by the private sector so that it can discover what can be competitively produced and it can maximize the diffusion of best practices. Unforeseen development trajectories can emerge through this process.

Adopting a mix of functional, horizontal and vertical measures

Functional measures, such as improving the general investment climate and upgrading infrastructure, remain an important strand of industrial policy. However, successful industrial policies generally also include horizontal measures, which include the promotion of socially desirable activities across sectors, such as the institutionalization of technological learning routines or the organizational competences required for exporting, as well as vertical policies that focus on particular products or sectors or clusters of activities. The horizontal activity of firm formation is particularly important in very low-income countries. The relative importance of these different types of measures may also change over time as governance capabilities develop.

Focusing on lifting binding constraints

There is a tendency for governments to put in place ambitious industrial development programmes without recognizing limits imposed by available resources. This generally results in poor development outcomes. A credible and effective industrial policy should target specific constraints facing domestic entrepreneurs. This requires identifying the key binding constraints facing domestic firms as well as possible measures that could be put in place to lift or relax them.

Monitoring, evaluation and performance criteria

Because of the scarcity of public resources, the risk of political capture and the need for public legitimacy, it is vital that decisions about sectors and activities to be supported be made in a transparent manner, based on research and consultation with firms and other relevant stakeholders. Furthermore, once decisions have been made regarding which activities to support, there should be clear benchmarks or criteria for judging success or failure. For example, the performance of supported firms in export markets could be used as an indicator of success, as was the case in East Asia. There is also a need for continuous monitoring and independent evaluation of the activities of supported firms to ensure that non-performing firms

do not continue to receive support. This is important because the implementation of industrial policy is a learning process fraught with errors and mistakes. It is important that quick and appropriate action is taken when errors are identified.

Leadership, coordination and accountability

Effective industrial policymaking requires political leadership at the top, as well as coordination across ministries and departments. It also requires the allocation of clear tasks and responsibilities across government departments. Lack of a clear division of labour and coordination across departments often leads to inter-ministerial competition and policy incoherence with negative consequences for the effectiveness of industrial policies. Rodrik (2008) stress the importance of political leadership in fostering accountability in the industrial policymaking process. In particular, it is crucial that a high-ranking government official be responsible for industrial policy and can be held accountable when things go wrong. Transparency of the industrial policymaking process is also necessary to check rent-seeking behaviour.

Recognizing domestic political conditions

In the design and formulation of industrial policy, it is important for policymakers to recognize the political circumstances and environment in which it will be implemented because any industrial strategy or programme that does not take into account the political feasibility of proposed policy actions is bound to fail. Robinson (2009) argues that the main reason industrial policy was successful in East Asia but failed in Africa has to do with differences in the political equilibrium of these societies. Promoting industrialization is not only about economic policies. It is also about the politics of policy. The power structure, political institutions and environment prevalent in a country affect the set of feasible policy actions. Consequently, whether or not industrial policy succeeds or fails in promoting industrialization in a country depends in part on the degree in which the incentives of political leaders are aligned with those of society.

Recognizing country heterogeneity

There is an understanding that industrial policy should be tailored to the needs and challenges facing each country. A one-size-fits-all approach will be counterproductive and unlikely to achieve desirable outcomes. As a result, country-

and context-specific measures are necessary, and policymakers should be mindful of this fact in the design and implementation of industrial policy. Copying the policies and strategies used by other countries without regard for the differences in structure, endowments, political situation and global environments will lead to poor outcomes. The content of policy needs to be calibrated to the industrialization path chosen, resource requirements and availability, geography, and domestic political realities (Rodrik, 2008).

C. THE AREAS AND INSTRUMENTS OF NEW INDUSTRIAL POLICY

The new approach to industrial policy recognizes that industrial policy is implemented through coordinated action in a number of different policy areas. Policy goals are essentially achieved through private enterprises though there may be a need for public enterprise pragmatically to fill gaps as needed and to enter exceptionally risky areas, for example, the provision of long-term finance. Given the private sector focus of policy, the basic instruments should be used to change the signals and incentives that agents face to stimulate economic activity in priority sectors and priority activities. Essentially this should not be a matter of telling the private sector what to do. Rather it is a question of providing information, incentives and resources in such a way that the private sector, through the pursuit of profit, behaves in such a way that the national development vision can be gradually achieved. The policy instruments should nudge entrepreneurs in the desired directions, for example through the formation of new networks of producers (Wade, 2010). What is thus required is a smart industrial policy rather than brute dirigisme.

Different policy instruments are relevant in different policy areas.

Policies to promote entrepreneurship. Entrepreneurs play an important role in the development process. Consequently, measures to promote entrepreneurship, in particular management skills and the ability to perceive and exploit profitable opportunities, are important. Governments should provide incentives to firms to encourage them to enter into foreign markets and invest in exploring new activities. This could be in the form of tax breaks for investment in new products. It could also take the form of subsidized credit.

Technology and innovation policies. Technological upgrading should play an essential role in all African industrialization efforts. It is only with the accumulation of technological capabilities that African manufacturing can contribute to the sustained economic development of the continent. Increased attention to the promotion of science, technology and innovation is a hallmark of recent discussions of industrial policy. The importance of scientific and technological innovation is evidenced by the fact that countries that have well-developed and successful manufacturing sectors tend to be those that have invested in the accumulation of technological knowledge and capabilities. Industrial policy is crucial to enhancing access to technological knowledge. This could take the form of stimulating domestic production of technological knowledge as was the case in the Republic of Korea. But it can also take the form of accessing existing technology through FDI, licensing or the purchase of capital equipment. Unlike the Republic of Korea, Singapore has relied on FDI as a source of access to foreign technology. The use of local content rules as an integral element of FDI policy, the granting of subsidies for technology imports, and the support of local knowledge creation by setting up science parks are measures that have been taken by some countries to enhance technological knowledge and capacity. Incentives provided to entrepreneurs should also be geared towards inducing technological learning and innovation. Moreover, an effective technology infrastructure is invaluable for upgrading the competitive capabilities of industries, particularly in developing countries (Kraemer-Mbula and Wamae, 2010).

Education and skill-formation policies. Education and skill-formation policies should go hand in hand with technology and innovation policies because human capital and specific technological knowledge are essential inputs to innovation. In addition, manufacturing firms need reliable access to labour with appropriate skills in order to produce high-quality goods that can survive competition in international markets. Clearly, the type of education promoted by governments has consequences for industrial development. For example, an education system that places priority on scientists and engineers is likely to have a better chance of promoting industrial progress than one that focuses on producing artists. In this regard, the new approach to industrial policy recognizes the need to redirect policy and resources towards the development of appropriate human capital. Polices aimed at increasing human capital should be designed so as to improve the quality of human capital as well as respond to the needs of industry in terms of technological capabilities and knowledge.

An analysis of the current African experience suggests that more selective action should be used in education and skill formation. Policies should aim at enhancing tertiary education, establishing national training institutes and providing incentives for firms to increase in-house training. The experience of East Asian newly industrialized countries has shown that the availability of an educated labour force is central to the development of an industrial structure. But higher education is not enough: education in technical and scientific subjects is what makes the difference. Government should use targeted incentives to facilitate entry into technical and scientific education that provides the skilled labour force crucial for industrialization.

Finance support policies. Governments should implement policies designed to ease access to credit for SMEs, which suffer considerably from a lack of internal resources. They should also improve such access for innovative firms because these may become the leading drivers for the followers. In particular, governments should intervene to link the informal credit systems to the formal ones in order to enhance access to financing for innovation and production upgrading. One way to make these policies particularly effective is to make access to loans and grants for firms conditional, for instance, on the effective implementation and maintenance of quality and sanitary standards.

Developing countries can also use discretionary credit lending and fiscal policy to influence the evolution of economic activity, direct resources to priority sectors and condition the behaviour of private firms. For example, several countries in East Asia and Latin America have effectively used development banks to provide preferential credit to industry. These banks are useful in ensuring that domestic firms have access to stable sources of long-term finance for investment. It is important, however, for the provision of preferential credit by development banks to be linked to firm-specific performance requirements to ensure better development results. Furthermore, to reduce the incentives for rent-seeking behaviour, the provision of credit should target industries with high linkage effects, high value added, high technology intensity and high market potential.

Trade policies. Trade policies are also an important component of industrial policy. While industrial policy has been associated in the past with protection and import substitution, the orientation now is towards an open-economy industrial policy. Such a policy is not simply focused on exports but also recognizes the existence of opportunities in import replacement. There is an understanding that increasing trade integration and promoting regionally integrated value chains may

enhance industrial competitiveness, favour regional economic transformation and increase production diversification in Africa (UNECA, 2010). But it is also recognized that the process of liberalization should be gradual and that it should be accompanied by a strategy of industrial restructuring and upgrading in order to allow firms to prepare for the challenges arising from liberalization. That said, African countries should pay attention to export promotion because there is some evidence that exporting increases firm productivity in the region (Van Biesebroeck, 2005a). Recent evidence suggests that the collection of market information, the search for specific market niches and fostering collaboration between export enterprises are government measures that are positively correlated with firm export performance. African governments should make use of these measures to promote exports. They should also consider creating export processing zones to reduce transactions costs for exporters. While there is no unique model for zone design and development, Farole (2011) describes two elements that characterize successful export-processing zones. First, they should be used as part of a broader package of industrial development in which both government and private sector should be involved. Second, incentive schemes have to be maintained stable over time and monitoring of the activities of export-processing zones is needed. The next chapter contains further discussion on trade policies within the WTO framework.

Cluster policies. Supporting industrial cluster creation and development is seen by many scholars as a particularly promising strategy to foster industrialization and growth. The cluster level appears to be appropriate for the design and implementation of technology policies. In particular, there are important economies of scale in service delivery and in the development of local systems capabilities that make implementation at the cluster level of the various policies more efficient. Mytelka (2007) emphasizes that government intervention should not try to create industrial clusters from scratch but instead it should create – through appropriate policies – an environment in which a cluster could eventually emerge. Zeng (2008) argues that there cannot be general policy suggestions for cluster development given the heterogeneity of countries in Africa. Nevertheless, government measures should include efforts to (a) encourage further knowledge acquisition, adaptation and diffusion; (b) strengthen educational institutions and technology institutes and their link with the business sector; (c) strengthen and upgrade skill training; and (d) provide sound infrastructure. In particular, the government should design and implement policies to support SMEs in the process of improving their supply in terms of characteristics, quality and timing. In this regard, public procurement and government demand may serve as an important stimulus.

D. INSTITUTIONAL AND GOVERNANCE ISSUES

An important constraint on effective industrial policy in Africa is weaknesses in governance capacities. Experience from East Asia has suggested two critical institutional ingredients for success. The first was the existence of an effective, dedicated and capable bureaucracy. The second was that State institutions operated in a situation of embedded autonomy in the sense that they were closely collaborating with the private sector to formulate and implement policy, but at the same time they were not influenced to favour particular interests. In Africa, State capacities for development policy formulation and implementation have been severely eroded and after years of neglect, ministries of industry are often weak. Against this background, some argue that however desirable an industrial policy is in Africa, it will only lead to huge societal costs owing to government failure.

While it is important to be cognizant of the governance challenge of industrial policy, it is too pessimistic to argue that it is impossible. Firstly, it is clear from the East Asian success story that there was a deliberate strategy to build up a few strategically important agencies rather than to improve government effectiveness across the board. Also the capabilities of bureaucracies were built up over time, with an emphasis on policy learning.

This implies that an important feature of the development of industrial policies in Africa should be the adoption of policies to enhance government capabilities in managing the industrialization process. In addition, since most of the strategies and measures discussed imply some form of government intervention, there is a need to take into account government capabilities in making decisions on the scope of intervention in an economy. In this regard, and given their limited capacity, African governments should not attempt the kind of pervasive interventions used in the past in the newly industrialized countries. They should be pragmatic and give priority to improving government capabilities for industrial diagnosis and strategy design, as well as policy formulation, implementation, monitoring and evaluation.

E. THE IMPORTANCE OF COMPLEMENTARY POLICIES

Industrial policy is likely to be ineffective in the absence of complementary policies that support its objectives. In this regard, macroeconomic stability is critical, and in successful cases, the macroeconomic environment is characterized by domestic investment, domestic savings and exports all growing in absolute terms and as a

share of GDP. In effect, the process of structural transformation is underpinned by a strong investment-profits nexus and a strong export-investment nexus (UNCTAD, 2008).

The need for policy coherence calls for consistency between industrial policy and other domestic measures, such as exchange rate policy, monetary and fiscal policies and policies that affect infrastructure development and the investment climate. Some priorities in this regard are highlighted in this section.

Avoiding exchange rate overvaluation

Exchange rate policy affects the development of manufacturing firms, as well as their ability to compete in international markets. In particular, a competitive exchange rate promotes exports and allows domestic firms to seize opportunities created in international markets. When the exchange rate is overvalued relative to its equilibrium value, it represents an implicit tax on exports and a disincentive for firms to invest in the export sector. If African countries wish to make significant progress in achieving their industrialization objectives, they will have to avoid exchange rate overvaluation by taking measures such as controlling inflation, managing natural resource wealth in a manner that minimizes the risk of the Dutch disease and adopting more flexible exchange rate regimes, where appropriate (Osakwe and Schembri, 2002).

Adopting appropriate monetary and fiscal policies

The effectiveness of industrial programmes and policy also depends in part on the extent to which monetary and fiscal policies are consistent with promoting industrial development. In particular, the mix of monetary and fiscal policies has to be such that firms have better access to credit, and real interest rates are not at a level that deters investment. This is particularly important because domestic firms tend to rely more on retained earnings rather than bank lending as a source of finance as a result of the poor access to and high cost of credit in African countries (Ramachandran, Gelb and Shah, 2009). There is a need to align the stance of monetary and fiscal policies with the objective of promoting industrial development, while ensuring that the proposed measure does not lead to medium and long-term macroeconomic instability. In East Asia, monetary and fiscal policies supported a dynamic investment-profit nexus that provided an important component of increased domestic savings (UNCTAD, 2008). How this can be achieved in Africa is an important issue.

Strengthening infrastructure development

The inadequate and poor quality of infrastructure in Africa is a major obstacle to the development of competitive industries in the region. It is estimated that Africa loses 1 percentage point per year in per capita economic growth as a result of its infrastructure deficit. The infrastructure problem is evident in areas such as power, water supply, transport and communications, which are critical to the successful development of manufacturing enterprises. Furthermore, the problem is not limited to poor network coverage but also manifested in the exceptionally high price of infrastructure services in Africa relative to global standards (table 6). The high cost of infrastructure in Africa increases trade costs and reduces productivity of African firms by about 40 per cent (Foster and Briceno-Garmendia, 2010). Public investments will be needed to address Africa's infrastructure problem. However, since governments do not have the resources they need to address all infrastructure needs, the private sector should also be provided incentives to either participate or contribute more to infrastructure development in the region. In addition, the setting up of special economic zones could enhance firms' access to infrastructure. When special economic zones are provided with good infrastructure, have management that is sensitive to the needs of firms and are supported with effective public institutions,

Table 6. Cost of infrastructure services in Africa

	Sub-Saharan Africa	Other developing regions
Power tariffs ($ per kilowatt-hour)	0.02-0.46	0.05-0.1
Water tariffs ($ per cubic meter)	0.86-6.56	0.03-0.6
Road freight tariffs ($ per ton-kilometre)	0.04-0.14	0.01-0.04
Mobile telephony ($ per basket per month)	2.6-21.0	9.9
International telephony ($ per 3-minute call to the US)	0.44-12.5	2.0
Internet dial-up service ($ per month)	6.7-148.0	11

Source: Foster and Briceno-Garmendia (2010).

Note: Prices for international telephony and internet represent all developing countries, including Africa.

they can be effective vehicles for promoting industrialization. Furthermore, African countries should be aware that not all manufacturing industries necessarily require the same infrastructure. Based on the selection of specific target sectors and in close consultation with the respective domestic private sector, a pragmatic prioritization of required improvements may thus be expedient.

Improving the investment climate

The 2010 Ministerial Statement adopted at the 3rd Joint Annual Meetings of the African Union Conference of Ministers of Economy and Finance and the UNECA Conference of Ministers of Finance, Planning and Economic Development recognizes the importance of a good business environment for promoting domestic as well as foreign investment. This reflects the fact that Africa's relatively burdensome regulatory environment increases trade costs and militates against the development of competitive manufacturing firms in the region. While this is just one of the many obstacles to investment in the region, there is the recognition by African policymakers that it has to be dealt with to enhance prospects for manufacturing development. In this regard, efforts should be strengthened to reduce the regulatory and administrative burdens associated with investment in the region. In addition, the sectoral dimension of investment climate perceptions and requirements should also be taken into consideration.

F. FINANCING INDUSTRIAL DEVELOPMENT: WHERE WILL THE RESOURCES FOR INDUSTRIALIZATION COME FROM?

As African countries design and implement industrialization programmes and policies, they are beginning to come to grips with the realization that it is not a costless endeavour. It requires the mobilization of resources to finance public investments in key priority areas, particularly infrastructure, education and technology acquisition. It also requires private investments in the industrial sector. In this regard, the degree to which African countries are successful in achieving their industrial development objectives will depend in part on the extent to which they are able to mobilize the required resources and channel them into productive investments in priority sectors. Consequently, African countries should pay attention to both resource allocation and resource mobilization issues in the design and implementation of policies to support their industrial development programmes.

In principle, African countries could finance their industrial development programmes through various sources: domestic savings; borrowing from banks and finance institutions; FDI; harnessing South–South cooperation as a potential source of development finance; and encouraging traditional donors to direct more official development assistance (ODA) towards promoting industrial development in the region. However, given the heterogeneity of African countries, there will be differences across countries in the degree of reliance on each of these potential sources of finance.

Strengthening domestic resource mobilization

Industrial development will have a better chance of success if there is local ownership of the process and outcome. Experience has shown that reliance on external sources of finance can limit the government's policy space and its ability to adopt alternative development paths and lead the development process. Consequently, for countries that have a choice, domestic resource should be the preferred source of financing industrialization programmes. However, apart from the resource-rich economies, most countries in the region have very small domestic savings and will need to exploit other sources of development finance for industrialization. In 2009, gross domestic savings as a percentage of gross domestic product was 16 per cent in sub-Saharan Africa, compared with 27 per cent for East Asia and the Pacific, 20 per cent for Europe and Central Asia, and 23 per cent for Latin America and the Caribbean.[14] Factors constraining savings mobilization in the region include the low level of income, which means a low tax base; reliance on a narrow set of taxes; inefficient tax administration; political instability; and the low level of financial development (UNCTAD, 2009b). High tax evasion, due in part to dissatisfaction with the quality of public spending (or services) is also a factor.

African governments should enhance the domestic mobilization of private and public savings by instituting fiscal reforms, making more efficient use of public resources and developing and enhancing access to financial institutions. They should strive to maintain political stability, stem capital flight and adopt a cautious and gradual approach to trade liberalization to ensure that it does not erode the fiscal base. Many African countries rely on trade taxes as a major source of government revenue. For instance, in countries such as Benin, Togo, Madagascar, Swaziland, Lesotho, Uganda, Namibia, Sierra Leone, and Liberia, trade taxes accounted for more than 40 per cent of fiscal revenues in 2008. As these countries participate in the Doha Round trade negotiations or the economic partnership agreements

with the European Union (EU), they should be mindful of the fact that the outcome will have serious consequences for government revenue, at least in the short run. Therefore, as they negotiate it is important that they leave themselves some policy space (or flexibility) to enhance capacity to support their industrial development programmes.

The resource-rich countries, for example, Algeria, Equatorial Guinea, Gabon, Libyan Arab Jamahiriya and Nigeria, face a less binding finance-constraint than the resource-poor countries because they derive significant revenue from natural resources, especially in the context of rising commodity prices. If their export revenue is channelled into investments in infrastructure, education and technology acquisition, they are likely to make significant progress in inducing structural change and lay the foundation for high and robust growth. In this regard, a major challenge facing resource-rich countries is how to put in place mechanisms for checks and balances to ensure that policymakers do not mismanage natural resource wealth. Transparency in the management and use of resource wealth is one way to reduce rent-seeking and ensure that revenue from commodity booms are harnessed and channelled into productive activities. The Extractive Industries Transparency Initiative designed to ensure that the extractive industries are subject to public scrutiny should be supported and more countries be encouraged to participate in it. The media also has an important role to play in promoting transparency and ensuring that natural resource wealth is not squandered. However, journalists in Africa pay very little attention to the operations of the extractive industries, due in part to poor knowledge of the sector, inadequate resources for research and in-depth coverage, and lack of journalistic freedom (Canonge and Purcell, 2010). It would be desirable for the international community to provide training and support to the media to enhance their ability to cover the operations and activities of the sector.

Borrowing from banks and finance institutions

The investments required for industrial development can also be financed through borrowing from domestic and international financial markets. But commercial banks tend to focus on short-term lending, while industrial development requires long-term finance. Furthermore, African countries face high-risk premiums and have difficulties raising money in international financial markets. Consequently, if borrowing is to play an important role in financing industrialization in the region, it has to come from development finance institutions. National development banks

have been important sources of lending for industrial development in industrialized developing countries in Asia and Latin America. They also played important roles in directing credit to priority sectors in several African countries until they were disbanded, mostly in the 1980s, following the adoption of structural adjustment programmes. African countries should either re-establish or strengthen existing development banks to enhance domestic entrepreneurs' access to long-term finance. In doing so, however, governments should establish well-defined criteria for lending by these banks as well as put in place a mechanism to monitor and evaluate their performance.

Regional institutions such as the African Development Bank, the African Finance Corporation and the Development Bank of Southern Africa can also contribute to the process. They are already playing important roles in financing infrastructure investments in the region. African countries should make more efforts to harness the resources of these institutions to unlock the region's industrial potential. Multilateral development finance institutions could also provide finance for Africa's industrialization. However, although they have more resources than the national and regional institutions, they tend to link loan disbursements to policy conditions that often hamper the ability of recipient countries to adopt the development path they deem necessary. Consequently, for African countries that have a choice, preference should be for the national or regional option.

Attracting foreign direct investment

Foreign direct investment is a potential source of finance for industrialization in the region. It can also provide access to required skills and technology especially at the early stages of industrialization. There is evidence that Africa is increasingly tapping into this source of development finance. For example, FDI flows to the region increased from $2.8 billion in 1990 to $58.6 billion in 2009 and its share of global FDI flows rose from 1.4 per cent to 5.3 per cent over the same period. Although the region's share of global FDI is small, FDI is increasingly an important source of investment in the region. The share of FDI in gross fixed capital formation surged from 3.2 per cent in 1990 to 24.1 per cent in 2007.

In terms of value, FDI flows to Africa tend to be concentrated in the mining industry. However, there is evidence that significant investment activities are also taking place in manufacturing. For instance, over the period 2003–2009, the manufacturing sector accounted for about 41 per cent of the total number of

Greenfield investment projects in Africa (UNCTAD, 2010a). One of the challenges facing African countries is how to channel more FDI into priority sectors, such as manufacturing, deemed critical for their industrialization. The tendency has been for African countries to respond to this challenge by offering generous incentives to foreign investors. However, it has not had the desired effect in terms of inducing structural transformation and industrialization. It would be desirable if African countries adopted a more targeted approach to the use of incentives to ensure that they attract FDI into priority sectors without eroding the fiscal base. The promotion of FDI should not be done at the expense of domestic investment. There is also a need for African countries to encourage joint ventures and hence create linkages between FDI and the domestic economy.

Seizing new opportunities created by South–South cooperation

The increasing role of developing countries in global finance, trade, investment and governance has opened new opportunities for economic cooperation between Africa and non-African developing countries. The large developing countries such as Brazil, China, India, and Turkey, have relatively large financial resources as well as appropriate skills and technology that African countries could benefit from by strengthening partnerships. Although data constraints do not allow for a comprehensive estimate of the scale of resource flows from developing countries to Africa, there is some evidence that they are increasingly important sources of official flows and investment to the region (UNCTAD, 2010b). Infrastructure is one area where Africa's developing-country partners, particularly China, are making significant contributions that could have a positive impact on the region's quest for industrialization. Over the period 2001–2007, China's infrastructure finance commitment in sub-Saharan Africa increased from $470 million to $4.5 billion. India, Kuwait, Saudi Arabia and the United Arab Emirates are also making significant investments in infrastructure in Africa (UNCTAD, 2010b).

Using official development assistance in support of industrial development

Unlike the resource-rich African countries, the resource-poor countries in the region tend to have low domestic savings and face difficulties accessing international capital markets. For this group of countries, access to ODA could make their finance constraint less binding and provide some finance for industrial development. For ODA to play this role, however, a substantial part of it would

have to be allocated by donors to supporting industrial development. At the moment, industrial development is not on the priority list of traditional donors, since industry accounts for an insignificant share of ODA flows to the region. Gross ODA disbursement for industry by members of the OECD Development Assistance Committee as a percentage of their ODA disbursement in Africa for all sectors was about 0.8 per cent for the period 2004–2008. This partly reflects the increased emphasis by traditional donors on the social sectors since the adoption of the Millennium Development Goals in 2000. If ODA is to play a positive role in economic transformation in Africa, then it must be redirected by donors towards supporting industrial development and the development of productive capacity.

Africa is a major recipient of ODA flows, particularly from the Development Assistance Committee. Aid flows to the region increased from $15.6 billion in 2000 to $44 billion in 2008, representing an increase in the region's share of total ODA from 31 per cent to 34 per cent. There are concerns that the devastating impact of the recent financial crisis on OECD economies may result in a decrease in ODA to developing countries in the short to medium term. To the extent that this fear materializes, it could make ODA a less attractive source of finance. While ODA can and has played a useful role in promoting Africa's development, it should be recognized that it is often associated with policy conditions that may make it difficult for recipient countries to lead and own the development process (UNCTAD, 2006). Furthermore, it is a very volatile and unpredictable form of development finance (Bulir and Hamann, 2006). Consequently, African countries should take this factor into account as they seek finance for their industrial development programmes.

G. THE ROLE OF REGIONAL INTEGRATION

The responsibility for industrial development rests primarily with national governments. However, regional integration has enormous potential to contribute to the realization of national industrial development objectives (UNCTAD, 2009a). Globalization has led to the intensification of competition in global markets, implying that if African countries are to make any significant progress in penetrating export markets for manufactures, they would have to take proactive steps to reduce both the direct and indirect trade costs facing domestic firms in the region. Available evidence indicates that the indirect costs stem largely from poor infrastructure, high regulatory burden, and political instability (Ramachandran, Gelb and Shah 2009; Bigsten and Soderbom, 2009).[15] In each of these areas, regional integration has an

important role to play in lifting the constraints. For instance, regional cooperation in the development of infrastructure would lower transactions costs, enhance the development of regional markets, and make manufacturing production and exports more competitive. Regional integration can also contribute to reducing the regulatory burden facing African firms by, for example, harmonizing policies and serving as an external agency of restraint on domestic policies. In this context, the recent adoption of the West African Common Industrial Policy by the Economic Community of West African States (ECOWAS) Council of Ministers is welcome (box 2).

Regional integration is an effective vehicle for promoting peace and security which are necessary conditions for the sustainability of industrial development. Regional institutions played a key role in defusing political crises in Liberia, Sierra Leone, Kenya and Zimbabwe. They are also involved in resolving recent political turmoil in Madagascar, Cote d'Ivoire and Libyan Arab Jamahiriya. By enhancing prospects for peace and security, regional integration reduces uncertainties associated with investment, thereby encouraging enterprise and entrepreneurship development in Africa.

Box 2. The West African Common Industrial Policy

On 2 June 2010, in Abuja, Nigeria, the ECOWAS Council of Ministers adopted the West African Common Industrial Policy (WACIP) and directed the ECOWAS Commission to take steps to ensure its implementation. The adoption of WACIP is a bold step by ECOWAS member States to exploit their comparative advantages and complementarities and to promote industrial development. The specific objectives of WACIP are as follows:

To diversify and broaden the region's industrial production by progressively raising the processing of export products by an average of 30 per cent by 2030;

To progressively increase the manufacturing industry's contribution to regional GDP to an average of over 20 per cent in 2030, from its current average of between 6 and 7 per cent;

To improve intra-community trade from the present 13 per cent to 40 per cent by 2030;

To expand the volume of exports of manufactured goods from West Africa to the global market from the current 0.1 per cent to 1 per cent by 2030.

ECOWAS was formed in 1975 and has 15 members, namely, Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Source: http://allafrica.com/stories/printable/201006110544.html

Regional integration can also facilitate the development of financial markets and improve access to credit, enhancing the competitiveness of domestic manufacturing firms. Recent surveys of African firms indicate that access to credit is a major obstacle to investment in the region. This constraint is also reflected in the reliance of most firms in the region on internal sources of finance for their operations (Ramachandran, Gelb and Shah, 2009). Reasons for lack of access to credit by African firms include underdeveloped financial markets, high collateral requirements, the high cost of credit, the lack of credit history and crowding-out associated with public-sector debt.

Building a robust regional market is critical to unlocking Africa's manufacturing potential and preparing it to compete in global export markets. In particular, given the region's current lack of competitiveness in the global market for manufactures and the positive role that regional integration could play in addressing the issue, African countries should adopt an industrialization and export strategy that emphasizes the regional market as an engine of growth. This is important because it is evident that if African countries are to succeed in increasing their share of global trade, they will have to focus on rapidly growing export markets or those with high potential for future growth. The bulk of Africa's exports go to developed countries, rather than the fast-growing economies of the world. In 2009, developed countries accounted for about 60 per cent of Africa's total merchandise exports. Asia accounted for 24.3 per cent, while Africa accounted for 12.3 per cent and Latin America, 3.1 per cent. The low share of intra-African trade in Africa's total exports is disturbing, given that the region is one of the rapidly growing regions of the world. Over the period 2001–2010, 6 of the 10 fastest-growing economies in the world were in sub-Saharan Africa.[16] Furthermore, growth forecasts indicate that sub-Saharan Africa will account for 7 of the 10 fastest-growing economies over the period 2011–2015. African countries are increasingly diversifying their exports towards Asia in order to take advantage of the growing export market. However, the African regional market potential remains largely untapped, as evidenced by persistently low intra-African trade.

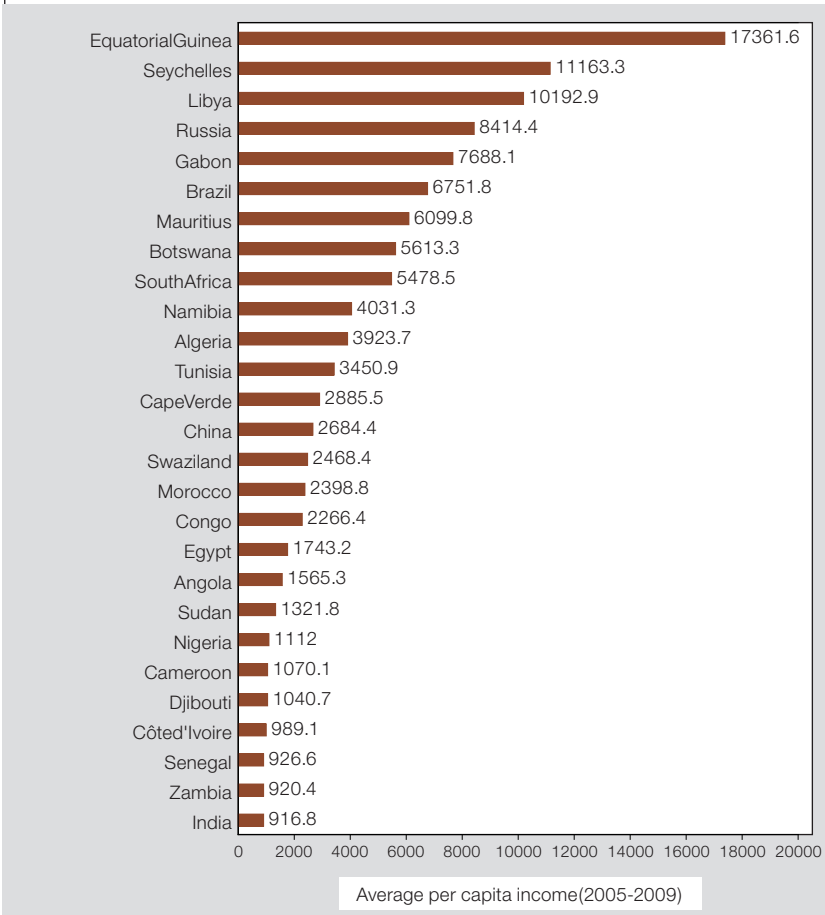
Another reason why African countries should exploit the regional market as a basis for fostering industrialization is that, unlike other regions, Africa has a rapidly growing population, which combined with high income growth, will make it an important source of export demand in the medium to long term. Over the period 1975–2009, Africa's population grew at an average annual rate of 2.6 per cent, well above the world average of 1.5 per cent. Furthermore, recent population

projections indicate that Africa will grow by 2.7 per cent over the period 2009–2050 (United Nations, 2009). In contrast, Europe's population is expected to decline by 0.3 per cent, while Asia is projected to grow by 0.9 per cent, Latin America and the Caribbean, by 0.9 per cent, and North America, by 0.7 per cent. Based on these projections Africa's share of world population will increase from about 15 per cent in 2009 to 27 per cent by 2050. In contrast, other regions will experience either a decrease or no change in their share of world population. These projections imply that if present trends continue, Africa will increasingly be a significant source of consumer demand in the world economy.

The regional market can also be a force for industrial development in Africa because, unlike Africa's exports to the rest of the world, which is skewed towards commodities and against manufactures, the share of manufactures in intra-African exports is quite high. In 2009, manufactures accounted for about 40 per cent of intra-African exports, while their share of Africa's exports to the rest of the world was about 18 per cent. This suggests that African countries can enhance the likelihood of achieving their industrialization objectives if they use the regional market as a mechanism for enhancing trade and coping with the challenge of globalization. Such an approach will permit African firms to exploit economies of scale and garner the experience they need to successfully face global competition.

It is often argued that Africa currently has low per capita income and so its rapid population and income growth may not necessarily translate into an increase in purchasing power. This line of thought is understandable, but flawed for at least two reasons. First, it ignores the fact that Africa is a heterogeneous continent made up of small, big, low- and middle -income countries. For the period 2005–2009, average annual per capita income in the region ranged from a low of $129 in Burundi to a high of $17,362 in Equatorial Guinea. Furthermore, several countries in the region have per capita incomes higher than that of the BRIC countries – Brazil, the Russian Federation, China and India. For instance, over the period 2005–2009, 3 African countries had average per capita income greater than that of the Russian Federation, 4 had per capita income greater than that of Brazil, 11 had per capita income greater than that of China, and 23 had per capita income greater than that of India (figure 10).

Figure 10. GDP per capita in Africa and the BRIC countries (in dollars)



Source: UNCTAD/UNIDO.

Second, although Africa has low per capita income compared with other regions, its purchasing power is rising and it currently has one of the fast-growing and dynamic consumer markets (BCG. 2010). Recent projections indicate that if the region maintains an average growth rate of 5 per cent, consumer spending will rise from $860 billion in 2008 to $1.4 trillion in 2020 (MGI, 2010). Most of the projected increase will be due to a rising African middle class with more discretionary or non-basic-needs income. In particular, the share of African households with discretionary income is projected to rise from 35 per cent in 2000 to 52 per cent in 2020.

CHAPTER 5

TOWARDS A NEW INDUSTRIAL POLICY IN AFRICA: TAKING ACCOUNT OF THE NEW GLOBAL ENVIRONMENT

Over the past two decades, the global environment has changed significantly in many respects. International trade is increasingly under regulation in ways that limit the policy space available to governments (UNCTAD, 2004). Developing countries are beginning to play important roles in the global market for manufactured goods, with consequences for the ability of African countries to penetrate export markets. In addition, concern for climate change is generating interest in the use of environmentally friendly technologies and methods of production. Furthermore, production is increasingly being fragmented and located across national borders, thereby intensifying competition.

The global financial and economic crisis has also raised serious concerns about the viability of unregulated markets as determinants of economic development. The strategic design and implementation of Africa's industrial development programmes will have to take into account these new realities because they have implications for the choice and feasibility of policies to promote industrialization.

This chapter examines the challenges and opportunities facing African countries stemming from current and emerging international trade rules, the rise of industrial powers from the South, concerns about climate change and the phenomenon of global value chains. Suggestions are also made on how African countries could either overcome the challenges or seize opportunities created by the changing global environment to push their industrialization agendas forward.

A. INTERNATIONAL TRADE RULES

Since the establishment of WTO in 1995, the scope of the rules-based-trading system has shifted from a narrow focus on trade in goods, under the General Agreement on Tariffs and Trade, to broader issues, such as trade in services, intellectual property rights and trade facilitation. Furthermore, unlike in the Agreement, there has been greater enforcement of compliance with trade regulations under WTO (DiCaprio and Gallager, 2006). There are concerns that the widening scope and enforcement of trade agreements and rules have limited the set of instruments and policies that non-LDC developing countries could possibly use to promote industrialization (Njinkeu and Soludo, 2001). With respect to Africa, the shrinking of industrial policy space under emerging and current trade rules is evident in the following areas: the imposition of tariff cuts under the emerging, but not yet finalized, non-agricultural market access (NAMA) negotiations; the replacement of preferential trade agreements with reciprocal economic partnership agreements in

conformity with WTO rules, regulations on subsidies imposed under the Subsidies and Countervailing Measures Agreement, the Uruguay Round Agreement on Trade-Related Investment Measures (TRIMs) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

1. Emerging rules

Tariff liberalization under the non-agricultural market access negotiations

Under the emerging NAMA rules in the Doha Round negotiations, developing countries, with the exception of LDCs, have to reduce their import tariffs on industrial products and bind tariff rates below a certain ceiling. Developing countries have the option, however, of applying deeper cuts in tariff lines in exchange for greater flexibilities, and vice versa. Flexibilities are in the form of exempting a certain percentage of sensitive product lines from tariff cuts as long as their import shares in total NAMA imports do not exceed a certain threshold.[17] However, the exemption of a whole sector from tariff cuts will not be possible. This implies that non-LDC African countries will have less room for pursuing import-substitution strategies behind high tariff barriers or through gradual and selective tariff liberalization. This is further compounded by the insertion of the national treatment principle in WTO laws, whereby foreign firms and foreign goods are to be granted the same treatment as local firms and locally produced goods in the country.

Proponents of NAMA reforms argue that, in a low-tariff world, developing countries will benefit in the form of increased market access for their industrial products to other countries, especially developed countries. For instance, in developed countries the proportion of industrial imports entering on a duty-free basis has jumped over the last 15 years from 20 per cent to 44 per cent. However, critics of NAMA reforms argue that the emerging rules will lead to de-industrialization in countries that are in their early stages of industrialization (Shafaeddin, 2006). Furthermore, they argue that the parameter of interest for developing countries should not be the average industrial tariff rate imposed by developed countries on imports but the actual rates imposed by the latter on the exports of interest to developing countries. It is not clear that such rates have been considerably lowered in return for increased market access. There is also the fear that NAMA liberalization will lock poor developing countries into their current or existing patterns of export specialization. In order to build dynamic comparative advantage in higher value-added activities, entrepreneurs need to be rewarded with higher expected returns in exchange for the higher risks involved in undertaking strategic investments in

new industries and new technologies. However, the emerging trade rules will make it harder for developing countries to turn to selective tariffs and subsidies to provide such returns to their entrepreneurs (Shafaeddin, 2006).

Economic partnership agreements and compatibility with the World Trade Organization

The preferential trading arrangements that existed between the EU and Africa under the Cotonou and Lomé accords must be replaced by the so-called economic partnership agreements in order to make them compatible with WTO rules. Although full economic partnership agreements are yet to be finalized between the EU and most African countries, decisions reached in the negotiations will have important repercussions on the future industrial policy space of African countries. For example, while some proposed economic partnership agreements allow the use of export taxes in special circumstances such as the protection of infant industries, they also specify that export taxes cannot be allowed to increase or that their use is subject to periodic review. In addition, the agreements contain standstill clauses that do not allow countries to increase or re-impose tariffs that had been eliminated and to introduce new tariffs once they have been signed. These two instances represent an important loss of policy flexibility for countries in the course of implementing their industrial strategies and adapting such strategies to changing circumstances. Export taxes have historically been used as a means to support local infant industries, generate value-added by promoting the local processing of raw materials into industrial goods and raise government revenues. Successful examples include support to the plywood industry in Indonesia in the 1980s and support to the textiles industry in England in the period 1275–1660 (Third World Network, 2009). Furthermore, the economic partnership agreements contain a "most favoured nation" clause obliging African countries to extend to the EU any concessions granted to other development partners, whether on tariffs or non-tariffs issues. This may compromise the ability of African countries to grant preferential treatment to developing country partners such as China, India and Brazil that could play an important strategic role in Africa's industrialization.

2. Current rules

Subsidies

With respect to the use of subsidies as a tool for promoting industrial development, subsidies linked to either export performance (export subsidies) or the use of

domestic over imported goods (local content subsidies) are prohibited under WTO rules, except for LDCs and countries with less than $1,000 gross national income per capita. When linked to export performance, export subsidies can provide appropriate incentives to domestic firms to invest in building their competitiveness rather than to remain complacent. However, this type of subsidies can no longer be used. Other types of subsidies, for example production subsidies, are allowed, but are now actionable which means that their use can be challenged if deemed to damage the interests of other parties. In import-competing industries with high sunk costs, there may be a case for subsidizing production by domestic infant firms, albeit temporarily, in order to promote greater entry and more competition in the long run. As a result of WTO rules, it is now more difficult to nurture local infant industries through subsidies. However, it is still permissible to use subsidies to promote innovation and regional development and to achieve environmental goals.

Investment measures

The WTO TRIMs Agreement prohibits countries from using local content or trade-balancing requirements. In addition, as discussed in the preceding section, countries cannot subsidize firms to favour the use of domestic inputs over imported ones. This means that these industrial policy instruments used by currently advanced and emerging economies are no longer available to the non-industrialized countries. While Brazil, for instance, was able to use local content requirements to establish a local auto manufacturing industry, Indonesia had to review the local content provisions of its national car programme in 1999 under WTO (DiCaprio and Gallager, 2006). Under the TRIMs Agreement, countries can no longer use local procurement programmes to minimize import leakage rates, optimize the domestic value chain or promote the building of production linkages across sectors in their industrial policy programmes (UNCTAD, 2007a). The Agreement also prohibits the use of performance requirements in FDI policies to maximize benefits from FDI, such as promoting use of local industrial products, inserting local enterprises in the production chain of transnational corporations and facilitating technology transfer to local suppliers.

Intellectual property rights

The TRIPS Agreement, through its strict intellectual property protection regime, makes it harder for developing countries to access and adapt foreign technology for local industrial development purposes. India was able to take advantage of

a weaker intellectual property regime under the General Agreement on Tariffs and Trade to develop a local pharmaceutical industry based on generic drugs. Such a scenario would not have been possible under the TRIPS Agreement. It has been pointed out that countries such as Japan, Korea, Taiwan Province of China or even the United States, would not have been able to achieve their current levels of technological sophistication had they faced intellectual property protection regimes of the strength required by TRIPs in their early stages of industrialization. Furthermore, there is the concern that such regimes can prevent developing countries from engaging in technological learning through imitation and reverse engineering of mature foreign products in the early stages of industrialization (Lall and Albaladejo, 2003; Kim, 2003).

The emerging rules guiding trade and investment under WTO and the economic partnership agreement will no doubt constrain the industrial policy space of African countries. However, the following points should be noted. First, the negotiations under WTO and the economic partnership agreement are still ongoing and have not yet been cast in stone. Therefore, African countries still have an opportunity to influence the final outcomes of these negotiations to ensure sufficient flexibility in designing and implementing their industrial policies. Second, despite the limits imposed by current and emerging trade rules, there remains some scope for African countries, particularly the LDCs, to engage in industrial policymaking. Third, a few WTO rules, such as the provision of the TRIPS Agreement related to technology transfer from developed countries to LDCs, offer opportunities for African countries to engage in industrialization, as long as they are creative enough in harnessing such opportunities to their own benefits.

There are various ways that African countries can shape their industrialization strategies in response to the challenges posed and the opportunities presented by the current and emerging trade rules.

Make better use of instruments allowed under existing rules. While the scope for pursuing vertical industrial policies has been reduced under WTO, the scope for horizontal and functional interventions has not been significantly squeezed. Consequently, African countries should be more creative in the choice of policy instruments by combining the few vertical industrial policy instruments that are allowed with horizontal and functional policies. Such pragmatism is important for the purpose of achieving economic diversification and building intersectoral linkages that in turn will contribute to industrial development.

Seize opportunities created by the special treatment of LDCs. African LDCs benefit from certain exemptions and special treatment at WTO. For example, under the Everything But Arms initiative, exports of African LDCs benefit from duty-free, quota-free market access to the EU. There are several schemes under the generalized system of preferences that give preferential market access to products from LDCs. However, in order for such unlimited market access to translate into real economic gains for African LDCs, they must be in a position to competitively produce and supply goods on world export markets. Research has shown that such schemes tend to be underutilized or utilized for a narrow range of products (UNCTAD, 2003). As part of their regional industrial policies, African countries should aim at promoting investment and production in African LDCs in order to take advantage of the preferential market access and preferential treatment granted to LDCs under WTO.

Use WTO provisions to further economic development objectives. A few WTO provisions could actually create opportunities for African countries in the course of their industrialization. For example, under the TRIPS Agreement, African countries could secure patents over certain types of natural raw materials that could be transformed into niche industrial products (e.g. endemic plants for pharmaceuticals). Governments can then attract investors to locate industrial activities in their countries in exchange for licensed, exclusive use of the raw materials. Doing so will allow these countries to create a comparative advantage in the production of niche products. The possibility of applying for trademarks, copyrights and geographical indications for certain products could also provide an incentive for African entrepreneurs to invest in the so-called creative industries (e.g. African crafts, African music, African foods) and so generate niche export markets based on culturally derived products that are unique and not subject to intense competition. The TRIPS Agreement could also give African entrepreneurs and governments grounds to fight against imports of pirated goods that are affecting the survival of their local infant industries.

Article 66.2 of the TRIPS Agreement calls for technology transfer from developed countries to LDCs, in exchange for the latter enforcing protection of intellectual property. According to this article, governments of developed countries have obligations to provide incentives to enterprises and institutions for facilitating the transfer of technologies to LDCs. However, compliance by developed countries with the provisions of the article has been limited (Moon, 2008). There is scope for African LDCs to push for a more stringent enforcement of the provisions of the article, as part of securing access to technology for their industrialization.

B. RISING INDUSTRIAL POWERS FROM THE SOUTH

The growing role of large developing countries such as Brazil, China and India presents opportunities as well as challenges for industrialization in Africa. Through the attraction of FDI and non-equity modes of investment such as alliances, partnerships and subcontracting, Africa can benefit from its developing-country partners' expertise, skills and technology in designing industrial programmes adapted to its specificities and endowments. Furthermore, through partnership with developing-country transnational corporations, Africa could develop technologies that are adapted to its industrial needs and produce industrial products adapted to the requirements of its low- and middle-income consumers. However, amid the opportunities also lie the challenges. For example, there is concern that the rise of the large developing country partners in the global market for light manufactured goods may have a harmful effect on sub-Saharan Africa's manufacturing exports (Giovannetti and Sanfilippo, 2009; Kaplinsky and Morris, 2007; Jenkins and Edwards, 2005).

There are also concerns that Africa's growing trade relations with the large developing country partners is reinforcing the region's dependence on commodity exports, thereby inhibiting and delaying structural transformation. Further, the growing demand for commodities has led to a declining trend in the manufactures-commodities terms of trade in favour of commodities (Kaplinsky, 2008). Given the growing need for commodities by emerging economies, it is likely that the current terms of trade reversal may be more than a transient phenomenon. This implies that Africa's industrial development will need to ride against the market tide. Its industrial development will need to proceed, despite rising global prices for its primary commodities and lowering prices for its manufactures. State intervention will be necessary to defy the market from pulling private-sector activity towards low value-added commodities and away from high value-added industry. Industrial policy in Africa is hence necessary to effect a structural transformation that the free market on its own may not command.

A relevant question at this stage is whether African countries can industrialize successfully, given the challenges posed by the rise of more dynamic developing countries in Asia and Latin America. The answer is yes, Africa can, provided it is strategic in designing its industrial development. A few elements of such a strategic design are sketched out below.

African countries should compete on both price and non-price factors. Newly industrializing African economies may find it hard to engage in the traditional industrial growth trajectories based on developing first stepping-stone industries such as clothing, textiles, furniture and shoes and other low-cost segments because of intense competition from emerging economies in those basic industrial sectors (Kaplinsky and Morris, 2007). African countries should aim at adopting, as far as possible, industrialization strategies that from the start are based on product differentiated, innovation-intensive, or technology-intensive niche products. Priority should be given to products that offer continuous upgrading opportunities, and marketing strategies should emphasize quality and branding rather than price competitiveness alone.

Over time, countries such as China and India are likely to aim at moving up in the product value chain, graduating away from producing low value-added labour-intensive products towards manufacturing high-technology, high-capital-intensive goods, if not even move to other global value chains. China's announcement at the end of 2009 of a shift in its manufacturing labelling strategy, away from "Made in China" toward "Created and designed in China" is a clear signal that, in anticipation of wage and cost increases on the Chinese mainland, it is searching for production and assembly locations in other parts of the world. This also fits in with China's "go global" policy. Such an upgrading by China and India will open up opportunities for Africa to fill the manufacturing gap left behind by these two Asian giants in certain segments and categories of global value chains (e.g. manufacturing and assembly segment for labour-intensive or medium-technology products).

Africa can position itself to supply growing consumer markets in the South. Africa needs to stand ready to exploit the large industrial markets that, for example, China and India will generate as its urban middle classes expand in years ahead. It is estimated that by 2030, 59 per cent of the global middle class will originate from Asia, compared with 23 per cent in 2009, because of burgeoning emerging middle classes from China and India (Kharas, 2010). Buyer-driven global value chains will gravitate from Northern markets to the South (Kaplinksy and Farooki, 2010) with implications on the nature of industrial import demand. Demand from these Asian economies for soft commodities such as food and inputs into infrastructure are likely to increase. In developing its relations further with China and India, Africa should aim at forging strategic partnerships with these two countries with a view to positioning itself as a potential supplier in the long run for Chinese and Indian markets in targeted areas such as agro-industry.

Africa needs to develop a strategy in relation to its Southern development partners. Africa must set its own development agenda, with industrial development at its core and let this agenda drive its relationships with its development partners rather than the other way around. As stated in UNCTAD (2010b), African countries must harness and use their partnerships with developing countries to further their long-term development goals. Doing so requires African countries to take a proactive approach to the partnership process. This implies that they should ensure that trade, investment and financial flows from developing countries serve to accelerate their structural industrial transformation as well as to contribute to industrial growth. In particular, South–South cooperation is more likely to contribute to industrialization in the region if African countries mainstream it into their national development plans and gear it more towards the development of productive capacities. A strategic approach to engaging non-African developing country partners could involve African countries granting them access to their natural resources in exchange for the provision of investment, or technology and skill development, in specific manufacturing sectors. It could also involve demanding that a certain proportion of natural resources, for which they are granted access, be processed domestically, perhaps through joint ventures with local firms.

The region could also adopt the strategy of positioning itself as a subcontractor for or as a co-production partner with Southern manufacturing firms either to service directly the African market or to use Africa as an entry point to indirectly export high-quality niche products to Africa's other major developing partners such as the EU and the United States. This may be especially relevant for African countries that do not have natural resources to attract Southern investors. The preferential market access of African LDCs to such markets through schemes under the generalized system of preferences could prove to be an attraction to Southern investors. The acceleration of regional integration could create the large potential markets that can also attract Southern manufacturing investors to African shores. African countries can also offer targeted incentives to their Southern partners to set up special economic or industrial regional zones in Africa. In this regard, African countries will need to coordinate their incentive packages under their regional platforms, such as the Southern African Development Community, the Common Market for Eastern and Southern Africa, ECOWAS or under the African Union to avoid wars of incentives. African countries can use their regional platforms to create regional business corridors driven by Southern industrial investments.

C. CLIMATE CHANGE

The growing concern about climate change and environmental issues in general presents several challenges for African countries in their quest for industrial development. First, African countries have obligations under the United Nations Framework Convention on Climate Change (UNFCCC) to contribute to the global mitigation and adaptation agenda. While there are currently no binding mitigation obligations per se on developing countries, this may change in the future as greenhouse gas emissions rise faster, especially in developing countries. African countries will have to take these future potential developments in climate change negotiations into account when framing their industrial strategies. There is mounting pressure on large developing countries such as South Africa to deviate from business-as-usual practices in order to contribute to mitigation targets. Current and future international obligations on climate change mitigation and adaptation impose constraints on how Africa should industrialize.

Second, as the international community accelerates plans for cutting greenhouse gas emissions in the twenty-first century, industries may face the obligation of monitoring their own emissions, reporting on their emission cuts and complying with environmental standards and legislation. If they fail to do so, penalties may be faced in the form of carbon taxes, withdrawal of subsidies or production cuts. Companies are already building green business models to comply with future outcomes at the international climate change negotiations (OECD, 2010). In the future, environmental friendliness can become another dimension of industrial competitiveness, even more so if climate policies are linked to trade policies. Industries that fail to "go green" may be at a competitive disadvantage in the global marketplace. As the momentum to transit to low-carbon economies gathers pace, African industries may have no choice but to "go green" in the future in order to be competitive on world markets.

But climate change also presents opportunities for Africa. In particular, obligations to mitigate and adapt to climate change and to "go green", though costly, can actually represent an opportunity for African countries. As a latecomer in the industrial game, Africa has indeed an opportunity to be at the forefront of the green industrial revolution by implementing green industrial development based on low energy-intensity, low-carbon emissions and clean technologies. While industrially advanced economies will have to bear the costs of transiting towards a low carbon economy in the medium to long run, Africa has an opportunity to avoid

such adjustment costs by leapfrogging directly into a clean industrial development right from the start. Doing so will allow the region to develop first-mover advantages over other industrialized economies, while waiting for investment and trade to be integrated in climate-friendly global policies. Future global policy developments for instance may link trade preferences accorded to developing countries to their mitigation and adaptation efforts.[18] A greater number of developed countries may in the future impose environmental standards on imports and favour developing countries that are climate-friendlier production and investment locations. By building a green industrial economy, Africa can place itself ahead of other developing countries in terms of ensuring compatibility between its industrial strategy and its obligations under global climate policies.

African countries should also seize the opportunity presented by concerns about climate change to power industrial production with clean, renewable energy sources. Africa's rich endowment in sunlight, deserts and land positions it as a potential competitive worldwide supplier of renewable energy such as solar power, wind power and biofuels. The development of the renewable energy sector in Africa needs to go hand in hand with industrial development. In particular, renewable energy is needed to fuel the region's industrial growth and can also be a significant component of Africa's industry. African policymakers should redouble their efforts to promote the development and use of renewable energy. In this regard, initiatives such as the one led by DESERTEC, which aims to produce clean solar and wind energy in Northern African deserts to supply Europe, the Middle East and North Africa, should be multiplied.

African countries should also position their domestic industries as suppliers of environmental industrial products. In particular, in response to the increasing competition in global export markets, they should aim at developing a high value-added niche export strategy based on the production of price inelastic and income elastic goods. In this context, the manufacture of low-carbon and environmental technology products targeted at environmentally aware customers – both households and industry – in developed and emerging countries can constitute a lucrative export niche for African countries. The size of this customer base is likely to increase in the future as climate change policies gain momentum and more and more countries switch to low-carbon economies. Examples of such manufactured products may include environmental products that satisfy eco-labels such as organic cotton-based products; hybrid, "eco" and electric cars; power-saving light bulbs; biodegradable cleaning products; renewable energy-powered

batteries; natural paints and certified products from sustainable forests such as paper, furniture and building materials. Another niche segment to be explored is the supply of manufacturing equipment for renewable energy such as wind turbines and solar panels. The manufacturing of clean equipment and clean technology to facilitate environmentally sound industrial processes and low-carbon emissions in other economies such as products for waste management, recycling, carbon capture and storage and biotechnological products is another potential niche.

African countries should consider forging strategic trade partnerships with countries that have committed to become low-carbon economies such as EU countries and China. These countries can offer large potential markets for Africa's green industrial products. Africa has to strategize for its enterprises to integrate into green global value chains aimed at supplying environmental retailers in developed countries. This may require forging partnerships between African enterprises and global environmental companies in the form of subcontracting, joint ventures or equity investment.

To respond effectively to the challenges posed by climate change, African countries will have to address two constraints: how to access the technology and expertise needed to manufacture environmental products and how to finance the implementation of policies needed to build a green industrial economy. Once more, the deepening of South–South cooperation with countries such as Brazil and India is critical. African countries should partner with Southern countries that can facilitate transfers of technology and know-how to Africa and assist in adapting technology to local circumstances. Domestic enterprises in Africa will need to build capacities in absorbing green technologies from its foreign partners, adapting them to its local context and innovating on their own in the area of clean technologies. The region should foster a continued engagement with international organizations such as UNIDO, the United Nations Environment Programme and development banks in order to secure the finance and technical assistance needed for developing and applying green technologies to industry. So far only 13 African countries have established national cleaner production centres that can help promote clean production methods and environmentally sound technologies.[19]

African policymakers should also maintain a proactive approach in climate change forums in order to capitalize on developments at UNFCCC to secure finance, technology transfers and capacity-building for implementing Africa's green industrial policy. African countries, for instance, should seek technical assistance from international organizations to tap into the various climate funds available under

the UNFCCC and World Bank umbrellas in order to fund its green industrial policy. African policymakers can also provide incentives to firms and governments from developed countries to invest in its green industry as part of their obligations under UNFCCC to help developing countries mitigate and adapt. In this context, African governments should make greater use of the clean development mechanism to encourage the set-up of clean industrial projects and programmes in Africa by developed partners. As discussed in the UNCTAD *World Investment Report 2010*, incentives for attracting low-carbon FDI should also be considered. The setting-up of low-carbon special economic zones is a case in point (UNCTAD, 2010a).

D. GLOBAL VALUE CHAINS

An important feature of the new global environment is the increased internationalization of industrial production. Production is being increasingly segmented in different stages located in different countries, according to the competitive advantages of each location. This so-called globalization of the value chain, or global value chain, allows producers to improve on competitiveness by making better strategic use of available global endowments, skills and capabilities to lower costs. It also creates opportunities for a greater number of countries to take part in the global industrialization process and in so doing spur their own national industrial development.

By segmenting production into a range of small, narrowly defined tasks, global value chains facilitate the participation of SMEs into international production networks, as it should be relatively easier for SMEs from developing countries to develop comparative advantages in a range of small, narrowly defined items by learning by doing and scale economies (Bigsten and Soderbom, 2009). Participation in global value chains also gives SMEs an opportunity to exploit large, profitable world export markets and engage in industrial and technological upgrading (UNIDO, 2004).

The participation of African enterprises in these global value chains can offer African countries an opportunity to tap into the global industrial export market. For countries that have freshly embarked on an industrialization path, the insertion of their enterprises in global value chains, by forging relationships with foreign investors, can provide an entry point into the global industrial stage. Such insertion can provide opportunities for local enterprises to access international markets, acquire information on export markets and develop technological capabilities through exporting, or learning by exporting (UNCTAD, 2007b). However, the insertion

of firms from developing countries into global value chains can be fraught with difficulties. As pointed out by Kaplinsky and Morris (2003), entry in global networks is determined more by rules set by private actors rather than by governments in trade policies. The large firms in the global value chain – be it retailers, traders or marketers – that distribute contracts to suppliers in developing countries very often set parameters or "rules", such as environmental and labour standards, quality specifications and process standards.

Another barrier to entry for newcomers lies in whether they can forge relationships with the big buyers in these networks. Lead firms in the global value chains may already be relying on an existing network of suppliers. Their willingness to switch to new suppliers may be low if relationships with subcontractors and suppliers are governed by trust and reputation because of high transaction costs rather than on competitive considerations such as production costs alone. Transaction costs can matter more than simple direct production costs, especially in product lines where quality and timely delivery are determining market factors and buyers have to make significant investments to strengthen capabilities of their suppliers and to monitor them.

Global value chains are often driven by multinational enterprises that are themselves involved in several global value chains. A strategic option for breaking into global value chains consists in African countries positioning themselves as reliable suppliers or subcontractors for global producers such as multinational enterprises in the manufacture of intermediate, semi-finished and/or finished goods. Trade in intermediate goods, for instance, has become the dominant type of trade flows and accounts for around 60 per cent of world exports (WTO, 2010). There is evidence that its increased dominance is due to increased international production, especially the growing importance of the network of multinational enterprises (Kleinert, 2003). African countries can take advantage of the expanding trade in intermediate goods by positioning themselves as reliable suppliers of intermediate industrial inputs for global industrial networks.

Specific measures should also be taken to facilitate the integration of African SMEs into global value chains. UNCTAD (2010c) highlights a series of policy recommendations that are relevant for African industries. It notes that promoting an enabling business environment is a prerequisite for SME's to integrate into global value chains. This can range from stable macroeconomic policies; streamlining and efficiently applying business procedures, laws and regulations; setting up complementary policies in competition, trade and investment to supporting

human resource development and improving access to finance. Public policy interventions to support SMEs, should, according to UNCTAD (2010c), focus on skills development and training, investments in appropriate technologies for continuous technological upgrading, enhanced compliance with international standards and linkages between SMEs and multinational enterprises via specific promotion measures especially targeting multinational enterprises that are known to establish linkages with SMEs. Other public policy measures would include setting up business development services, promoting clusters such as science and technology parks or industry villages, enhancing intellectual property protection and developing productive capacities.

Despite the advantages of participation in global value chains, there is the danger that, once enterprises start out as low-cost suppliers in a low value-added end of a global value chain where entry is easier, they may remain trapped there. In this context, whether African countries gain in the long run from participation in global value chains depends on several factors. One factor relates to how proactive firms and national governments are at fostering continuous upgrading opportunities for domestic firms in global value chains, building linkages across firms supplying global value chains in different sectors and forging closer relationships with foreign buyers/lead firms in the global value chains. Government-assisted measures such as human resource training, investing in science and technology and fostering linkages between business and scientific and educational institutes may prove indispensable, for instance, to facilitate learning by local firms so that these firms can engage in upgrading over time.

Another factor is the ability of local firms to increase the costs for its foreign buyers to switch to alternative suppliers elsewhere. That is the ability of the local firm to lock in its buyers. This in turn may depend on the type of hierarchical relationships within the chain between the foreign buyer and its suppliers; the degree of support provided by the lead firms to its suppliers for complying with standards; investments on the part of local firms to meet buyers' requirements and how easy it may be for foreign buyers to access same supplies elsewhere. African countries that are commodity rich, for example, are in a better position to lock in their buyers if they have access to a critical raw material, such as gold, diamonds or metals, that is in short supply somewhere else. Resource-rich African countries can market their exclusive supplies of critical commodities to enter as a supplier in commodity-driven global value chains.

E. SUMMARY

To conclude, there are opportunities and challenges presented by the new global environment that African countries will need to take into account in designing and implementing their industrial policies. While current and emerging trade rules have narrowed the policy space available to governments, there is still some room to effectively use trade instruments to promote industrial development in Africa. The analysis of the growing role of large developing countries in global markets, suggests that it may pose a challenge for the expansion of Africa's labour-intensive manufacturing exports. Nevertheless, African countries can overcome the challenge by learning to compete on both price and non-price factors, positioning themselves to supply growing consumer markets in other developing countries and developing a coherent strategy for dealing with their developing country partners.

With respect to climate change, it is becoming clear that African countries will have to take environmental issues into account in the design of their industrial strategies. However, they should also take advantage of the increasing demand for environmental goods to adopt the first truly green industrial development model, power industrial production with clean and renewable energy sources and position themselves as future suppliers of environmental industrial products. Finally, global value chains offer opportunities for African producers to participate in global export markets for manufactured goods but government action is needed to enable firms seize this opportunity. In addition, it is important for African policymakers to recognize that the insertion and progression of enterprises from developing countries in global value chains can be very challenging because of the governance of global value chains.

CHAPTER 6

FOSTERING INDUSTRIAL DEVELOPMENT IN AFRICA: MAIN FINDINGS AND RECOMMENDATIONS

African countries require high and sustained economic growth to make significant progress in reducing poverty and engender development. But history and econometric evidence have shown that the prospects for high and sustained growth in any country depend largely on the degree of structural transformation of the economy (Rodrik, 2007). No country has achieved high and sustained economic growth without going through a process of structural transformation, characterized by a shift of production and exports from low productivity to high productivity goods. This suggests that what a country produces and exports matter for growth and development (Hausmann, Hwang and Rodrik, 2007).

Furthermore, one of the major challenges which African countries currently face is to generate productive jobs and livelihoods for the 7–10 million young people entering the labour force each year. This is difficult to achieve simply through commodity exports. It requires a complementary process of agricultural productivity growth and development of non-agricultural employment opportunities in both industry and services. If African countries are to achieve substantial poverty reduction and other MDGs, they must go through a process of structural transformation involving a decrease in the share of agriculture and an increase in the share of industry and modern services in output, with a shift between and within sectors from lower productivity activities to higher productivity activities.

African governments are aware of this reality and have taken several steps in recent years to renew their commitment to industrialization. But the question is how they can do this without repeating the mistakes of the past, both hands-on dirigisme and hands-off market fundamentalism.

Against this background, this report examines the status of industrial development in Africa with a focus on the identification of stylized facts associated with African manufacturing. It also provides an analysis of past attempts at promoting industrial development in the region and the lessons learned from these experiences. Finally, it offers policy recommendations on how to foster industrial development in Africa in the new global environment characterized by changing international trade rules, growing influence of industrial powers from the South, the internationalization of industrial production and growing concerns about climate change. The main findings and policy recommendations of the report are as follows.

A. MAIN FINDINGS

1. *Manufacturing currently plays a limited role in African economies.* The share of manufacturing value added (MVA) in Africa's GDP fell from 12.8 per cent in 2000 to 10.5 per cent in 2008. In Latin America, it fell from 17 per cent to 16 per cent and in developing Asia, it rose from 22 per cent to 35 per cent over the same period. There has also been a decline in the importance of manufacturing in Africa's exports. In particular, the share of manufactures in Africa's total exports fell from 43 per cent in 2000 to 39 per cent in 2008. Factors that have contributed to Africa's weak industrial performance include domestic policy failures, lack of policy space to implement alternative development policies and structural constraints such as poor infrastructure, low human capital and the small size of domestic markets.

2. *Manufacturing performance varies across African countries.* In particular, there is a wide variance across countries in terms of both the level and growth of MVA per capita. In 1990, 6 of the 52 African countries for which data are available had an MVA per capita of at least $200 and in 2010 the number of countries with an MVA per capita of at least $200 was 9. In terms of manufacturing growth, 23 African countries had negative MVA per capita growth over the period 1990–2010 and 5 countries had an MVA per capita growth above 4 per cent.

3. *Africa still accounts for a low share of global manufacturing.* Africa continues to be marginalized in global manufacturing trade. The share of the region in global MVA fell from 1.2 per cent in 2000 to 1.1 per cent in 2008. In developing Asia it rose from 13 per cent to 25 per cent and in Latin America it fell from 6 per cent to 5 per cent over the same period. In terms of exports, Africa's share of global manufacturing exports rose from 1 per cent in 2000 to 1.3 per cent in 2008.

4. *Africa is losing ground in labour-intensive manufacturing.* Low technology and labour-intensive manufactures play a limited role in African manufacturing. The share of low technology manufacturing activities in MVA fell from 23 per cent in 2000 to 20 per cent in 2008. Furthermore, the share of low-technology manufacturing exports in Africa's total manufacturing exports dropped from 25 per cent in 2000 to 18 per cent in 2008.

5. *Africa has made some progress in boosting technology-intensive manufactures.* The share of medium- and high-technology (MHT) activities in Africa's total MVA rose from 25 per cent in 2000 to 29 per cent in 2008. Furthermore, the share of MHT exports in total manufacturing exports rose from 23 per cent to 33 per cent over the same period.

6. *Africa is heavily dependent on RB manufacturing.* Africa is heavily dependent on RB manufactures. In particular, the share of RB manufactures in Africa's total manufacturing exports was 52 per cent in 2000 and 49 per cent in 2008. This contrasts with the situation in Latin America, and East Asia and the Pacific, where the shares of RB in total manufacturing exports in 2008 were 34 per cent and 13 per cent, respectively.

7. *African manufacturing is dominated by small and informal firms.* In most African countries, the manufacturing sector is made up of small or microenterprises operating side by side with a small number of large foreign or State-owned firms. Furthermore, most enterprises are informal firms. Informal firms are smaller in size, produce to order, are run by managers with low human capital, do not have access to external finance, do not advertise their products and sell to largely informal clients for cash. In addition, informal firms rarely become formal as they grow.

8. *Industrial clusters play an important role in African manufacturing.* There is some evidence suggesting that industrial clusters have contributed to boosting the competitiveness of small and medium-sized firms in Africa. These clusters make market access easier, facilitate technological spillovers, and reduce geographical and information costs for firms. They also cover a wide spectrum of areas ranging from resource-based activities to high-technology industries such as automobile parts and computer manufacturing.

B. POLICY RECOMMENDATIONS

The report suggests that African countries should intensify efforts to develop manufacturing because it presents great opportunities for sustained growth, employment and poverty reduction. Further, it argues that deliberate government intervention is needed to promote manufacturing development, induce structural transformation and engender development in Africa. The experiences of currently advanced countries and emerging economies indicate that governments have an important role to play in inducing structural transformation. In particular, industrial

policies were used by these countries to redirect resources and production to priority activities deemed necessary to promote industrialization. Consequently, if African countries wish to make significant progress in achieving their industrial development objectives, there has to be a deliberate effort by national governments to promote industrialization through industrial policy.

While there is a case for industrial policy in Africa, there is also the recognition that the past approaches to promoting industrialization did not achieve the objective of economic transformation. Neither the old industrial policies, adopted during a period of import substitution industrialization, nor the market and investment climate reforms are sufficient to induce structural transformation in the region. In this regard, the Report stresses the need for African governments to adopt a new approach to industrial policy based on the following principles: supporting, as well as challenging firms; building effective State-business relations; recognizing the political feasibility of proposed actions; focusing on lifting binding constraints and putting in place a mechanism for monitoring, evaluation and accountability.

The Report advocates a strategic approach to industrial policymaking based on an industrial diagnosis; it proposes a framework for industrial strategy design that takes into account the heterogeneity of African economies and is tailored to specific country circumstances. It also stresses the need for industrial policy to lay emphasis on (a) the promotion of scientific and technological innovation; (b) the creation of linkages in the domestic economy; (c) the promotion of entrepreneurship; and (d) the improvement of government capabilities.

- *Fostering scientific and technological innovation.* The accumulation of technological knowledge and capabilities is critical to inducing structural transformation and gaining competitive advantage in export markets. African countries should provide more support for technology and innovation. This could take the form of stimulating domestic production of technological knowledge through the provision of incentives to entrepreneurs, or it could take the form of facilitating access to existing technology through FDI, licensing and purchasing capital equipment. African countries should also invest in education and skill formation to ensure that firms have reliable access to the skilled labour required to produce high-quality goods that can survive competition in global markets. Particular attention should be paid to enhancing education and training in technical and scientific subjects such as engineering because these are the most relevant for industrial development.

- *Creating linkages in the economy.* African countries should give priority to the creation or development of linkages in the domestic economy to ensure that the promotion of industrial development yields positive spillover benefits in other sectors of the economy. There are various ways to create domestic linkages in an economy. For example the promotion of agro-industries is one way to develop domestic linkages between the industrial and agricultural sectors of an economy. Furthermore, linkages can be created between domestic and foreign firms by building domestic technological capabilities. Polices to support industrial clusters are also important.

- *Promoting entrepreneurship.* African countries should step up efforts to promote entrepreneurship by creating an economic environment that favours both domestic and foreign investment. In particular, they should reduce policy uncertainty, strengthen infrastructure provision and improve access to finance for firms, particularly SMEs. Efforts should also be made to provide incentives for firms to invest in the discovery of new activities that enhance export competitiveness and diversification.

- *Improving government capabilities.* In promoting industrial development, African countries should ensure that the scope and degree of intervention takes into account government capabilities. Weak State institutions make it challenging for governments to successfully implement their industrial development programmes and policies. In this context, African governments should give priority to enhancing government capabilities to design, formulate and implement policies. This can be achieved by providing training and capacity-building activities for public officials with support from international organizations such as UNIDO and UNCTAD.

The Report points out that industrial policy cannot be implemented in a vacuum. It has to be consistent with other economic policies for better development results. In this regard, it recommends the following additional and complementary measures.

- *Avoiding exchange rate overvaluation.* Exchange rate policy affects the development of manufacturing firms, as well as their ability to compete in international markets. In particular, a competitive exchange rate promotes exports and allows domestic firms to seize opportunities created in international markets. When the exchange rate is overvalued relative to its equilibrium value, it represents an implicit tax on exports and a disincentive for firms to invest in the export sector. If African countries wish to make

significant progress in meeting their industrialization objectives, they will have to avoid exchange rate overvaluation by, for example, controlling inflation, managing natural resource wealth in a manner that minimizes the risk of the Dutch disease and, where appropriate, adopting more flexible exchange rate regimes.

- *Adopting appropriate monetary and fiscal policies.* The effectiveness of industrial programmes and policy also depends in part on the extent to which monetary and fiscal policies are consistent with the objective of promoting industrial development. In particular, the mix of monetary and fiscal policies has to be such that firms have better access to credit and real interest rates are not at levels that deter investment. It is necessary to align the stance of monetary and fiscal policies with the objective of promoting industrial development, while ensuring that measures adopted to achieve such an alignment do not lead to medium- or long-term macroeconomic instability.
- *Enhancing resource mobilization.* The promotion of industrial development requires the mobilization of resources to finance investments in identified priority areas. There has been a tendency for African governments to focus on resource allocation as opposed to resource mobilization issues in the conduct of industrial policy. African countries should pay more attention to the mobilization of resources and strengthen resource mobilization by boosting domestic savings, borrowing from development finance institutions, promoting FDI, harnessing the potential of South–South cooperation as a source of development finance and encouraging traditional development partners to direct more ODA towards promoting industrial development in the region.

The Report also recognizes the importance of regional integration and political stability in developing and sustaining industrialization in Africa. Consequently, it calls upon African governments to strengthen regional integration and enhance political stability.

- *Strengthening regional integration.* Building a robust regional market is necessary to unlock Africa's manufacturing potential and prepare it to compete in global export markets. Regional integration can contribute to building robust regional markets through, for example, cooperation in the development of regional infrastructure, harmonization of policies and maintenance of political stability. Given the small domestic markets of African

economies, the regional market can be a force for industrial development in the region. This is important because unlike Africa's exports to the rest of the world that is skewed towards commodities and against manufactures, the share of manufactures in intra-African exports is high. In 2009, manufactures accounted for about 40 per cent of intra-African exports while their share of Africa's exports to the rest of the world was about 18 per cent. Further, Africa is among the fast-growing regions of the world both in terms of population and income. As a result, the region is increasingly becoming an important source of export demand that could form the basis for initiating and sustaining industrial development.

- *Maintaining political stability.* Political stability is a necessary condition for industrial development in Africa. Without political stability, even a well-designed and well-implemented industrialization programme is bound to fail. Therefore, efforts should be made by African governments to reduce the incidence of political crisis through better political and economic governance, for example. In addition, the role of regional institutions such as the African Union Commission and the regional economic communities should be strengthened in the areas of crisis prevention, management and resolution.

C. CONCLUSION

Industrial development is crucial for sustained growth and poverty reduction in Africa. Over the past decade, African governments have renewed their political commitments to industrialization and have adopted several initiatives at the national and regional levels to enhance prospects of achieving their objectives. This Report welcomes the new developments and argues that the optimal industrialization path and policies will vary across African countries because of differences in endowments, political conditions and geography. Furthermore, it stresses that a new industrial policy is needed to induce structural transformation and engender development in African economies. The Report also suggests that efforts to promote industrial development in Africa should be centred on (a) promoting scientific and technological innovation, (b) creating linkages in the domestic economy, (c) fostering entrepreneurship, (d) improving government capabilities, (e) adopting appropriate monetary and fiscal policies, (f) avoiding exchange rate overvaluation, (g) enhancing resource mobilization, (h) strengthening regional integration and (i) maintaining political stability.

NOTES AND REFERENCES

NOTES

1 CAMI was established by African governments in 1971 as a platform for dialogue and exchange of ideas on the industrial development of Africa. Some of the main outcomes of the conference include (a) the adoption in 1981 of the First Industrial Development Decade for Africa (covering the period 1980-1990); and (b) the adoption in 1989 of the Second Industrial Development Decade for Africa, initially for the period 1991-2000 but later changed to 1993–2002.

2 The index lies between zero and one, with lower values representing higher diversification.

3 Following Meier (1988), there are three necessary conditions under which infant-industry protection could be justified: (a) the existence of external economies that cannot be captured by the industry; (b) there has to be a time limit for protection; and (c) in present value terms, the expected benefit from protection must be large enough to offset the current costs of the policy required to produce the benefit.

4 The technological classification of trade is based on the Standard International Trade Classification (SITC), Revision 3 and is shown in the table below. Data source: United Nations Commodity Trade Statistics (COMTRADE database).

Technology classification of exports according to SITC Rev. 3

Type of exports	SITC sections
Resource-based exports	016, 017, 023, 024, 035, 037, 046, 047, 048, 056, 058, 059, 061, 062, 073, 098, 111, 112, 122, 232, 247, 248, 251, 264, 265, 281, 282, 283, 284, 285, 286, 287, 288, 289, 322, 334, 335, 342, 344, 345, 411, 421, 422, 431, 511, 514, 515, 516, 522, 523, 524, 531, 532, 551, 592, 621, 625, 629, 633, 634, 635, 641, 661, 662, 663, 664, 667,689
Low technology exports	611, 612, 613, 642, 651, 652, 654, 655, 656, 657, 658, 659, 665, 666, 673, 674, 675, 676, 677, 679, 691, 692, 693, 694, 695, 696, 697, 699, 821, 831, 841, 842, 843, 844, 845, 846, 848, 851, 893, 894, 895, 897, 898, 899
Medium technology exports	266, 267, 512, 513, 533, 553, 554, 562, 571, 572, 573, 574, 575, 579, 581, 582, 583, 591, 593, 597, 598, 653, 671, 672, 678, 711, 712,713 ,714, 721, 722, 723, 724, 725, 726, 727, 728, 731, 733, 735, 737, 741, 742, 743, 744, 745, 746, 747, 748, 749, 761, 762, 763, 772, 773, 775, 778, 781, 782, 783, 784, 785, 786, 791, 793, 811, 812, 813, 872, 873, 882, 884, 885
High technology exports	525, 541, 542, 716, 718, 751, 752, 759, 764, 771, 774, 776, 792, 871, 874, 881, 891

5 There are different definitions for cluster. For a review and a comparison of the alternatives see Navdi and Schmitz (1999).

6 The clusters analysed are: the Suame Manufacturing cluster in Ghana (also in McCormick, 1999); the Kamukunji Metalwork cluster (also in McCormick, 1999) and the Lake Naivasha Cut Flower cluster in Kenya; the Nnewi Automotive Components cluster and the Otigba Computer Village cluster in Nigeria; the Mwenge Handicrafts cluster and the Keko Furniture cluster in the United Republic of Tanzania; the Lake Victoria Fishing cluster in Uganda; the Textile and Clothing Cluster in Mauritius; the Wine Cluster and the Western Cape Textile and Clothing Cluster (also in McCormick, 1999) in South Africa.

7 Krugman and Obstfeld (1991) use the term to denote an attempt by a government to encourage resources to move into particular sectors that it views as important to future economic growth. Rodrik (2004) describes it as restructuring policies in favour of more dynamic activities generally, regardless of whether those are located within industry or manufacturing per se. Wade (2010) defines it as targeted efforts to promote some sectors or products ahead of others. Cimoli, Dosi and Stiglitz (2009) see it as policies affecting "infant industry" support of various kinds including trade policies, science and technology policies, public procurement, policies affecting FDI, intellectual property rights, and the allocation of financial resources. Chang (2009) states, "when we talk about 'industrial policy', the majority of us do not mean any policy that affects industry but a very particular type of policy that affects industries. It is what is commonly known as 'selective industrial policy' or 'targeting' – namely, a policy that deliberately favours particular industries over others, against market signals, usually (but not necessarily) to enhance efficiency and promote productivity growth."

8 This argument is based on recent UNIDO research on structural change. In essence, this means that the growth elasticity of individual manufacturing industries varies and is dependent on certain differences of country characteristics, e.g. stage of development, country size, population density and endowment structure.

9 An immediate potential is defined as the feasible output in this sector and is based on the per capita output of relevant comparator countries in this sector when they were at a similar stage of development. A future potential is based on the per capita output of the relevant comparator countries in this sector when they were at this later stage of development. The shares are calculated as the ratio of the country's sectoral output in per capita terms in relation to the comparators output in the same sectors when they were at that stage of development. E.g. a 25 per cent share means that the country's output in that sector is only one fourth of the comparator countries' output.

10 This follows a similar line of reasoning as the identification process for industries with latent comparative advantage proposed in Lin & Monga (2010). However, while their paper proposes to use export figures to identify latent comparative advantages, our analysis is based on manufacturing output statistics.

11 In order to focus on the most critical features, a third indicator, namely the share of individual countries in total African manufacturing, is excluded here. This dimension

is less critical for our analysis because we are focusing on the current situation of individual countries rather than the impact of individual countries on African manufacturing. However, it has to be noted that, due to their large population and high per capita MVA, South Africa and Egypt alone account for more than 50 per dent of African manufacturing capacity today.

12 Structural change analysis shows that the sectoral evolutionary path is conditioned by a country's development stage as well as exogenous factors (country size, factor endowments and population density). Based on these factors, individual sectors have different economic growth potentials. For instance, while some industries are more likely to support the rapid growth of LDCs, others are more important for middle-income or high-income countries. The same is true for small vs. large or resource rich vs. resource poor countries, and so forth.

13 The Netherlands and the United States are the other major processing countries.

14 In 2007, the savings ratio was 17 per cent in sub-Saharan Africa, 30 per cent in East Asia and the Pacific, 23 per cent in Latin America and the Caribbean, and 23 per cent for Europe and Central Asia.

15 It should be noted that manufacturing firms in the region are particularly affected by the high costs of doing business because they rely heavily on logistics, regulation and infrastructure (Bigsten and Soderbom 2009).

16 The Economist, Print Edition, 6 January 2011.

17 Developing countries will apply tariff cuts according to a "Swiss" formula. Countries that apply the deepest tariff cuts will be able to "make smaller or no cuts in 14 per cent of its most sensitive industrial tariff lines, provided that these tariff lines do not exceed 16 per cent of the total value of its NAMA imports". That country can also keep "6.5 per cent of its tariff lines unbound or exclude them from tariff cuts, provided they do not exceed 7.5 per cent per cent of the total value of its NAMA imports" (WTO). LDCs will not face tariff reductions but will have to raise the percentage of their tariff lines that are bound. The WTO text mentions that additional flexibilities will be negotiated at a future date for South Africa, Botswana, Lesotho, Namibia, Swaziland and members of the South African Customs Union. According to WTO, "the tariff reductions will be implemented gradually over a period of five years for developed members and ten years for developing members, starting 1 January of the year following the entry into force of the Doha results".

18 At the end of 2010, there were talks at WTO on the granting of tariff cuts for goods with an environmental purpose.

19 The national cleaner production centres programme was established by UNIDO and the United Nations Environment Programme to provide assistance to business, government and other stakeholders in implementing cleaner production methods, practices, policies and technologies in their home country. The programme now covers 47 developing and transition countries including in Africa Cape Verde, Egypt, Ethiopia, Kenya, Lebanon, Morocco, Mozambique, Rwanda, South Africa, Tunisia, Uganda, United Republic of Tanzania and Zimbabwe.

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There is mounting evidence indicating that industrial development presents great opportunities for sustained growth, employment and poverty reduction. Consequently, over the past decade, African governments have renewed their political commitment to industrialization and have adopted several initiatives at the national and regional levels to enhance prospects of achieving their development objectives. The *Economic Development in Africa Report 2011* examines the status of industrial development in Africa with a focus on the identification of "stylized facts" associated with African manufacturing. It also provides an analysis of past attempts at promoting industrial development in the region and the lessons learned from these experiences. Furthermore, it offers policy recommendations on how to foster industrial development in Africa in the new global environment, which is characterized by changing international trade rules, growing influence of industrial powers from the South, the internationalization of production, and increasing concerns about climate change.

The *Report* argues that a new industrial policy is needed to induce structural transformation and engender development in African economies. It advocates a strategic approach to industrial policymaking which is based on an industrial diagnosis, and proposes a framework for industrial strategy design which takes account of the heterogeneity of African economies and is also tailored to country-specific circumstances. Furthermore, the *Report* suggests that efforts to promote industrial development in Africa should focus on (a) the promotion of scientific and technological innovation; (b) the creation of linkages in the domestic economy; (c) the promotion of entrepreneurship; (d) the improvement of government capabilities; (e) adoption of appropriate monetary and fiscal policies; (f) avoiding exchange rate overvaluation; (g) enhancing resource mobilization; (h) strengthening regional integration; and (i) maintenance of political stability.

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