EXPLORING INNOVATION IN INDUSTRIAL DEVELOPMENT FOR INCLUSIVE AND TRANSFORMATIVE DEVELOPMENT IN AFRICA

Dr Moses Obinyeluaku

Chief Economist: International Trade Administration Commission of South Africa (ITAC)
Email: MObinyeluaku@itac.org.za or Mogalink@yahoo.com

I. Introduction

Sub Saharan Africa (SSA) is now widely seen as a region of great opportunities mainly due to the impressive economic growth story of the last decade. However, the region's growth has not been sufficiently inclusive and broad-based, because it has continued to rely heavily on the exploitation of raw materials with limited value addition. Sustained growth and job creation requires structural transformation or the ability of an economy to industrialise and constantly generate new fast-growing activities characterised by higher valued added and productivity and increasing returns to scale.

One of the earliest and most central insights of the literature on economic development is that development entails structural transformation[1] − that is change in the sectoral composition of output and in the sectoral pattern of employment as the economy develops, that is, as real per capita GDP increases. The countries that are able to diversify away from traditional products are those that manage to pull out of poverty. As labour and other resources move from traditional into manufacturing and other modern economic activities, overall productivity rises and incomes expand. The pace and pattern with which this structural change takes place is the key factor that differentiates successful countries from unsuccessful ones (McMillan and Rodrik, 2011). This has been the defining feature of the success of East Asia in the twentieth century[2].

Industrial development is therefore an effective, socially responsible and sustainable means to economic transformation. The SSA region has enormous potential to exploit its large reservoir of natural and agricultural resources through diversifying its resources from a predominantly agrarian to an industrial base. There is now consensus among African leaders and stakeholders that this is a path to the promotion of sustainable development and employment creating growth. Growth of the industrial sector brings with it more high-income jobs, upstream linkages to domestic firms and triple effects throughout the economy for both formal and informal workers.

However, the challenges to attain industrialization may be more daunting than in the past. Although there has always been a strong theoretical case for industrial policy, based on market failures, the practical difficulties including the identification of firms and sectors to target, survival of inefficient firms, rent-seeking and misallocation of resources are considerable. The emergence of global value chains has affected the nature of international competition. The prominence of multi-national companies in the global economy influences access to knowledge and technology. The availability of tariffs is becoming narrower, limiting room for maneuvering in industrial policy. In recent times many SSA countries have adopted new industrial polices or industrial development framework, including Botswana, South Africa, Uganda, Kenya and Ethiopia (Peres and Primi, 2009; Rodrik, 2007b; UNECA, 2014). In the resurgence of industrial policy, there is a danger that the lessons from past

[1] The idea is based on the recognition within the traditions of indigenous growth theory, evolutionary economics and institutional economics that manufacturing (industrialization) is important for achieving sustainable and inclusive growth (Szirmai, 2012a). It is associated with higher productivity growth and per capita incomes, described as a "structural bonus" (Tmmer and Szirmai, 2000).

[2] Britain was the first country to industrialise in the eighteenth century and it became the technology leader in the world economy. Manufacturing became the main engine of accelerating economic growth during the second industrial revolution of Continental Europe and USA. A global race for industrialisation had begun. Famous latecomers to the process of industrialisation were Japan and East Asia which profited from international technology slipovers via foreign direct investment and were able to boost productivity growth in catching up (Gerchenkron, 1962).

policy failures are forgotten. In this paper we attempt to give careful consideration to these past experiences with industrial policy, focusing on lessons from successes as well as failures.

The rest of the paper is structured as follows. Section 2 offers evidence on linkages between industrial development, inclusive growth and transformative development in Africa. In section 3, we present some reasons behind low pace of industrialization in Africa. Section 4 looks at the major and emerging challenges of industrialization in Africa. Finally, section 5 provides policy recommendations and concludes.

2 Industrialization, inclusive growth and transformative development in Africa

The role of industrial policy is to shift resources from low growth, to high growth and employment potential sectors. In this section we compare differences in the patterns of manufacturing capabilities and employment among selected Sub Saharan African (SSA) countries for which data is available for the period 1993-2012. The aim is to identify patterns emerging among Sub Saharan African countries, whether there is convergence or divergence in approaches and outcomes. Throughout the section, SSA countries' position are compared with that of India and Brazil (the two developing countries who also have recently adopted industrial policies), as well as China (whose industrial success has been outstanding).

Rapid economic growth and employment has typically occurred where most structural change has taken place

Table 1 and Figures 1-3 show that rapid economic growth and employment typically occurred where most structural change has taken place and where manufacturing continues to play a substantial role in production such as China, and to a lesser extent India. The manufacturing structural transformation has been weak in SSA, as rapid growth in GDP per capita since 2005 in the region has not been accompanied by a growing share of manufacturing in GDP. The manufacturing sector's share in value added declined dramatically from 14.4 per cent in 1993-2000 to 9.3 per cent in 2005-2012, pointing to deindustrialization. Much of the growth is in non-manufacturing industry (mainly minerals).

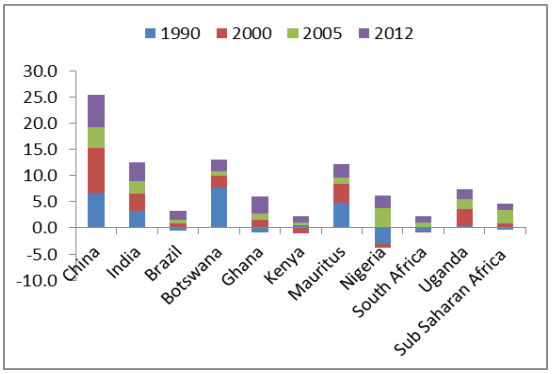
Table 1: Structure of production

(Gross value added in agriculture (AG), non-manufacturing industry (NMI), manufacturing (MAN) and services (SER) as percentage of GDP at current prices, selected countries and regional average)

	1993-2000				2005-2012			
	AG	NMI	MAN	SER	AG	NMI	MAN	SER
China	18.0	40.7	23.6	11.8	10.4	40.2	32.1	14.3
India	26.4	21.5	16.4	15.6	17.8	19.4	17.1	18.2
Brazil	5.9	21.9	18.1	22.0	5.5	22.3	15.8	22.3
Botswana	3.8	41.8	5.9	16.0	2.8	34.8	6.4	18.8
Ghana	32.7	16.1	11.4	15.3	28.3	13.8	7.8	16.5
Kenya	31.8	15.2	12.2	16.7	26.6	13.7	11.2	18.4
Mauritius	8.5	24.9	22.9	20.2	4.1	20.3	18.4	23.0
Nigeria	33.4	38.9	5.1	8.0	32.6	42.5	2.2	8.6
South Africa	3.9	30.3	20.1	20.3	2.7	26.8	15.2	22.3
Uganda	32.9	10.7	7.0	15.7	23.9	12.5	8.1	16.8
Sub Saharan Africa	18.6	34.4	14.4	16.8	18.1	43.1	9.3	15.4

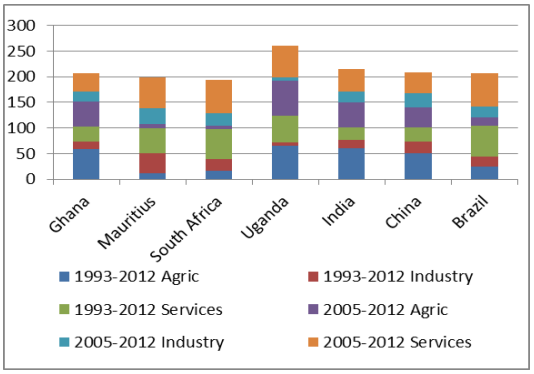
Note: NMI comprises of mining, public utilities and construction; SER includes wholesale, retail trade, restaurants and hotels; transport, storage and communication; and other service activities. Source: UN Statistics

Figure 1: Real GDP per capita, average annual growth rate, in 2005 prices



Source: World Bank

Figure 2: Employment by sectors (% of total employment)



Source: World Bank

Table 3: Top 5 exports in 2012 (percentage of total exports)

China	India
Electrical equipment (24%)	Minerals (18%)
Machinery (18%)	Pearls, precious stones (15%)
Furniture (4%)	Vehicles (4%)
Optical and medical app (4%)	Chemicals (4%)
Textiles (4%)	Machinery (4%)

Uganda	Botswana	Brazil
Coffee (19%	Pearls, precious stones (81%)	Ores, slug & ash (14%)
Minerals (7%)	Nickel (6%)	Oil seeds (10%)
Fish, crustaceans (5%)	Ores, slug & ash (2%)	Minerals (9%)
Salt, sulphur (5%)	Meat & edible meat (1%)	Meat & edible meat (6%)
Tobacco and manuf. (3%)	Machinery (1%)	Vehicles (6%)

Nigeria	South Africa	Mauritius
Minerals (84%)	Pears, precious stones (22%)	Textile (37%)
Rubber (7%)	Ores, slug & ash (14%)	Meat, fish & seafood (15%)
Cocoa (3%)	Minerals (11%)	Sugar (12%)
Ship, boats (1%)	Vehicles (9%)	Pearls, precious stones (6%)
Raw hides (1%)	Machinery (7%)	Fish, crustaceans (3%)

Ghana	Kenya
Pearls, precious stones (37%)	Coffee, tea and spices (24%)
Minerals (24%)	Live trees, cut flowers (13%)
Edible fruit, nuts (17%)	Mineral fuels, oils, etc. (6%)
Cocoa (11%)	Edible vegetables (5%)
Wood (2%)	Textile and clothing (2%)

Source: COMTRADE

Unlike China and India, countries in SSA have not managed to transform their specialization pattern within manufacturing exports, but are still largely dependent on minerals and primary commodity exports that offered fewer opportunities for diversification (see figure 2 and 3).[3] Excess labour was absorbed in less productive activities such as agriculture and the informal sector. While structural change in manufacturing has occurred in Uganda, its economy remains largely agricultural (more than half of all jobs are in the agricultural sector). The result for Ghana is however mixed. Employment has increased in the services and industry sectors, but like Uganda, almost half of all jobs are in the agricultural sector, which is characterized by low productivity growth.

In addition, despite employment gains in services, South Africa (and Mauritius) has not been able to make any serious dent in total unemployment (as a percentage of labour force). Instead unemployment has risen from 24.5 per cent (5.8 per cent) in 1993-2000 to 25.5 per cent (8.8 per cent) in 2005-2012. This is because services sector does not create large numbers of jobs, and these are high-skilled, in a context in which the unemployed in these SSA countries are largely unskilled, an unfortunate mismatch.

3 Reasons for the low pace of industrialization in Africa

One of the main reasons for the low pace of industrialization in SSA is the region's inability to build technological capacity

Among the central issues in the literature on industrialization are technological change and innovation,[4] and the relative contributions of multinational enterprises (through Foreign Direct Investment, FDI and Global Value Chains, GVCs) and from domestic investment in facilitating technological upgrading. Technological gaps have been seen as what characterize differences in per capita income and productivity between countries.[5] Technology gaps provide a huge potential for catch up as in Geerschenkron (1982) and Abramovitz (1989b), if absorptive capacities are in place – in the absence of which countries can fall behind.

Technological progress and its diffusion or catch up is resulted from lagging countries accessing technology developed in leading nations, adopting it effectively to local circumstances, and subsequently relying more on indigenous innovation. Multinational Enterprises (MNEs) can diffuse technologies to developing countries in three ways: (i) by directly transferring technology to affiliate or Joint Ventures; (ii) through spillover effects, and/or (iii) through doing R&D within a developing country (Lloyd 1996). FDI has been a major vehicle for the transfer of advanced foreign technology to developing countries for a long time (Fu, Petrobelli and Soete, 2010; Veloso and Soto 2001). Once sufficient absorptive capacities have developed, MNEs can bring technology and know-how to a local economy through the above mentioned ways. This makes MNEs the main engines of innovation in the world economy (Franco et al, 2011).

[3] Note that for figure 2 industry comprises of manufacturing and non manufacturing sectors, and thus, we should analyse the data in this figure with caution. Nonetheless, some general patterns can be observed. Employment has followed the direction of structural change.

[4] Technologies are rules and ideas that direct the way goods and services are produced (Kemeny, 2010) while innovation refers to the implementation of a new or significantly improved product, process, marketing, method or organisational method in business practices, workplace organisation or external relations (OECD/Eurostat, 2005). It is linkages between the two that makes the innovation system function.

[5] See Fagerberg (2005), Kemeny (2010), Szirmai (2012b, c), Verspagen (2004).

Hence, the manufacturing structural change (industrialization) can be driven by domestic investment in absorptive capabilities and/or by foreign direct investment (FDI) through multinational enterprises (MNEs).

a) Domestic absorption capabilities

Table 3 reveals the extent of domestic investment in absorptive capabilities using commonly used indicators − expenditure on R&D as percentage of GDP, total scientific papers produced per 1000 population and patents granted by the US Patent Office (USPTO). Evidence points to the widened technological gap among SSA countries. As a result of insignificant growth in R&D expenditure, the region has experienced a decline in scientific publishing as well as in the number of patents granted. Nonetheless, South Africa has the highest number of scientific articles (having the highest growth in R&D expenditure compared to other SSA countries reviewed).

Table 3: Indicators of technology

Country	Expenditure on R&D (% of GDP)		Scientific publications (per thousand population)		Patents awarded to inventors by USPTO	
	2000	2005-2012	2000	2011	2000	2012
China	0.9	2.0	0.03	0.07	6 177	143 808
India	0.7	0.8	0.02	0.02	402	722
Brazil	1.0	1.2	0.06	0.07	98	365
South Africa	0.7	0.8	0.07	0.06	902	685
Nigeria	-	0.2	0.01	0.00	-	-
Kenya	-	1.0	0.01	0.01	3	4
Uganda	0.4	0.6	0.01	0.00	-	-
Ghana	-	0.4	0.02	0.01	-	-
Botswana	0.2	0.5	0.05	0.03	-	-
Mauritius	0.3	0.4	-	0.01	-	-

Source: UNESCO Science Report 2010, World Band Development Indicators (WDI), World Intellectual Property Organization (WIPO IP)

One possible explanation for disparate technological progress may be the success and relative failures of the various countries' educational policies. In examining the policy interventions by East Asian governments to advance technological capabilities, Sanjaya Lall stressed that one common basic element is the creation of human capital. If Africa were to emulate some of the dynamic growth and diversification of these East Asian countries, there would have to be a phenomenal rise in the quality, quantity and completion rates in education relevant for industrialization (Lall, 1998).

Education is essential for improving the productive capacities of countries as it supports technological progress, complements capital accumulation and enhances structural change (UNCTAD 2006). China and India stood out from the other countries in terms of the success of higher education – in turning out and attracting highly skilled labour. Of the additional 138 million students enrolled in tertiary education worldwide in 2005, more than half (77 million) were in China and India, according to UNESCO's Education For All Global Monitoring

Report 2008. This is almost sixty times more than the figure for the entire SSA (1.3 million)[6]. In addition to investment in human capital, increased domestic investment in science infrastructure and efforts to attract return migration of skilled workers were among the factors that played a highly significant role in China (Altenburg, et al, 2008, UNESCO Science Report, 2010).

In contrast, the low level of human capital relevant to industry and significant outflow of skilled labour (brain drain) suggest why SSA presents a general picture of poor technological mastery and dynamism in industry. Education is essential for improving the productive capacities of countries as it supports technological progress, complements capital accumulation and enhances structural change. China's high performance growth and structural transformation relate to building technological capabilities through learning, and accumulating productive capabilities by investing in physical and human capital.

Some countries in SSA, however, are making noticeable effort to implement measures to foster innovation and technology by firms. These countries include Ghana, Tanzania, Kenya, South Africa, Uganda and Botswana (ECA, 2011; NEPAD, 2014,; Sackey, 2011). However, government continues to be the main source of funding for R&D activities in most SSA countries, with less involvement of businesses. This is not sustainable. Regular high-level engagements with companies are needed to identify and address barriers to private sector investment and explore new opportunities for R&D funding. There is a need to form a tri-partite platform among the higher learning institutions, government and firms to boost innovations and employment opportunities, especially for the youth. This is, for example, successfully used in Japan.

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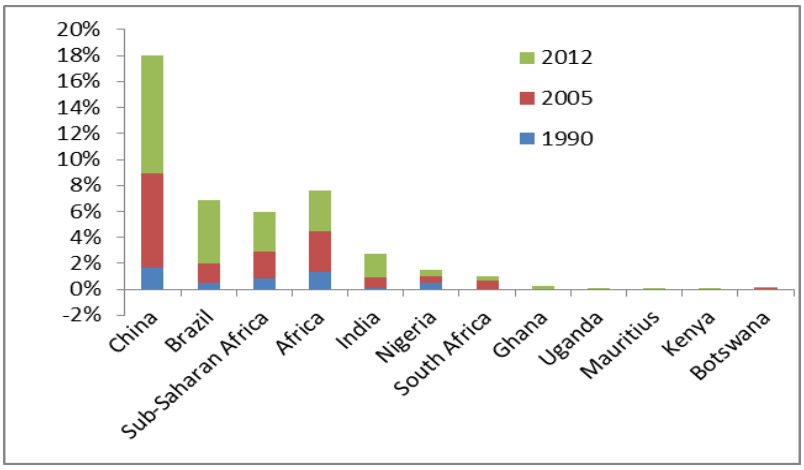
b) FDI-assisted technological catch-up

Next is to examine the extent of FDI flows in facilitating technological advancement and innovation as well as structural change in the SSA region. This is measured by the amount and share of inward FDI going into the sample of SSA countries and the composition of FDI by sector.

Figure 3 show that Africa's FDI inflows are concentrated in the Sub-Saharan African region. FDI inflows into Africa increased 20-fold between 1990 and 2012, amounting to $55.1 billion in 2012, up from $2.8 billion in 1990. Despite this significant increase, Africa's share to global FDI remains low from a global perspective. South Africa and Nigeria are the top recipients of Africa's FDI inflow, and together accounted for 21 per cent in 2012 (mainly from China and USA).[7] On the other hand, other African countries such as Botswana, Kenya, Uganda, Ghana, Mauritius etc. have not managed to attract a significant amount of global FDI. Interesting to note that China receives a larger share of the Global FDI compared to African economies combined and yet is also a major contributor of FDI into Africa.

[6] The challenge even become enormous when considering the rate of its young and growing workforce, which is projected to be larger (1.22 million) than India (1.14 million) and China (790 million) by 2050 (UN, 2010).
[7] According to the recent study by Brooking's Institution's Africa's Growth Initiative (AGI).

Figure 3: SSA share in Global Inward FDI compared to other selected countries, 1990-2012 ($ million at current prices)



Source: UNCTAD

However, the largest and most important driver of FDI into Africa is investment in mining and extractive industries (Copley, Maret-Rakotondrazaka and Sy, 2014). This undermines the role played by FDI through MNE's. FDI flows into productive sectors (i.e. manufacturing) will have a positive effect on Africa's endeavour for structural change and sustainable development.

Bilateral FDI flows indicate that sectors in which China and U.S. invested in during 2011 were in mining and extractive industries, according to the study by AGI. Another factor is that China's FDI composition tends to be more diversified than that of US FDI, with 15.3 per cent in manufacturing compared to 5 per cent in the case of the U.S. However; bilateral FDI flows, show that over 50 per cent of U.S. FDI in Africa in the manufacturing sector goes to South Africa. Therefore, FDI flows into productive sectors (i.e. manufacturing and mining) may have a positive effect on Africa's endeavour for structural change and sustainable development.

The low pace of industrialization in SSA is also the result of different industrial policy strategies that have been attempted in the past

One recognised deficiency of the industrial sector in most SSA countries is that it is composed mainly of micro-and small enterprises (SMEs), mostly in the informal sector,[8] with little experience in R&D, as well as relatively weak industrial performance in terms of productivity, human resources and equipment (see Table 4). Even if you acquire the machines and have workers and managers who have the formal knowledge that is required for the use of the technology, you may still not be able to engage in competitive production if there were no organisational capabilities. This is true particularly for the developing countries (Khan 2013). Hence, you need both technological capabilities and organizational capabilities (that is tacit knowledge that the organisation acquires through learning by doing and experimentation). When infant industries fail to graduate into productive enterprise despite decades of "doing" financed by different government interventions, it is almost because there was a failure in organizational learning.

[8] They are locked into repetitive routines of learning-by doing and disconnected from both local and global knowledge flow (Oyelaran-Oyeyinka 2004b).

In examining the policy interventions of East Asia for fostering innovation in and creation and diffusion of SMEs, cluster initiative has been recommended as the best approach that fits the characteristics of the SSA innovation system (Diyamett, 2009). A number of SSA countries are developing science parks, which is one form of cluster initiatives. Examples are Ghana, Uganda, Ethiopia and Kenya (UNESCO, 2010). However, only Kenya had an explicit focus on graduating companies from the informal to the formal sector (through the licensing and registration of "Jua Kali" entrepreneurs.

Table 4: Sectoral priorities of industrial policy in selected SAA countries

Country	MA	SA	BO	GH	KE	UG	NG
Facilitated credit for non-traditional manuf.	x	x	x	-	-	-	-
Promotion of SMEs (non-traditional manuf.)	-	x	x	x	x	x	-
Finance to access industrial technology, equipment and machinery	x	x	x	-	-	-	-
Competition regulation	-	x	-	-	-	-	-
Govt. procurement (funding local manuf.)	-	x	x	x	x	-	x

Note: Mauritius (MA), South Africa (SA), Botswana (BO), Ghana (GH), Kenya (KE), Uganda (UG), Nigeria (NG).
Source: Naude and Szirmai (2012), Harabi (2008), Soludo et. al. (2004), various national proposals, documents and declarations

Table 4 also reveal that access to finance is another recognized major stumbling block to exports, the acquisition of technologies, and acquiring capital to start a business. Procurement practices, however appeared quite consistently as an instrument to promote local manufacturing in the region (except for Mauritius and Uganda). This is also experienced in China and India where procurement is used to upgrade production in priority areas (OECD, 2013).

Another major constraint to industrialization is the monopolistic pricing of privately owned key intermediate inputs into the manufacturing sector. Import parity pricing mark-ups are often of a higher order of magnitude, meaning that tariff reductions might have a limited impact on price moderation. Africa's enormous resource endowment should provide the basis for a competitive advantage with respect to a huge suite of input costs into manufacturing. The practices of import parity pricing and excessive profit-taking give rise to a situation where what should be a competitive advantage turns into a disadvantage. To clampdown on this anti-competitive behavior requires effective competition policy. South Africa is the only country in the sample that has competition policy.

Moreover, evidence from Table 5 shows that SSA countries make large use of trade policies. Despite having generally low industrial tariffs, most countries apply high tariffs (peaks) to protect local production and infant industries from import competition. This is an indication that the region has not overcome the burden of having opened up to international trade before domestic industries had a chance to become competitive. Similarly, industrial efforts are pursued in some countries through the utilization of export taxes in order to discourage the export of raw materials and foster local processing. But like tariffs, export taxes could be prohibited under the EPAs being negotiated with the EU. It also observed that very few countries applied non-tariff barriers, such as anti-dumping, countervailing and safeguards (South Africa and Botswana). South Africa even has legislation on the mutilation of these measures. Yet under the current international trade rules, countries cannot use tariff

instruments against their trading partners even when they are threatened by cheap imports. These are the only instruments available

Table 5: Trade policy instruments for selected African countries

Country	MA	SA	BO	GH	KE	UG	NG
Incentives for export activities	x	x	x	x	x	x	-
Export processing zones (EPZs)	x	x	-	x	x	x	x
Export promotion with a particular emphasis on manufacturing	x	x	x	x	x	-	
Standardisation/quality improvement for exports	-	x	x	-	x	x	-
Measures to attract FDI for export activities	x	x	x	x	x	x	x
Measures to attract FDI particularly in manufacturing activities	x	x	x	x	-	-	-
Selective tariff protection (peaks and high tariffs)	x	x	x	x	x	x	-
Utilisation of other trade instruments (anti-dumping, countervailing or safeguard measures	-	x	-	-	-	-	-
Export duties to favour local manufacturing	-	-	-	x	x	-	-

Source: Naude and Szirmai (2012), Harabi (2008), Soludo et. al. (2004), various national proposals, documents and declarations

Another commonly observed pattern is the priority accorded to export-led growth and hence to instruments that encourage production for foreign markets, the export processing zones (EPZs). These EPZs are characterized by a wide array of incentives and concessions. Yet, there is significant controversy over their effectiveness. Sonobe and Otsuka (2011), in contrasting experiences in Africa and Asia, find that Africa's clusters are mainly "survival clusters" generating low incomes and lacking innovation and dynamism. They suggest that successful clusters are based on "multi-faceted innovation" that incorporates improvements in product quality, branding, use of reliable input suppliers and effective distribution, combined with an appropriate management system to allow cluster-based firms to control stocks, labour and financing. Developing the argument further using case studies, Sonobe, Higuchi and Otsuka (2012) regard a shortage of managerial capacity as one of the distinguishing features of unsuccessful clusters, especially in Africa. Other challenges include, targeting of inappropriate activities for the cluster, poor choices of location, poor infrastructure inside and outside the cluster, implementation difficulties and lack of long-term policy credibility for continued support (Dinh et al, 2012).

Amid the foregoing lessons, crossing an SSA border can be tedious, lengthy and expensive. Recently, a long queue of vehicles into Zimbabwe on the main highway to the Beitbridge border post, one of the busiest in Southern Africa. Delays such as these, along with cumbersome documentation requirements and unpredictable procedures at borders, cost businesses and governments more than tariffs.

The process of industrialization in the SSA region is also undermined by weak institutions governing the design and implementation of industrial policies

Effective industrial policymaking requires political leadership at the top, as well as coordination across ministries and departments (Rodrik, 2008). 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. At the same time, systematic representation of the private sector is important to IPO success because it not only tailors goals to the changing needs of the private sector but also creates confidence of business owners in industrial policy.

It seems that none of SSA's many industrial policies pursued since independence has not resolved the underlying issues in the industrial policy structure: poor coordination among all actors, weak private sector participation, inadequate support for IPO capacity, major gaps in support of the private sector efforts in industry, lack of institutional failures, particularly in training and funding and poor monitoring and evaluation system.

4 Major and emerging challenges of industrialization in Africa

What is the role of regional integration in Africa's industrialization?

An important element in the discussion about Africa's industrialization is the attempt by African economies to increase regional integration. Many African countries are small and have to import most of their manufacturing inputs. They also lack a large domestic market in the form of GDP size, GDP per capita and population size that would provide some form of natural protection for their manufactures. These challenges make it difficult for domestic firms to compete against foreign firms that have the advantages of scale and dense industrial clusters. A review of export data reveals that many African countries' values added exports are destined exclusively to their neighbours rather than towards developed countries. Thus, integration of national markets in Africa can help countries overcome these challenges and seize opportunities to advance on industrial development.

For example, one of the sectors mostly threatened by import competition is clothing and textile – a sector in which many African countries are largely dependent on. African countries import most of their fabric. But the region has the potential, as regional integration progresses to develop a more integrated textile and clothing industry, which could be even more competitive than the existing national industries.

In agro-processing, another important sector for many African countries, easier market access among countries would boost the fruit and juice industry in Africa. Even in traditional agricultural exports, improved regional integration would enable African countries to realise more value. Kenya's success in transforming its economy could be partly attributed to its integration into the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA), which are its leading destinations for exports. Another example is the Southern African Customs Union (SACU), comprising of South Africa, Botswana, Lesotho, Namibia and Swaziland. Four of these countries are successful industrialising countries according to our review.

More integrated regional markets would also greatly improve the chances of attracting FDI in clothing, textile, agro-processing and other forms of manufacturing. In skills development, African countries would benefit from pulling together in ways that make the whole better than the sum of the parts.

Are there opportunities for developing regional growth poles for sharing prosperity in SSA's markets?

The growth pole approach to economic development looks at how infrastructure that will be developed for an existing private investment in mining, agriculture, and so on can be used to encourage spillovers into other sectors. This could manifest itself through a development corridor or a special economic zone, or even an agglomeration economy in a booming city. Growth Poles: raises competitiveness and deepen regional integration by reducing costs for building infrastructure, locking in investors from both public and private sectors as risk sharers and incentivizing the participation, particularly of the local private sector.

Infrastructure is critical for each country's economic transformation. But the supply of some important infrastructure, such as power (particularly hydroelectric power and natural gas) and seaports tends to be location specific. Landlocked countries are at a particular disadvantage when it comes to seaports. Arrangements enabling countries that are well endowed with these types of infrastructure to develop them at scale so as to also serve neighboring countries at lower cost (than those countries could produce for themselves, if all) can promote faster transformation in both countries. Second, just as national roads and other means of transport integrate and widen the market within a country, regional roads and other transport systems can be a boon to regional integration.

Not only are the ratio of trading costs to production costs higher in SSA, but multiple borders and controls cause delays and slow commerce. Trade facilitation involves simplification, harmonization, and standardization across countries. Better physical infrastructure will help reduce costs and enable larger volumes of trade.

Can African industrialization survive without some smart protectionism?

Virtually all of today's successful nations actively supported and protected their industries through specific policies and institutions. Contrary to conventional wisdom that often attributes the success of Western economies to laissez-faire and free-market policies, historical evidence shows that the use of industrial trade and technology policies was the main ingredients in their successful transformation (Lin and Monga 2010).

Several of the currently successful sectors in Africa have been the recipient of government support during the import substitution industrialization era (as already discussed). Africa's experience with industrial policy and its outcomes since independence has been largely disappointing. Following independence in the early 1960s, industrialization was seen as a central part of Africa's development agenda, which was expected to facilitate the transformation of the economic structure into modern industrial economies. To achieve this objective, most countries adopted the import substitution industrialization (ISI) model in the 1960s and 1970s. The key policy component of ISI was protection of domestic firms from foreign competition. But with the adoption of SAPs from the early 1980s, many African countries were forced to deindustrialize. Government support was withdrawn in the presence of pervasive market failures and countries were forced to liberalise their trade without taking account of the capabilities of their domestic firms. This exposed African firms to grilling foreign competition at a time when they were not mature enough.

With globalization came the current international trade and division of labour organized along value chains, and multinational corporations play a dominant role in creating and

controlling these value chains. Without being integrated into these value chains, it will be difficult for African countries to access larger external markets. Yet on the other hand, there is the risk that they may be further pinned down at the lower end of the global value chains as their industrial base is weak and their negotiation capacity with multinationals may be low.

African exporters are put at a serious cost disadvantage if they have to pay high import tariffs on inputs used in producing exports. So, there cannot be industrialisation without some form of protectionism, but one has to strike the right balance. A deficiency in tariff protection is that, even if the raised rates are explicitly temporary, there is no way to discipline firms enjoying the protection at the expense of efficiency. Carefully chosen direct subsidies can overcome this disadvantage and boost total factor productivity since the actual conferring of the benefits can be firm-specific and contingent on reciprocity commitment and performance. This has been also one of the key strategies behind the success of East Asia. The Governments of the region used import substitution and export promotion strategies simultaneously, combining them in the most efficient way to secure the industrialization objective (ECA, 2011).

Should Africa continue with the incentive structure given to foreign investors at the expense of local firms?

Attracting FDI is not enough to benefit from FDI. The changing map of FDI has huge positive and negative implications for industrial and more broadly, economic development.

Apart from offering an injection of scarce investment capital, FDI comes with a package of technology, skills, connections and market opportunities. Multinationals may also use their financial and organisational strength to push for further development of the commercial infrastructure and regulation in the host country, something that also may benefit local firms. On the other hand; foreign investors' market power may suppress competition and subject whole sectors of the host countries to the strategies of multinationals (Gereffi, 1999). As multinationals are looking for increasingly advanced and reliable types of assets in the countries they are investing in, and as the number of locations offering favorable conditions is growing, competition for FDI increases and the danger of competitive bidding and deepened divisions grows between countries catching up and falling behind (Dunning and Narula, 2004).

Also and importantly, the revenue foregone due to excessively generous tax incentives to multinational companies – such incentives as corporate income tax holidays, notably in export processing zones (EPZs), and reductions from the standard rate for taxes such as import duties and VAT, amongst others − will be compensated by higher taxes on consumption (via increase in VAT), which could bring an excessive tax burden on the poor and reduce fiscal revenues for the SSA region, already faced with decreasing opportunity to raise revenue via tariffs, depriving the region of critical resources needed for reducing poverty. According to Tax Justice Network-Africa's report of 2012, tax incentives to multinational companies cost Kenya, Tanzania, Rwanda and Uganda a total of US$ 2.8bn every year. Yet, the main reasons for firms investing in Kenya were found to be access to the local and regional market, political and economic stability, and favourable bilateral trade agreements. Fiscal concessions offered by EPZs were mentioned by only 1 per cent of the businesses sampled (Tax Justice Network-Africa, 2012).

Investment incentives (particularly tax incentives) are not an important factor in attracting foreign investment. More important factors are good-quality infrastructure, low administrative costs of setting up and running businesses, political stability and predictable macroeconomic policy, amongst others. If this is the case, then are Governments of the countries providing more incentives to multinationals not compensating for their failures on these factors? Despite its generous tax incentives, Kenya has in recent years attracted very low levels of FDI (see Figure 3 above), which could be due to recent political violence and instability. Instead, Uganda has continued to attract higher levels of FDI than Kenya (see Figure 2). And Uganda's attraction of more FDI than its neighbours is unlikely to be due to its use of tax incentives (Tax Justice Network-Africa, 2012).

Another problem with offering extensive incentives to foreign investors is that it could lead to low industrial performance in the region, as foreign firms becomes more competitive than local firms in pricing and thereby reduce the market share of the latter. Excess incentives to multinationals can also lead to an incentive escalation (the race to the bottom caused by competition to attract foreign direct investment), which does not bode well with African regional integration and its industrial development.

International organizations such as the African Development Bank (AfDB) and the International Monetary Fund (IMF) have joined with non-governmental organizations (NGOs) and others in criticizing tax incentives and exemptions. It is recommended that SSA Governments also join.

How beneficial is Chinese-Africa partnership?

Cooperation between Africa and China has gained new momentum and has generated much interest in recent years. This relationship has the potential of becoming a key source of economic transformation, technological transfer, long term investment and sustainable development if monitored closely to ensure that the country makes the most of the benefits stemming from it. The success of the relationship depends on its ability to promote inclusive growth, employment and structural transformation to reduce poverty and inequality among African countries. This is crucial, as a key policy issue for Africa is how to make its growth more resilient and job creating. The continent should capitalize on it to develop sectors that have large multiplier effects, which could boast growth and employment through backward and forward linkages. Examples are:

- Labour absorbing manufacturing (such as clothing and textile): African countries can leverage their abundant labour and low wages to initiate the industrialization process, enter the competitive production and export of manufactured goods. Clothing and textile manufacturing has been one of the first steps that countries embark on during their way up the manufacturing ladder. Presently most African clothing and textile manufacturers cannot provide the quality of product required by retailers at the top of the industry global value chains (as we have seen in the case of South Africa). Capabilities in most African countries are generally low. So encouraging Chinese companies to invest in this sector for mutual benefit is critical.
- Agro-processing: The broader agriculture-to-agro processing value chain can, if successful, bring together a potent combination of genuine comparative advantage, scalability, and substantial spillovers for African countries.
- The biggest opportunity and advantage for Africa-China's engagement in the mining sector is not only the continued demand and hence simultaneous rise in commodity

prices, but the much needed supporting infrastructure, relating to transporting commodities from mine to port. Africa has the highest transport cost per unit in the world due to its reliance on road transport infrastructure. There is increasing focus on building up the rail network to counter this, efficiently linking the continent via a coveted East-West corridor, connecting the resource-rich Copper belt to various ports.

5 Policy recommendations

The SSA region has enormous potential to exploit its natural and human resources by diversifying its economies and building innovation capacity and competencies that will turn these resources into wealth. The question with implications for policy-making include how to link science, technology and innovation to poverty reduction, job creation, sustainable livelihoods and the improved wellbeing of the people; how to build capacity and competencies to innovate and how to expand knowledge. Policy must balance competing domestic social and economic needs at the same time as considering the realities of globalization. The outcomes of this policy decision will determine the type of innovation that will take place in the region.

Economies of scale become more and more important, which tends to reduce the competitiveness of firms operating in Africa. African regional economic integration is therefore particularly vital in order to create larger markets for the domestic firms. This calls for a greater emphasis on regional infrastructure projects, harmonisation of industrial policy and national economic goals as well as reforms to reduce other costs of trading across borders and enable domestic firms to produce quality products at a competitive price. It will also ensure that countries do not enter into bilateral trade agreements with developed economies at the expense of their neighbours, and that there is no disjuncture between national policies and the African regional integration agenda.

Several countries have chosen to create export processing zones (EPZs) as a way to generate a critical mass of firms and scale economies, with more liberal policies toward trade and investment. However, this is not a first-best solution to development. Infrastructure and government services are weak in many countries thereby limiting the possibility of expanding the zones throughout the country. Hence, such zones may help initiate the process of industrialization, but generally do not result in massive increases in firms and scale economies.

Strengthening of linkages between firms and segments of the business community and firms and firms is crucial. In order to exploit economies of specialization and stimulate knowledge spillovers, efforts are needed to integrate these groups through supplier development programmes, incentives for technology transfer, encouragement of joint ventures, franchising arrangements, amongst others.

There is need for complementarity between the government's consistently proactive industrial policies and coherent and equally proactive policies in support of the development of local firms' capabilities. Beyond these general lessons, a good deal of trial-and-error learning is needed to find the most appropriate industrialization pathway for each particular country.

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