

Exploring Innovation in Industrial Development for Inclusive and Transformative Development in Africa

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Contextual issues

- ❑ SSA countries have experienced unprecedented growth rates over the past decade – comprising 6 of the top 10 fastest growing economies in the world – yet majority of people have no jobs, 60% of which are young people
- ❑ Why? The region relies heavily on traditional and less value-added commodities in terms of production and export base, **making its growth highly vulnerable to external shocks**
- ❑ Industrialization, key to inclusive and transformative development
 - ✓ The pace and pattern with which structural change takes place is the key factor that differentiates successful countries from unsuccessful ones (McMillan and Rodrik, 2011), the defining feature of the success of EA in the 20th century
- ❑ Today many SSA countries have adopted new industrial policies. The danger here is that the lessons from past policy failures are forgotten, at the same time, the challenges to attain industrialization may be more daunting than in the past
- ❑ 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 in the some of the SSA countries in order to draw practical lessons for the region

Industrialization, Inclusive and transformative development in SSA

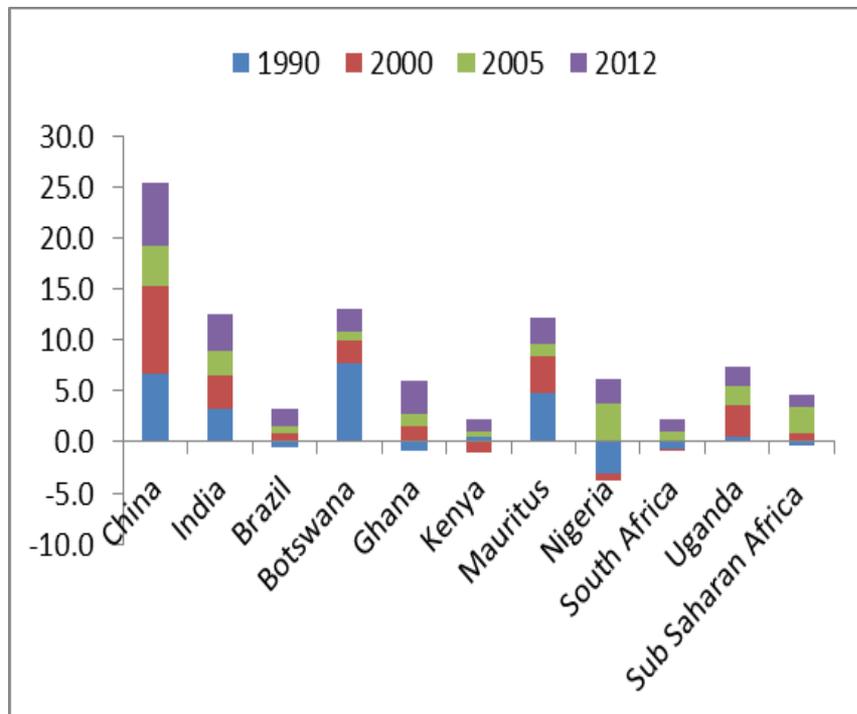
Table 1: Structure of production

(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

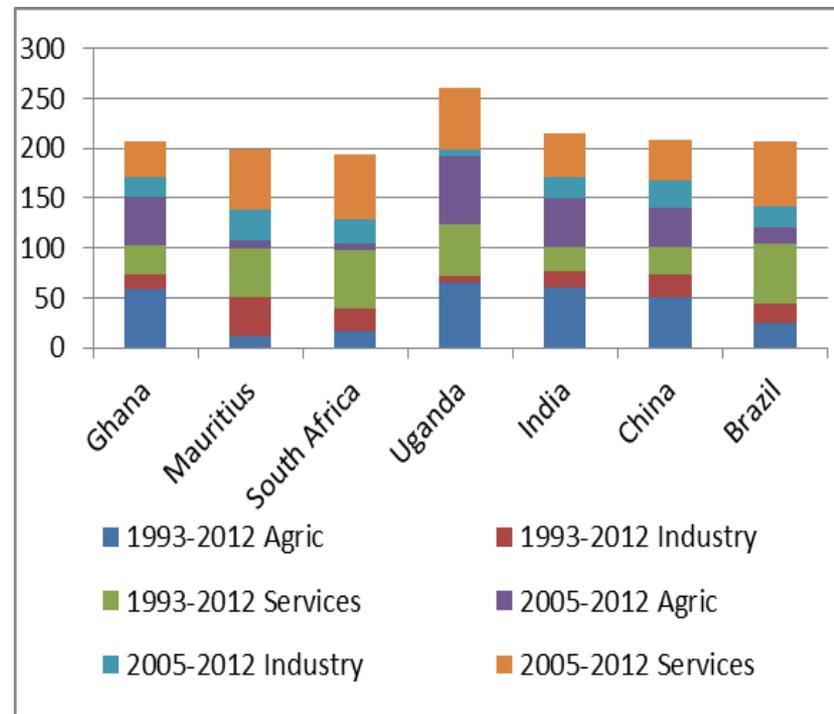
Note: NMI comprises of mining, public utilities and construction; SER includes wholesale, retail trade, restaurants and hotels; transport, storage and communication; and other service activities. Source: UN Statistics

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

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- ❑ 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
- ❑ Excess labour was absorbed in less productive activities such as agriculture and the informal sector
- ❑ Structural change in manufacturing has weakly occurred in **Uganda**, as 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, characterised by low productivity growth
- ❑ 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 between 1993 and 2012
 - ✓ 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

Reasons for low pace of industrialization in SSA:

(1) The region's inability to build technological capacity

- ❑ Technological gaps have been seen as what characterize differences in per capita income and productivity between countries (Verspagen, 2004; Fagerberg, 2005; Kemeny, 2010; Szirmai (2012b, c)
- ❑ Technological progress and its diffusion can be driven by domestic investment in absorptive capabilities and/or by FDI through MNEs

Table 3: Indicators of technology

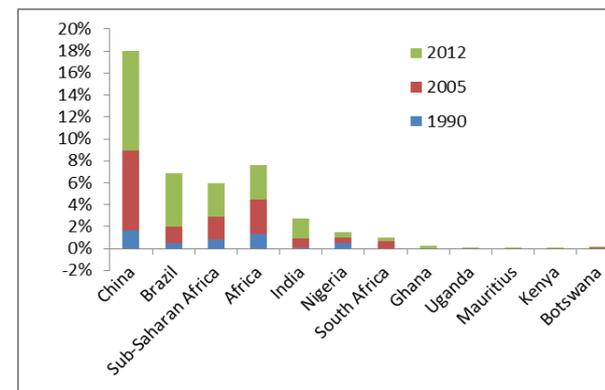
Country	Expenditure on R&D (% of GDP)		Scientific publications (per thousand population)		Patents awarded to inventors by USPTO	
	2000	2005-2012	2000	2011	2000	2012
China	0.9	2.0	0.03	0.07	6 177	143 808
India	0.7	0.8	0.02	0.02	402	722
Brazil	1.0	1.2	0.06	0.07	98	365
South Africa	0.7	0.8	0.07	0.06	902	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, WDI, World Intellectual Property Organization (WIPO IP)

- ❑ 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

- ✓ **South Africa, Uganda, Botswana, Kenya** and **Ghana** are making noticeable effort to foster innovation and technology by firms (ECA, 2011; NEPAD, 2014,; Sackey, 2011)

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



Source: UNCTAD

- ✓ 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.
- ✓ Form a tri-partite platform among the higher learning institutions, government and firms to boost innovations, this is successfully used in Japan
- ❑ Africa's FDI inflows are concentrated in the SSA region
 - ✓ But unlike China, FDI flows into mining and extractive industries (Copley, Maret-Rakotondrazaka and Sy, 2014)

(2) Different industrialization strategies that have been attempted in the past

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

- ❑ 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, with little experience in R&D, as well as relatively weak industrial performance in terms of productivity, human resources and equipment
 - ✓ They are locked into repetitive routines of learning-by doing and disconnected from both local and global knowledge flow
 - 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 (that is tacit knowledge that the organisation acquires through learning by doing and experimentation) (Khan, 2013)
 - 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
 - ✓ In examining the policy interventions of East Asia, cluster initiative has been recommended as the best approach that fits the characteristics of the SSA innovation system (Diyamett, 2009)
- ❑ Access to finance is another recognized major stumbling block to exports, the acquisition of technologies, and acquiring capital to start a business
- ❑ 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

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	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

- ❑ 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 (except for **South Africa** and **Botswana**)
 - ✓ 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
- ❑ 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

(3) 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)
- ✓ 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 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 resolved the above underlying issues

❑ Also notable institutional failures, particularly in training and funding and poor monitoring and evaluation system

Major and emerging challenges of SSA's industrialisation

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

- ✓ 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 the above challenges

❑ Can African industrialization survive without some smart protectionism?

- ✓ Several of the currently successful sectors in Africa have been the recipient of government support during the import substitution industrialization era. 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 industrialization 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 incentives in support of the development of targeted local firm's capabilities (through supply side measures), together with rebate and tariff support can overcome the above-mentioned disadvantage of tariff protection since the actual conferring of the benefits can be firm-specific and contingent on reciprocity commitment and performance.

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- ❑ Should Africa continue with the incentive structure given to foreign investors at the expense of local firms?
 - ✓ The problem with offering extensive incentives to foreign investors is that it 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
 - ✓ It can also 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
 - ✓ 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. Failure of which could result in government providing more incentives to multinationals in compensation

- ❑ How beneficial is Chinese-Africa partnership?
 - ✓ This relationship has the potential of becoming a key source of economic transformation, technological transfer, long term investment and sustainable development if monitored closely. 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

Policy recommendations

- ❑ The question with implications for policy-making include how to link science, technology and innovation to poverty reduction, job creation and sustainable livelihoods; how to build capacity and competencies to innovate and how to expand knowledge. 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
- ❑ In order to exploit economies of specialization and stimulate knowledge spillovers, efforts are needed to integrate firms and segments of business community 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

THANK YOU