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Overview of Industrial Policy and Institutions in Africa

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Abstract
This paper reviews the role played by institutions, including political and economic institutions, in industrial development in Africa. The paper notes that African countries are still struggling to structurally transform their economies and to stimulate inclusive development despite some industrial policy efforts. The lagging performance in industrial sector in Africa can be mainly explained by the lack of institutional frameworks impede good coordination and monitoring of industrial policies. The paper argues that industrial policies are critical to correct the widespread existence of market and coordination failures and the role of governments and institutions in Africa in regulating these market failures should be a priority for the industrialization of the continent. The paper also analyzes the evolution of industrial policy in Africa during the last decade in terms of constraints and structural reforms to industrialization in Africa. It appears that constraints faced by industrial sector in Africa and that need to be addressed includes productive, trade, institutional, and human/technical capacity constraints as well as financial constraints. Structural reforms include promoting green industrialization and gender parity.
Keywords: Industrial Policy; Institutions; Structural Change

1. Introduction

Today, it is widely recognized that a dynamic industrial sector is essential to the structural transformation of African economies. A prerequisite for industrial-led development include effective and innovative industrial strategies that critically depend on institutions and particularly on industrial policies (UNECA, 2014). There is also broad consensus that industrial policies are critically needed to correct the widespread existence of market failures.

Externalities, imperfect information and risks or uncertainties are examples of market failures that require state intervention (Buigues, 2012; and UNECA, 2016a). In particular, positive externalities, in R&D, especially innovation, or negative externalities, in environment area, are often cited as market failures justifying a public intervention. Another case of market failure occurs in the presence of spatial externalities for sectors characterized by high fixed costs and significant economies of scale. Public intervention can strengthen cooperation between firms to generate externalities, overcome coordination failures to enhance long-term growth potential. Imperfect information about the chances of success of companies does not allow commercial banks to make optimal decisions about the credit required by companies. In addition, there are investments in some specific areas of the economy, such as in green economy, that are very costly and very risky but useful for the society of which the State alone has the will and does not have adequate the capacity to engage in it. Several other arguments of interdependence and capacity justifying the need of industrial policy in particular and direct intervention of the state in economic activity in general are widely discussed in UNECA (2016a). Most of the arguments are directly or indirectly related to those already mentioned above. The main debate today is about the level and the domains of state intervention.

The main objective of this paper is to revisit the role played by institutions, including political and economic institutions, in the dynamic of industrial development in Africa. More specifically, this paper analyzes the coherence of the various industrial policies implemented in the continent, draw lessons from the successes and failures of these policies, and identify the challenges to address by current industrial policies.

The rest of the paper is organized as follows. Section 2 presents a general overview of industrial policies implemented in Africa since the 1960s. Section 3 presents the role of institutions in industrial development in Africa, with a critical view to the effectiveness of industrial policies. Section 4 analyzes the factors of failure of these policies and draw lessons from experiences to date, while section 5 presents six (6) case studies about countries that are often cited as good examples in terms of the implementation of industrial policies on the continent. Section 6 examines the evolution of industrial policy in Africa during the last decade in terms of scope and structural reforms. Section 7 concludes the paper.

2. A general overview of industrial policy in Africa

Since the 1960s, when many countries gained political independence, industrialization strategies in Africa have varied greatly through time. The import substitution industrialization (ISI) strategy dominated from 1960 to 1980. ISI was characterized by ongoing intervention of governments in the process of industrialization. The instruments of ISI include nationalization of strategic industrial units, protectionism, and a banking system oriented toward financing industries (UNIDO, et al., 2011). The implementation of ISI in Africa did not,

however, lead to the expected results. Public industries failed to drive economic growth, little to no technology transfer occurred, and states faced high budget deficits and payment balances. To address these issues, African countries were required, mainly by the World Bank and the International Monetary Fund (IMF), to apply structural adjustment programs (SAPs) starting in the 1980s. These SAPs were export-oriented and advocated for the reduction of the protection of local industries, the privatization of state-owned companies and a reduction in public spending, including public investment. A decade of use revealed these measures to have consequences as bad as those of the ISI strategy that came before. African governments, focused on macroeconomic stability and institutional reforms to protect property rights and ensure contract compliance, failed to define coherent strategies for market failures that restricted economic activity (UNCTAD, 2000). SAPs were supposed to attract foreign capital and thus ensure the growth of a stable industrial sector in Africa. This has not been the case, except in the extractive industries (Elhiraika, 2014). Africa has continued to depend on the export of raw material with limited value added. Moreover, market liberalization and privatization of public enterprises did not generate adequate private investment and employment for outward expansion. Since the beginning of the 2000s, and given the failure, or at least mixed results, of the SAPs, industrial policies have become a priority in the development plans of most of African countries. Starting in the early 2000s, more State interventions were designed to improve local industries' competitiveness and to mitigate widespread market failures. The renewed interest in industrial policy across the continent was marked by the adoption in 2008 of the Accelerated Industrial Development Action Plan for Africa (AIDA) by the African Union Heads of States.

Today, policies exist or are being developed at the national, regional and continental level to address the challenge of industrialization in Africa. At the national level at least 26 African countries have national industrialization strategies, and 19 of these strategies target light-manufacturing industries (AfDB et al., 2017). At the regional level, strategies for industrial development include the SADC Industrialization Strategy & Roadmap 2015-2063, the East African Industrialization Policy 2012-2032, and the West African Common Industrial Policy (WACIP). The general objectives of the regional strategies are to foster industrialization through regional integration and competitiveness of the manufactured sector.

African countries have notably endorsed the African Development Bank's African Development Strategy 2016-2020. This strategy aims to make competitiveness, capacity building and entrepreneurship the driving forces for industrialization. Industrialization is also an essential element of the first 10-year plan (2014-2023) for the implementation of Agenda 2063. The objectives of AIDA are reaffirmed in Africa's Agenda 2063, which recommends the promotion of sector plans and regional value chains, as well as the promotion of consumption of local products to support the implementation of industrial policies at all levels. In 2016, the UN General Assembly adopted a resolution announcing the Third Industrial Development Decade for Africa. The objectives of this resolution will be pursued until 2025 under the auspices of the United Nations Industrial Development Organization (UNIDO) in Collaboration with the African Union (AU). The United Nations Economic Commission for Africa (ECA), the New Partnership for Africa's Development (NEPAD), and the Sustainable Development Goals (SDGs) have, in their respective programs, included a strategic focus on the continent's industrial development.

Despite the various policies, few African countries can effect a structural transformation of their economies based on industrialization. The best candidates for success in this regard are South Africa, Botswana, Ghana, Morocco and Mauritius. These countries are better ranked than some Asian competitors in terms of their ability to implement industrial policies (AfDB et al, 2017). This raises questions regarding the nature of industrial policies on the continent and the quality of institutions trying to implement these policies.

3. Role of institutions in industrial development in Africa

The industrial sector in Africa is still very fragile and the role of governments and institutions in regulating market failures should be a priority for the industrialization of Africa. However, most low- and middle-income countries, including African countries, are poorly ranked in terms of government effectiveness indicators, which also affects their ability to manage their industrial policies (Altenburg, 2011). The key challenge for industrial policy in developing countries is that the capacity of the public sector to address market failures is more limited than in more developed countries, while the need to correct these deficiencies is much greater. In addition, most of African countries lack institutions to hold governments accountable for their policies. In such cases, interest groups can easily use these policies for their own benefits. There is, therefore, a need for inexpensive policies that are simple to implement and difficult for influential interest groups to abuse. Institutions therefore have an essential role in the development - from design to implementation and monitoring - of industrial policies in developing countries.

Unlike many Asian countries that have used industrial policies to transform their economies in a relatively short period of time, African countries have followed plans that give a general vision of industrial development and long-term targets (UNECA, 2014). The result is a lack of institutions that can generate the processes necessary to understand the ever-changing requirements of industry. In fact, industrial policy in Africa has

focused more on policy outcomes than on the institutional frameworks used to develop, implement, monitor and enforce industrial policy. As a result, industrial policy in Africa lacks coordination. The private sector is almost non-existent or omitted entirely in the development of industrial policies in some countries. The experiences of some Asian countries, including the Republic of Korea, Taiwan, Hong Kong, Singapore, and Malaysia, highlight the need for inclusive industrial policy processes supported by innovative and dynamic institutions. This facilitates dialogue among stakeholders to identify long-term challenges to industrialization and put in place effective and flexible mechanisms to address them. Coordination between levels of governments, firms and other public institutions plays a key role in fostering industrialization; policies (macroeconomic, trade, and education) need to be integrated in a coherent framework to promote efficiencies and synergies among stakeholders.

Lall and Kraemer-Mbula (2005) point out the rather low level of industrial capacity in Africa and the need to reconsider an industrial strategy focused on capacity building. They note that Africa is becoming increasingly marginal in the technological dynamics of the global economy. For Robinson (2010), industrial policy failed in many African countries in the 1960s for the same reason that economic policies were generally bad; these policies were motivated by political power. Industrial policies were more about a redistribution of income or political power than a promotion of economic growth. Robinson (2010) argues that the failure of industrial policies in Africa is the consequence of perverse political incentives. The success of industrial policies on the continent requires changes in political institutions or endogenous changes in the de facto power balance in society.

The successful industrial policy of East Asian countries reflects the very different political balance that has historically emerged in this part of the world compared to Latin America or Sub-Saharan Africa. Collier and Venables (2007) argue that Africa lags behind in part because its economic reforms have lagged behind those of Asia. When export diversification began to prosper in Asia in the 1980s, no African country offered a comparable investment climate. Now, several African countries offer reasonable investment climates, but they cannot compete with Asian countries that have established businesses in new export sectors. Companies located in Africa also face higher costs in general than Asian competitors, mainly due to technological deficiencies and severe infrastructure bottlenecks (Lall and Kraemer-Mbula, 2005).

Industrial policies in developing countries are generally imposed by financial partners, often not considering the specificities of the local environment (Altenburg, 2011). The ability of governments to align financial partners with national strategies is therefore an important determinant of success for industrial policy in poor countries. In addition, initial conditions (in terms of legal system, education for instance, colonial legacy) for private sector development tend to be less favorable in poor countries, particularly in African countries. More discussion on the importance of initial conditions on differences in economic performance, see for example, De Melo et al. (2001) and Acemoglu et al. (2001). On the supply side, technical and entrepreneurial skills tend to be scarce. The lack of specialized and efficient industries in complementary activities increases costs and often reduces quality. On the demand side, low incomes and poor diversification of consumption patterns significantly limit the business opportunities.

Overall, most African countries are struggling to structurally transform their economies and to stimulate inclusive development despite some industrial policy efforts. Several authors point out that a lack of institutional frameworks impedes good coordination and monitoring of industrial policies. Numbers of Industrial Policy Organizations (IPO) have been created to improve coordination of industrial policies. The role of these organizations is to implement government policies related to the promotion of the industrial sector and to serve as support for businesses. The actions of IPOs in promoting manufacturing industries have made notable progress in some African countries.

4. Failures and lessons learned from Africa's industrial policies

While some African countries have been partially successful in implementing industrial policies, the overall trend is of failure. Notably, most African countries have failed to bring structural change to their economies despite the various industrial policies adopted. These countries are characterized by the export of raw materials and agricultural and mining products (UNCTAD, 2017). The UNCTAD database online on trade indicates that primary products accounted for nearly three-quarters of all exports from African countries between 1995 and 2015. Various reasons are advanced to explain these failures in industrialization in Africa. One possibility is that industrialization strategies have either not considered all the comparative advantages of the continent or have lacked incentives for entrepreneurs. Many studies argue that the low level of manufacturing output and exports from the continent may be partly explained by the fact that only the comparative advantage in natural resources is exploited (UNECA, 2011).

Institutional failure is seen as another major factor in the failure of industrial policies on the continent. For Rodrik and Subramanian (2003), institutions help regulate markets and correct market failures. Institutions regulate activities in various economic sectors, promote competition, ensure transparency and provide public goods. The failure of institutions in Africa implies that corruption, red tape, lack of protection of property rights

and weak rule of law remain a common occurrence. Any incentive system designed to help private investors to engage in new activities may end up serving as a transfer mechanism to unscrupulous businessmen and interested bureaucrats (Rodrik, 2004). For Nnadozie (2003), causes of the failure of industrialization in Africa date back to the colonial period whereby colonizers left legacy structures, institutions and concepts set-up for accelerated resource extraction. The author argued that, with independence, the structure of African economies was not set up for transformation and the creation of added value products, but rather the extraction and export of raw materials. The experiences of some Asian countries, such as the Republic of Korea, Taiwan, Hong Kong, Singapore and Malaysia, highlight the need for inclusive industrial policies driven by sound institutions, such as legal certainty, efficient public administration, and effective anti-corruption strategies. These Asian countries resorted, at the beginning of their industrialization process between the 1960s and 1970s, to various government interventions, such as trade policies, sectoral policies, education and innovation policies (UNECA, 2011).

Nigeria illustrates the failure of industrial policies in African countries (UNECA, 2014). This country has experienced enormous difficulties implementing its industrial policies because of poor coordination among actors, weak participation of the private sector and vast gaps in the support provided for the private sector in industry. Iwuagwu (2011) argues that the manufacturing sector in Nigeria, particularly since the 1980s, faces many challenges, such as low capacity utilization, unreliable infrastructure (which adds to the costs of doing business), lack of venture capital for young entrepreneurs, and the high cost of capital, especially that provided by banks and other financial institutions. The numerous industrial policy institutions in the country have not produced satisfactory results. In the same vein, Senegal's industrial sector, despite the existence of a relatively large number of industrial policy institutions, similarly faces a number of problems that limits the contribution of the manufacturing industry to GDP. Specifically, Senegalese development plans do not include a revision of industrial policies, top-down coordination issues and political interference persist, and there is weak private sector participation and a lack of funding (UNECA, 2014).

A few countries, including South Africa, Mauritius, Morocco, and Tunisia, are often cited as good examples of the implementation of industrial policies on the continent (see, for example, UNECA, 2011 and UNECA, 2014).

5. Synopsis case studies

This section presents case studies for six (06) countries that are seen, at some extent, as examples in terms of performance of their manufacturing sector. These countries are Mauritius, Swaziland, South Africa, Morocco, Tunisia and Egypt. More precisely, these case studies show how industrial policy institutions impact or have impacted the manufacturing sector of these African economies that have performed well either in terms of manufacturing value added (MVA) per capita or in terms of MVA as a percentage of GDP. Data on MVA from UNIDO database online are used. The six countries, with different characteristics in their industrial processes, present important lessons for the African continent.

5.1 Mauritius: a business environment conducive to private initiative

Mauritius has achieved a remarkable economic performance since the 1980s. Its GDP per capita at constant 2010 prices rose from 2363 US dollars in 1981 to 9469 US dollars in 2015.[1] This represents an average annual growth of 4.2% and the 3rd best performance over this period. The Mauritian manufacturing sector is one of the most dynamic in the continent. Over the period 2003-2015, the average manufacturing value added per capita is about 1168 constant 2010 US dollars (2nd rank in the continent). In 2012, the manufacturing sector alone accounted for 18% of GDP, 65% of Mauritius' exports and 22% of the country's total employment (UNECA, 2014). Mauritius has undergone a sustained transformation from an exclusive agricultural monoculture of sugar cane to a strong and diversified economy, with a place of self-granted to the industrial sector. The country has a Manufacturing Free Zone that became its first hiring sector with 90% of employments in 2001. This Free Zone produces (clothing, toys, light electronics) daily for the export market (Buzenot, 2007). A notable feature for Mauritius good performance was that the industrial policy was aimed at the diversification of exports. For example, the sugarcane industry diversified to include refineries, special sugar confectionery, a biomass industry and rum distilleries.

The success of Mauritius is first due to its judicious policies, based on inclusive growth, human capital development and social mobility, and to the constant efforts of the public authorities to involve public and private actors debates in formulation and implementation of policies. The good performance of Mauritius industrial sector is also due to its quota-free access to the European market and special tax incentives that make the country very attractive to international investors. These incentives include income tax, corporate tax and VAT fixed at the rate of 15%; non-taxable dividends and capital gains; exemption from customs duties and VAT on imported goods and equipment. In addition, the country has a strong infrastructure and connectivity that

[1] According to the World Bank database online and the author's calculation.

facilitate the flow of products. These include a reliable logistics platform with modern infrastructure, a well-maintained road network, an efficient harbor with deep-water docks, an international airport with a modern terminal, and an airport hub for cargo with value high added. In addition, Mauritius is connected to the business world thanks to a high-speed Internet (Board of Investment, 2015).

5.2 Morocco: an example of a successful diversification

Morocco has managed to diversify its economy by making efforts to improve the coordination and implementation of industrial policy. Today, Morocco is often cited as an example of a successful diversification (FEMISE, 2015).

Before the 2000s the industry accounted for about 15% of GDP and employed around 10% of the population. In 2015, it accounted for nearly 30% of GDP and 21% of employment. Moroccan industry has been the subject of many reforms. In 2009, the "Plan National Emergence II (PNE II)" is launched (this plan replaced the "Plan National Emergence I" which failed to lead good results as expected). This plan aims to diversify the Moroccan industry and to improve the efficiency of its various sectors. A new Industrial Plan, "Plan d'Accélération Industrielle (PAI) 2014-2020", is underway (see the "Plan d'accélération Industrielle 2014-2020" of the Ministry of Industry, Trade, Investment and Digital Economy of Morocco). It seeks to create industrial ecosystems, and federate small and medium enterprises around industrial locomotives. The export promotion policy that has been in place since the 1980s has allowed several labor-intensive branches to develop, in this case textile and agro-food (El Mokri et al., 2016). Textiles and leather, former key sectors of the manufacturing industry, employ more than 40% of the industrial workforce, but represent only 20% of the value added of the processing industries. Agribusiness, now accounts for 35% of industrial GDP, or 8% of national GDP, of which 25% of production is for export. The manufacturing sector as a whole contributes 16% to the GDP over the period 1996-2015. The diversification policy has also led to the development of the automotive sector, which has been in the forefront of the country's exports since 2014.

The "Plan d'Accélération Industrielle (PAI) 2014-2020" is innovative in its approach: for each industrial sector, it is a question of favoring, around one or more leaders, the constitution of a galaxy of complementary SMEs in order to forming communities of shared interests that are better organized, more responsive and more competitive. This approach has also attracted powerful multinationals, such as the French group PSA Peugeot-Citroën, whose plant under construction in Kenitra, near Rabat, will produce 90,000 vehicles per year from 2019. The American aircraft manufacturer Boeing signed an investment agreement in September 2016 to develop in the Tangiers area, bringing in its wake the establishment of 120 subcontractors and suppliers, and the creation of more than 8,500 specialized jobs.

5.3 Tunisia: exports promotion by leader manufacturing industries

In Tunisia, the "Bureau tunisien de Mise à Niveau (BMN)" established in 1996, successfully accomplished the implementation of government policies within the framework of industry upgrading and coordination, accompanied by a framework to track performance along with financing mechanisms. The BMN has achieved good results, despite its limited autonomy due to its subordination to the Ministry of Industry.

In the early 1970s, Tunisia opted for export promotion and modernization of the manufacturing sector. Currently, the export industry generates nearly 60% of industrial employment. The manufacturing sector contributes to 16% of GDP. Despite the diversity of the Tunisian industrial fabric, three sectors constitute the locomotives of national industrial exports: the textile, clothing, leather, footwear, food industries and finally the mechanical, electrical and electronic industries. These three pillar sectors account for 76% of industrial enterprises, 87% of exports, nearly 62% of foreign direct investment and more than 83% of employment (FEMISE, 2015). The entry into the free trade agreement with the European Union, in January 2008, paved the way for many development opportunities for Tunisian industry but also rise competitiveness challenges.

5.4 Egypt: a successful example of state interventionism

Egypt embarked on import substitution industrialization (ISI) in the 1930s, following the Great Depression of 1929 and the sharp decline in world cotton prices that followed. ISI intensified in the post-independence years from the 1960s, with a massive wave of nationalization in industry and commerce. During this period, industrial policies were highly selective: the state not only indirectly influenced labor and investment flows in different economic sectors through discriminatory incentives (such as differential tax rates), but also directly as the largest investor in the country.

In 2004, a new wave of reforms was launched. The objectives were to stabilize the exchange rate, reduce and rationalize the tariff structure, drastically reduce income tax rates, and reform the business environment and promote the private sector. Nevertheless, the transition to a market economy has never been complete with the still important role of the public sector, the protection of national industries (for example in the textile and food industries) with substantial energy subsidies.

The performance of the Egyptian industry is quite good compared to other countries on the continent. Between 2003 and 2015, the industry contributes on average to about 35% of GDP, including 16% for the manufacturing sector. Textiles, food industries, chemical industries, oil, cement, and metals dominate the industry sector.

5.5 South Africa: the long-term positive effects of industrial policy

South Africa (SA) is another example of effective coordination of industrial policy and dialogue between public and private actors (UNECA, 2014). There is close coordination in the design, implementation, monitoring and evaluation of industrial policy. The existence of the action plans among various sectors accompanied by an M&E framework underlines the importance of the manufacturing industry and its ability to generate dynamic effects that are increasingly pronounced due to the depth of its intersectoral links. These action plans recognize the need to integrate technological progress into the manufacturing industry. The National Industrial Policy Framework (NIPF), which outlines the main principles of South Africa's industrial policy and the Industrial Policy Action Plan (IPAP), can be cited.

South Africa industry is quite diversified with mining and manufacturing industry featuring on the top list. The example of the South African auto industry also shows how selective, sector-specific, well-designed policies can provide domestic consumers with world- class products at world prices without government subsidies, even though the traditional economy and the Washington Consensus warn against such policies (Barnes et al., 2004).

In addition to these programs, the Southern African Development Bank has also facilitated industrialization through its important role in financing new businesses. The case of South Africa shows that an effective industrial policy can result from trial and error and only have long-term effects (UNECA, 2011). The design, implementation, monitoring and evaluation of industrial policy in South Africa demonstrate a complex and effective coordination between public authorities, public bodies and private actors.

South Africa has a dynamic manufacturing industry with a contribution to GDP of around 14% in average over the period 2003-2015, the ninth largest in the continent. The mining industry also occupies a prominent position alongside the automobile that benefits from foreign direct investment.

5.6 Swaziland: the paradox of industrialization

Swaziland has an important industrial sector in its economy with a manufacturing industry ranking first in terms of its contribution to GDP (around 36%) on the continent. However, the country also has the particularity of having a limited entrepreneurship that could be reinforced by an integrated industrial policy to develop local businesses and create productive jobs in the country. According to the 2013-14 Integrated Labor Force Survey, however, entrepreneurship remains limited, as self-employed workers represent only 20% of the total labor force. Although Swaziland is classified as a low- and middle-income country, about 63 per cent live below the poverty line according to AfDB et al. (2017). Hence an industrial paradox!

The manufacturing industry remains the industry's leading subsector, covering various agro-industrial processing activities based on sugar (in particular concentrate for Coca-Cola beverages), citrus fruits, pineapples, meat, production of pulp, clothing and textiles. Recognizing the link between industrialization and entrepreneurship, the state has put in place various initiatives to develop and promote local entrepreneurship, with a focus on small and medium-sized enterprises (SMEs).

Despite the importance of manufacturing, the economy is relatively diversified, with manufacturing and services providing a share of output that is higher than most other countries in sub-Saharan Africa. However, the private sector is poorly developed, foreign direct investment (FDI) is low and SMEs rely on either public contracts or low value-added activities such as subsistence farming and wholesale and retail trade. The structural transformation of the economy has not significantly progressed over time. The slow transition to higher value-added industrial and service activities is a real challenge for the country's economy, which needs to strengthen its productive capacity to achieve sustained, equitable and sustainable growth.

6. Challenges and scopes of industrial policies in Africa over the last ten years

This section analyzes the evolution of industrial policy in Africa during the last ten years in terms of constraints to industrialization in Africa, structural reforms and a temporal perspective.

6.1 Capacity constraints

Capacity constraints faced by the industrial sector in Africa include productive, trade, institutional, and human/technical capacity constraints.

African countries must meet the conditions for efficient technology transfer to boost productivity and succeed in their industrialization agendas. For most African industries, the lack of technological capabilities needed for innovation and development of new industries is especially challenging (UNECA, 2013). A small group of countries, including South Africa, Tunisia, Egypt and Mauritius, have made remarkable progress in

technological accumulation. In most countries, in contrast, lack of technological know-how impedes the competitiveness of several industries. Attracting foreign direct investment plays an important role in technology transfer. However, this requires improving the institutional framework (i.e., removing the institutional constraints) with regard to legal and regulatory environments to reduce corruption and improve the business climate. Political instability and security risks found in many African countries are obstacles to attracting potential foreign investors.

In addition to the technological and institutional constraints, an infrastructure deficit severely hinders development of industries on the African continent. Quality infrastructure contributes directly to industrialization through the infrastructural services that companies purchase (UNECA, 2017b). The lack of quality infrastructure at several levels (energy, communications, transport including road rail, air and maritime) contributes to increases in transaction costs for African industries, reducing their competitiveness. It also appears that the existence of non-tradable sectors characterized by particularly low productivity can, when complementarities between sectors exist, act as a constraint on the development of downstream sectors (Cadot et al, 2015). Thus, a deficient energy sector – a frequent situation in Sub-Saharan Africa – creates negative effects across the whole economy and particularly on the manufacturing sector, which is essential for structural transformation. To meet this challenge, the United Nations Agenda 2030 includes plans to foster resilient infrastructure, promote sustainable industrialization that leaves no-one behind and encourage innovation. Infrastructure development at the national, regional and continental levels will also alleviate another constraint, that of commercial capacity.

On the other hand, it must be emphasized that African countries find themselves marginalized in international trade. Technological limitations and international market conditions (unfavorable terms of trade) mean that African industry faces a high level of competition relative to its capabilities, in the context of globalization. African countries face competition from countries better equipped with technology and skilled labor, as is the case in Asian countries. The establishment of larger, effective regional blocs could create more opportunities in terms of outlets and stimulate intra-African trade. In this regard, UNECA, through ATPC, and UNCTAD have been collaborating with the African Union Commission since 2012 on establishment of a Continental Free Trade Area (see 2015 Report on Activities Undertaken by UNCTAD in Support of Africa).

Finally, another capacity constraint that must be highlighted is the lack of qualified human resources to generate the needed structural change. Available training is often not in line with the new requirements of the job market and the vision of new developmental policies. The shortage of skilled labor affects all levels of the African industrial chain. Staatz (2011) estimates that low productivity in the agribusiness sector in Africa is partly due to schooling levels that are well below the minimums required for good technical efficiency in production. It is estimated that the average number of years of schooling in Africa is 4 years for men, and 1.5 to 4 years for women; these levels are well below those in Europe and Central Asia (World Bank, 2008).

6.2 Financial constraints

The industrial sector in Africa faces another major constraint from limited financial resources. To meet the demands of the highlighted capacity constraints indicated above and to succeed in their industrialization policies, African countries need to explore innovative financing mechanisms. The financial system is struggling to meet the financing needs of the African private sector. Financial markets are characterized by low capitalization, with banks not taking enough risk in financing small- and medium-sized businesses. Financing costs are quite high in African countries, given the conditions of the financial markets. These conditions include the low level of financial market development, limited banking services and products, the preponderance of commercial credits, and the requirement for significant collateral. Compared with companies in Southeast Asia and China, industries in Africa have less access to credit and are less likely to buy inputs on credit or to finance investments with bank loans (Dinh and Clarke, 2012).

Foreign capital flows to the African continent also need to be reoriented. Approximately 51% of these flows are devoted to the service sector, and only slightly more than 20% to the processing sector (Papadavid, 2017). The banking system should therefore be further enhanced by reviewing national legal and regulatory frameworks, opening up the banking sector to competition, supporting capacity building initiatives in African banks, facilitating banker training, and promoting the creation of different financing systems. It is necessary for financial institutions to finance infant industries, and this requires a good mastery and improvement of risk management tools related to the needs of various stakeholders.

The introduction of new financing mechanisms, such as Public Private Partnership, solidarity taxes, and emerging donors other than traditional international financial institutions, can enable African countries to overcome capacity constraints and accelerate technological upgrading and innovation, which will contribute to increased production and processing of local raw materials. The use of public-private partnerships could help overcome difficulties, particularly those related to the infrastructure deficit.

6.3 Green industrialization

In Sub-Saharan Africa, approximately 60% of employment is in the agricultural sector. The labor force tends to move from the agricultural sector to the relatively unproductive urban informal services sector rather than to high productivity manufacturing industries or modern market services. Sub-Saharan Africa's share of manufacturing is the lowest in the world (less than 10% over the last 30 years). Per capita manufactured exports from sub-Saharan Africa are approximately 10% of the average for developing countries. In North African countries, the share of production and employment is also high in agriculture and low in the manufacturing sector, relative to per capita income (Brahmbhattn et al., 2017). Huge challenges therefore remain on the continent.

In November 2015, world leaders gathered in New York and agreed on the need to build resilient infrastructure, promote sustainable industrialization and encourage innovation, formalizing this as one of the United Nation's Sustainable Development Goals (SDGs). To meet the challenge of industrialization, Africa requires more high-quality infrastructure resilient to climate change. Furthermore, African countries need to develop strategies for a resilient green economy in the face of climate change. Altenburg (2011) indicates green industrialization involves: eliminating subsidies that have adverse effects on the environment; levying ecological taxes to internalize environmental costs; establishing emissions trading schemes; promoting public and private environmental research; and introducing market incentive programs to accelerate the diffusion of new technologies that preserve the environment. According to Brahmbhatt et al. (2017), green entrepreneurship and green markets are emerging in Africa, but there is a need to accelerate and sustain momentum. African governments will need to develop supportive policies at two levels. First, governments need to put into place price policies and regulations that create appropriate market incentives for green processes and products, such as incentives for more efficient use of energy and water. Without such incentives, private green demand will remain low because of past failures of the environmental market. Second, governments need to build capacity and develop the entrepreneurial spirit, taking into account the different characteristics of different types of businesses that exist in a typical African economy. By way of illustration, Ethiopia's Climate-Resilient Green Economy (CRGE) strategy aims at maintaining rapid growth and expansion of its industrialization and employment, and at the same time avoiding the traditional development trajectory by reducing greenhouse gas emissions and moving toward sustainable land, soil and water use. Ethiopia is ranked near the top in the race for the green economy (UNECA, 2016b).

South Africa has a Green Economy Accord signed in 2011 by union organizations, civil society, business and government. This agreement sets out 12 commitments to the green economy, including the deployment of solar water heaters and renewable energy, biofuels, recycling, reuse and waste recovery. It also includes initiatives related to clean coal technologies, electrification of poor communities, and reduction of open cooking and heating practices. The stakeholders also committed to promoting local economic activity, youth employment, and cooperatives and skills development.

In Ghana, the Environmental Protection Agency (EPA) is the main government department promoting environmental industrialization. The department is responsible for implementing the Environmental Rating and Disclosure Program that is used to establish the environmental record of material and industrial operations. The EPA program is implemented through the Ghana National Cleaner Production Center and the Manufacturing Industries Department.

6.4 Effective regional integration for foster industrialization in Africa

The promotion of intra-African trade can be a key determinant of Africa's industrialization (AfDB et al., 2017). The ongoing work for the establishment of the African Continental Free Trade Area (AfCFTA) is an important step towards Africa's integration agenda. It is one of twelve pilot projects in the African Union's Agenda 2063 and aims to facilitate free movement of goods, services and capital, to promote industrialization and to increase economic development for the continent. Indeed, the AfCFTA offers the potential to boost intra-African trade, stimulate investment and innovation, foster structural transformation, enhance economic growth and export diversification, and streamline overlapping trade regimes of the main regional economic communities (UNECA et al., 2017). The economies of most African countries lack an internal market large enough for their manufacturing (Anaman and Osei-Amponsah, 2014). These difficulties can ultimately be overcome when countries become competitive with global export markets. In the early stages of industrial development, however, a country's small size makes it difficult for domestic firms to compete with foreign firms that have an advantage of scale and operate in dense industrial clusters. Regional integration of markets can help countries to overcome these difficulties and seize larger market opportunities. West African countries such as Burkina Faso and Mali are important producers and exporters of raw cotton. The emergence of a more competitive regional cotton textile and clothing industry could be facilitated by a customs union of the Economic Community of West African States (ECOWAS) and better intra-regional transport infrastructure.

When domestic markets are too small to allow efficient substitution of imports as a starting point for

industrialization, the integration of a regional market may be a way out of this stalemate (Langhammer et al., 1990). However, a problem associated with regionalization is that the opening of the internal market to industrial imports by member countries results in a sacrifice of abandoned national industrial capacity. Such a loss must then be compensated for by reciprocal preferences for industrial products granted by all member countries. Each country in the regional grouping is thus encouraged to specialize in the production of goods for which it has a comparative advantage.

An effective integration of African countries appears necessary to meet the challenge of industrialization. This includes, inter alia, improving business regulations to promote inter-country trade; the development of stock markets and financial markets to increase the volume of transactions; the reduction of trade restrictions, including tariff and non-tariff barriers to trade to facilitate commercial networks; and, the financing and realization of regional infrastructure, including road and rail links, ports, air links and information and communications technologies.

Infrastructure is crucial for economic transformation of each country. But the supply of some important infrastructure, such as energy production sites (in particular, hydroelectric power and natural gas) and ports tend to be specific to location (landlocked countries are particularly disadvantaged in seaports). Agreements allowing countries that are well equipped with such infrastructure to develop them on a large scale so that they can also serve neighboring countries at a lower cost (than what these countries could do themselves, it is even a possibility) can promote a faster transformation of all the countries concerned. In addition, just as national roads and other modes of transport integrate and expand a country's domestic market, regional roads and other transport systems can be a boon for regional integration (Anaman and Osei-Amponsah, 2014).

Regional infrastructure development can reduce costs. Given the increased competition on the international markets due to globalization, African countries must, if they want access to export markets for manufactured products, take measures to reduce the direct and indirect trade costs to businesses in the continent. These indirect costs are mainly due to poor infrastructure, heavy regulatory constraints and political instability (UNECA, 2014).

6.5 Promoting gender parity for inclusive industrialization in Africa

Inclusive industrial policies, involving more women, especially in high value-added manufacturing industries, can address some challenges of industrialization in Africa. In addition to generating decent jobs and accelerating the reduction of poverty, industrialization has the power to transform women's lives.

Women's participation played a key role in the industrialization of Europe, where women's contribution to economic growth intensified during industrialization (Butschek, 2006). The main branches of industry were textiles and iron. Female jobs were considered as extra income and wages remained relatively low compared to men. The contribution of women in the industrialization of Europe was possible through a basic level of women's education. Moreover, female employment in industry was a strong incentive for institutional changes that improved the social and educational status of women in capitalist countries. The expansion of employment opportunities for women in these industries has improved conditions for women in the labor market. The availability of jobs in multinational and local export factories allows women to delay marriage and motherhood, to increase their income and consumption levels, improve their mobility, expand their individual choice, and exercise their personal independence.

Newman et al. (2016) consider the clothing industry in Bangladesh where more than three million women aged 16 to 30 are employed. This was the first industry in Bangladesh to offer large-scale employment opportunities to women in a country where, traditionally, they were not allowed to work outside the family home. In addition to creating jobs, the arrival of clothing factories has affected decisions regarding school enrollment, marriage and procreation in women. Young girls enter school in greater numbers, stay longer and postpone marriage. The authors also point out that a similar transformation in women's professional life took place in Lesotho. From the early 1980s to 2010, Lesotho's manufacturing sector grew from about 6% to 18% of GDP. This result is mainly due to the strong growth in clothing exports and it was accompanied by a significant increase in female employment. In recent years, the clothing industry has employed between 35,000 and 43,000 workers and women represent between 70 and 75 percent of the labor force. In some activities, such as cutting and sewing, women represent between 90 and 95% of workers.

Taking women into account in industrial development policies had also inspired some countries in the East Asia region. In Singapore, for example, women's employment has grown in textiles, clothing and electronics. Between 1957 and 1979, women's employment rate rose from 21.6% to 41.9%, with its share of total employment rising from 17.3 per cent to 33.6 per cent (Butschek, 2006). Africa must therefore draw on these examples to promote the employment of women through industrialization. In Africa, many women already work in traditional manufacturing, especially in textiles. African countries need to facilitate women's access to funding to expand and modernize women traditional activities. The goal is to create affirmative action programs in women's funding to promote women's economic empowerment and to remove the many barriers women face in accessing financing for their businesses. For example, inclusive industrial policies that place a priority on

African women, who remain the vulnerable gender, can be an effective means of reducing poverty. Reducing gender disparities and providing women with economic opportunities could lead to significant productivity gains and other development outcomes, including future generations (UNECA, 2017a). Gender inequalities in the labor market translate into lost profits for individuals, households and society, with huge economic consequences.

7. Conclusion

In this paper, we revisit the industrial policies implemented in African countries since the 1960s and focus on the role that institutions in Africa have played on the dynamics of industrialization. I also examine the evolution of industrial policy in Africa during the last decade in terms of scope and challenges. It appears that most African countries are struggling to structurally transform their economies and to stimulate inclusive development despite some industrial policy efforts. The key challenge for industrial policy in Africa is to strengthen the capacity of the public sector to efficiently address market failures.

Future research could focus on investigating the empirical impact of various industrial policies including institutions on performance of industrial sector in general and manufacturing value added in particular in African countries.

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