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Developing productive capacities to industrialize and diversify African economies and achieve the SDGs

Abstract

African policymakers, academics, and development institutions have acknowledged that fostering sustained economic development in Africa and achieving the SDGs require developing productive capacities, transforming domestic production structures towards manufacturing, and diversifying exports. Yet, there is very limited understanding of the linkages among these crucial processes of economic development. This paper seeks to identify some mechanisms through which the development of productive capacities could be linked to structural transformation and exports diversification and how these processes can contribute to the goal of poverty alleviation in Africa. It also examines the role of infrastructure and innovation in developing productive capacities and offers policy recommendations on how productive capacities could be built to support Africa's industrialization agenda and enhance prospects for achieving the SDGs.

Key words: Productive capacities, Industrialization, Diversification, SDGs

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Introduction

In January 2015, African Heads of State and Government took a bold step to build the foundation for sustained growth by adopting the African Agenda 2063 as the long-term framework that will guide the continents development in the next five decades. This was followed in December 2016 by the design of a domestication strategy aimed at ensuring that elements of the Agenda are incorporated into national plans, programmes and budgets. Efforts have also been made by the African Union to reconcile the African Agenda 2063 with global development initiatives such as Agenda 2030 and the Sustainable Development Goals (SDGs). A common feature of these recent national, continental and global development initiatives is the recognition of the fact that Africa's development challenges are largely structural in nature and need to be addressed to achieve better development outcomes than in the past. In this context, there is an emerging consensus that African countries and the least developed countries (LDCs) must develop productive capacities, transform the structure of their economies towards industrial activities, and diversify exports to lay a solid foundation for robust growth, employment creation, poverty alleviation and the achievement of the SDGs (Signé 2018). The international community has acknowledged the crucial role of structural transformation in the development process by specifically dedicating goal 9 of the SDGs to promoting industrialization and related issues such as infrastructure and innovation.[1]

The development of productive capacities is needed to enhance the ability and capacity of African countries to create employment and fully exploit opportunities created in the multilateral trading system. Export diversification is important to reduce vulnerabilities to global shocks. And structural transformation is necessary to ensure resources are used in areas where they are most productive and lay a robust foundation for sustained economic growth and employment creation. UNIDO (2016) provides several reasons why achieving industrial development is a necessity in Africa and LDCs: first, it is crucial for meeting goal 9 of the SDGs; second, it has high potential for job creation and can therefore contribute to poverty alleviation;[2] third, no country has been able to achieve sustained economic growth without effectively transforming the structure of the economy, mostly into production of manufactured goods; and fourth, it promotes inclusive development by providing decent jobs and government revenue for social investments.[3]

Despite the importance of productive capacities, export diversification and structural transformation to the achievement of Africa's broad development goals and the SDGs, the three concepts are often discussed in isolation and policies are often designed without a clear understanding of the linkages among them. This lacuna stems from the fact that there is no unified and comprehensive treatment of these issues or development processes in the extant economic literature. Against this background, this paper seeks to provide an understanding of the mechanisms through which the development of productive capacities can be linked to export diversification and structural transformation and how these processes of economic development can

[1] Goal 9 of the SDGs is entitled "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation." It has eight industry-related targets and its inclusion in the SDGs is an acknowledgement of the crucial role of industrialization in the economic development process (see United Nations 2015). Goal 9 also recognizes the importance of innovation and infrastructure development as essential drivers and enablers of industrialization.

[2] Cadot et al (2016) provide evidence indicating that the elasticity of poverty with respect to industrial value-added is negative and higher than the elasticity with respect to the agricultural and services sectors. In other words, industry is a stronger driver of poverty reduction than agriculture and services. The strong links between industrialization on the one hand and poverty and employment on the other suggests that achieving goal 9 of the SDGs will enhance the prospect of achieving other SDGs, especially goal 1 on poverty eradication, goal 8 on economic growth and decent work, and goal 10 on reducing inequality.

[3] For a discussion of the industrialization challenge facing African countries and the role of commodities in the industrialization process see Morris and Fessehaie (2014).

contribute to the goal of poverty alleviation in Africa. It also examines the role of infrastructure and innovation in developing productive capacities and offers policy recommendations on how productive capacities could be developed to support Africa's diversification and industrialization objectives and enhance prospects for achieving the SDGs.

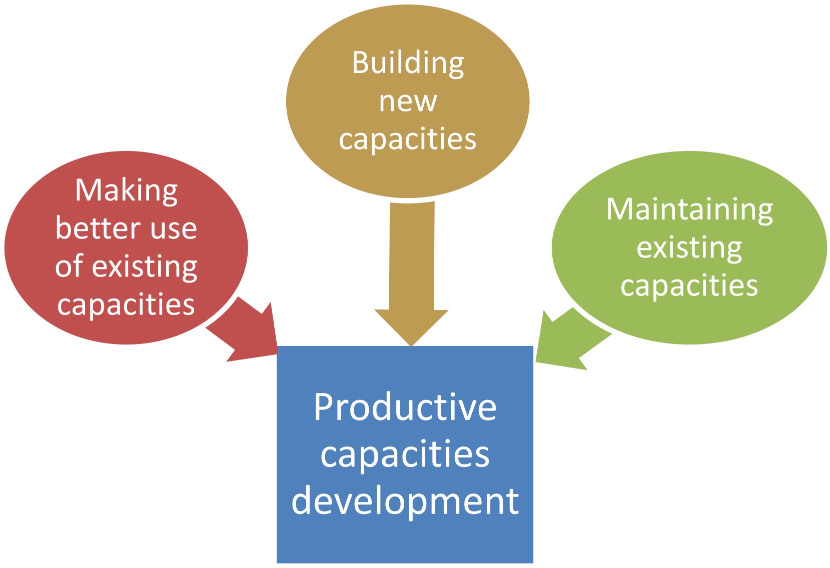
The rest of the paper is organized as follows: Section 1 introduces the concepts of productive capacities, export diversification and structural transformation and explains the linkages between these processes of economic development and how they contribute to the goal of poverty alleviation. Section 2 examines the drivers of productive capacities development with a focus on the role of infrastructure and technology and innovation. Section 3 identifies and discusses policies to develop productive capacities in such a way that supports Africa's Industrialization Agenda. The final section (4) contains concluding remarks.

1. Productive capacities, diversification and transformation: Concepts and linkages

The development of productive capacities is increasingly a hot topic in policy circles and in the literature on the economic development of Africa, least developed countries, and small island developing states. Yet, there is no consensus on how to define it and what it means. Over the past two decades, attempts have been made by several researchers to provide a definition of the concept. For example, UNIDO (2003) defines productive capacities as ''the ability to produce goods that meet the quality requirements of present markets and to upgrade in order to tap future markets.'' UNCTAD (2006) refers to productive capacities as ''the productive resources, entrepreneurial capabilities and production linkages which together determine the capacity of a country to produce goods and services and enable it to grow and develop.'' While each of these definitions has a different focus and scope, they suggest that productive capacities refer to the potential output that can be efficiently and competitively produced in a country given its factors of production, state of technology, and the social and political environment within which production takes place. In this context, productive capacities describe the production possibility frontiers of an economy.

Part of the growing interest in productive capacities development can be ascribed to the fact that it is regarded as a necessary condition for poor and vulnerable developing countries to better integrate into the global trading system, foster sustained growth, and meet the SDGs. Weak productive capacities have made it challenging for poor and vulnerable developing countries to fully exploit opportunities created in the global trading system and reap the benefits of trade. In 1980 Africa accounted for about 11 percent of world population and 6 percent of world trade. In 2017 its share of world population rose to about 17 percent while its share of global trade fell to 2.3 percent. The very low and declining share of African countries in global trade is due largely to the fact that they lack productive capacities, particularly in manufacturing activities. In this regard the development of productive capacities should be on the priority list of African policymakers to enhance their ability to fully exploit the potential of international trade for development and enhance prospects for meeting the SDGs. There are three aspects to the development of productive capacities: building new capacities; making better use of existing capacities; and maintaining existing capacities (Figure 1).

Figure 1. Core dimensions or aspects of developing productive capacities



Source: Author

In the discourse on Africa's economic development, as well as in policy circles, the emphasis has always been on how to build new productive capacities. But building new capacities will make a significant contribution to the long-term goal of developing productive capacities only if it is combined with efforts to better utilize and maintain existing capacities. In the manufacturing sector, many plants in Africa operate well below installed capacity even though African governments are trying to build new capacities in support of their transformation agendas.[4] Clearly, such incoherence in approach to developing productive capacities is not conducive to the realization of the long-term goal of productive transformation and is an important factor in explaining the low productive capacities of African countries (Box 1). In this context, there is the need for a more coherent approach to developing productive capacities in Africa than in the past, with emphasis on building as well as utilizing and maintaining existing capacities.[5]

Unlike the concept of productive capacities, there is clarity and good understanding in the literature of what structural transformation and diversification mean. In general, economists regard structural transformation as the movement of resources from low to high productivity activities both within and across sectors. The share of manufacturing value added (MVA) in gross domestic product (GDP) and MVA per capita are two widely used indicators or proxies for structural transformation in both policy discussions and empirical work. MVA per capita represents the relative value of net manufacturing output to population size while the ratio of MVA to GDP captures the role of manufacturing in the economy (UNIDO 2017). Regarding the third concept, diversification, it generally refers to the production or export of a wide variety of goods and services. And it can be

[4] For instance, the enterprise surveys conducted by the World Bank indicate that in 2017 the average capacity utilization rate in Sierra-Leone was 58 percent and in Ethiopia in 2015 it was 63.3.

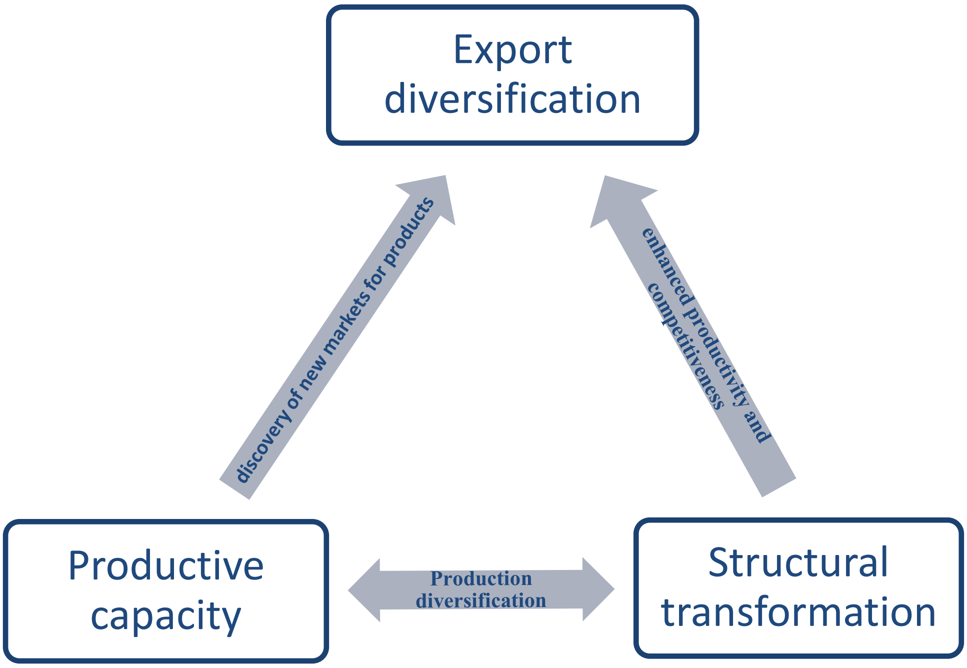
[5] In principle, there are three main approaches that could be adopted to assess and monitor the development of productive capacities in African countries. The first is an input-based approach involving the aggregation of indicators on three core components or determinants of productive capacities development, namely: productive resources, entrepreneurial capabilities, and production linkages in an economy (UNCTAD 2006). The second approach to assessing the development of productive capacities is an outcome-based approach involving determining a country's productive capacities by looking at the mix of products it already produces. In this framework, higher productive capacities are associated with the production of dynamic products and sophisticated goods (Freire 2013). The third approach is through a benchmarking exercise, involving computing the state of productive capacities in a relatively successful developing country and comparing actual capacity in an African country of interest with those of the representative country.

accomplished through introduction of new products to existing markets, increasing the quality of existing products, and finding new markets for existing products. Quantitatively, diversification is measured using concentration indices such as the Herfindahl, Gini and Theil Indices, which for the most part capture inequality between product or export shares (Cadot, Carrère, and Strauss-Kahn, 2011).

Box 1: Assessing Productive Capacities in Africa
Although it is widely believed that developing productive capacities is imperative for Africa, there are no comprehensive quantitative studies measuring the state of productive capacities in the continent. To address this limitation, UNCTAD is developing a framework for measuring productive capacities in developing countries and the findings of this study is expected to be published in 2020. That said, a recent Report by the World Economic Forum on readiness for the future of production can give us an idea of the state of production in some African economies (WEF 2018). The Report quantifies the structure of production in 100 economies in the world and discusses the drivers of production in these economies. Regarding the structure of production, its focus is on the economic complexity and scale of production. The scores for the structure of production ranges from 1 to 10 with the latter indicating a higher or stronger production structure. The findings of the Report suggest that African countries have very limited production base when compared with countries in other continents. Among African countries in the sample, South Africa had the highest score (5.03) and global rank (45), reflecting the fact that it has a stronger production base than other African countries. Egypt, Tunisia, Mauritius and Morocco are the other African countries with relatively strong production base while countries such as Zambia, Tanzania, Uganda and Ethiopia have very low production base. The low scores of African countries are due to the fact that the scale of manufacturing activities in these economies tends to be small and they produce goods that are not sophisticated. They also have relatively poor infrastructure, weak human capital and very low innovation capabilities.

The economic literature recognizes the crucial importance of structural transformation and diversification in the development process. Kuznets (1973) pointed out that as an economy grows there is a movement of resources from agricultural to non-agricultural activities, resulting in a declining share of agriculture and an increasing share of manufacturing and services in output and employment. Herrendorf, Rogerson and Valentinyi (2014) also discussed the role of structural transformation in the growth process using a multi-sector growth model. Regarding diversification, Imbs and Wacziarg (2003) have shown that export concentration and per capita income follow a U-shaped pattern in the development process. That is, as per capita income increases production and employment initially become more diversified but after a threshold level of income is reached, they become concentrated again. Until recently, the two processes of economic development (structural transformation and diversification) where treated independently of each other in economic models. Papageorgiou, Perez-Sebastian and Spatafora (2013) addressed this limitation by developing for the first time a framework that simultaneously incorporates both structural transformation and diversification in the growth process. However, their paper did not consider the issue of productive capacity development. The current paper complements existing work in the literature by identifying and discussing some mechanisms through which productive capacities development could be linked to the concepts of export diversification and structural transformation (figure 2).

Figure 2. Mechanisms linking productive capacities to diversification and transformation



Source: Author

To understand the relationships depicted in figure 2, it is important to note that there are at least two ways that a developing country can enhance its productive capacities. The first is to increase capacity to produce existing (traditional) products and the second is to increase the capacity to produce new and more sophisticated products. When productive capacities are developed to increase output of existing products, it results in neither production diversification nor structural transformation of the economy. However, it can contribute to export diversification if it is accompanied by the creation or discovery of new markets for products. In other words, there is the possibility that the development of productive capacities could lead to export diversification even when it does not promote production diversification and structural transformation of the economy. In contrast, when productive capacities are developed to produce new and more sophisticated products, it will result in production diversification and hence structural transformation of the economy. In this context, the development of productive capacities leads to structural transformation when it is accompanied by production diversification.[6] Given the fact that structural transformation involves a movement of resources from low to high productivity activities, it enhances productivity and competitiveness of an economy thereby contributing to export diversification. Therefore, when productive capacities are developed in a manner that results in production diversification it can contribute to both structural transformation and export diversification of an economy. So far, I have examined how productive capacities affect structural transformation and export diversification. But the structural transformation of an economy also has an impact on the development of productive capacities. For instance, it has been argued that the transformation of the production structure of an economy towards manufacturing activities fosters technological innovation, which is a major driver of both the development of productive capacities and export diversification (Osakwe and Moussa 2018). Therefore, in the formulation and implementation phases of development policies there is the need for African policymakers

[6] It should be noted that the capabilities of enterprises play a crucial role because they define the feasible set of products that could be produced in an economy and hence determine whether or not the development of productive capacities induces production diversification and structural transformation (Nubler 2014).

to consider the mutually reinforcing relationships between productive capacity development on the one hand and structural transformation and export diversification on the other.

An interesting question to pose at this stage is how productive capacities, export diversification and structural transformation are linked to the national development goal of poverty alleviation? Figure 3 provides an illustrative mechanism linking these processes of development to poverty reduction, which is goal 1 of the SDGs.

It begins with a recognition that developing productive capacities and transforming the structure of an economy require: investments in capital (physical and human); the development of the entrepreneurial capabilities; creating and strengthening production linkages within an economy; and technological innovation. When these factors and processes are accompanied by either the discovery of new export markets for (existing and new) products or enhanced productivity and competitiveness, they foster export diversification. And export diversification contributes to poverty reduction by affecting the two main sources of changes in poverty: growth and inequality. A key channel through which export diversification has a positive impact on growth is an increase in value-addition and productivity. Regarding the impact on inequality, it arises through the positive impact of export diversification on creation of decent jobs which reduces income gaps and hence inequality in the economy.

Figure 3. Linking productive capacities, diversification and transformation to poverty