



Drivers of Structural Transformation: The Case of the Manufacturing Sector in Africa

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Abstract. — This paper analyzes the driving factors of manufacturing development in Africa. Using the system-GMM technique with four-year average panel data over the period 1995–2014, including 53 African countries, the paper finds four main results. (1) There is a U-shaped relationship between the manufacturing share of GDP and per capita GDP. (2) Exchange rate depreciation stimulates Africa's manufacturing sector. (3) Good governance, especially a low level of corruption and better government effectiveness contribute to Africa's manufacturing development. (4) The size of domestic market positively affects the manufacturing share of GDP. On the other hand, the paper finds no significant effects of FDI and urbanization on manufacturing development. The implication of these findings is that improving the level of competitiveness, expanding the size of domestic market, combating corruption as well as improving government effectiveness are key for Africa's manufacturing sector development. Moreover, the U-shaped relationship between the manufacturing share of GDP and per capita GDP, implies that African countries should not expect industrialization to automatically happen with income increase, but rather, they should proactively tackle key obstacles to the development of the manufacturing sector.

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Keywords — industrial policy, manufacturing, structural transformation, Africa

“After long suffering from benign neglect if not outright contempt, industrial policy is almost fashionable again...The question today is not whether African governments—like all governments in the world—*should* be engaged in industrial policy, but whether they *are* doing it well and how they can do it better.” (Stiglitz, Lin, Monga, & Patel, 2013, abstract and p. 12).

“...Getting industrial policy right and getting the conditions for its successful implementation right are not matters of choice but imperatives for the African countries.” (Chang, 2012, p. 13).

1. INTRODUCTION

Industrialization is key for economic growth and development (see Kaldor, 1967). The industrial sector comprises manufacturing, mining, and construction. However, the literature suggests that the manufacturing sector is the component of industry that has the greatest opportunities for sustained growth, employment creation, and poverty reduction in Africa (UNCTAD and UNIDO, 2011).

Various factors explain the strategic role of manufacturing in the economic development process. Manufacturing has historically been the main source of innovation in modern economies (Lall, 2005; Gault & Zhang, 2010). The research and development activities of manufacturing firms have been an important source of technological development in the world economy (Shen, Dunn, & Shen, 2007). Thus, manufacturing is key for innovation and technology diffusion. Manufacturing also offers the advantage of strong and spill-over effects to other economic sectors. In particular, manufacturing firms are important consumers of banking, transport, insurance, and communication services; they provide demand stimulus for the agricultural sector. Manufacturing also offers more opportunities for employment creation. Compared to primary goods, the prices of manufactured goods are less volatile and the demand for manufactured goods increases with income, suggesting that manufactures offer more opportunities for exports market growth.

Despite the aforementioned benefits of manufacturing, so far Africa's manufacturing sector performance has been

disappointing. Africa's share of global manufacturing value added fell from 1.2% in 2000 to 1.1% in 2008, in Asia, it rose from 13% to 25% over the same period (UNCTAD and UNIDO, 2011). According to the latest available report on the world manufacturing production, in 2010, Africa's share of global manufacturing value added recovered to its 2000 level (1.2%), while Asia's share of global manufacturing value added increased to 26% (UNIDO, 2016). Moreover, as it will be discussed later in this paper, the manufacturing share of Africa's GDP has been low, and since the 2000s, it has followed a declining trend. Africa's manufacturing sector underperforms despite political commitment to industrialization on the continent. For instance, the New Partnership for Africa's Development (NEPAD) adopted by African leaders in 2001 identified economic transformation through industrialization as a critical vehicle for growth and poverty reduction in the region. Furthermore, in February 2008, African Heads of State adopted a Plan of Action for the Accelerated Industrial Development of Africa (UNCTAD and UNIDO, 2011).¹

So then the question is: what are the contributing and deterrent factors of Africa's manufacturing development? So far, little macro evidence exists on the drivers of manufacturing development in Africa. There is a need for evidence-based policies to guide African governments in their efforts to promote the development of the manufacturing sector. This paper aims to contribute to that effort by empirically investigating at the macro level the driving factors of manufacturing development in Africa.²

The paper brings three main contributions to the literature. First, the paper finds a U-shaped relationship between the manufacturing share of GDP and per capita GDP; this would be the first paper to find such a result in the African context.

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This is a key finding, distinguishing the paper from the literature. Generally, it's assumed a linear relationship between income level and the manufacturing share of GDP; however, as discussed in this paper, there are a number of reasons to believe that such relationship may not be linear. Second, contrary to most of the existing papers on the same subject that use country case studies or micro data, this paper's sample of analysis comprises 53 African countries, making it possible to draw relevant conclusions at the continental level. Third, the paper uses four-year average panel data over the period 1995–2014 and applies the system-GMM technique to correct for endogeneity. Most of the existing macro studies on the determinants of Africa's manufacturing development do not try to address endogeneity issues, which are very likely to exist in such studies. Thus, by addressing endogeneity issues with the application of the System-GMM technique at the macro level, this paper provides a strong basis for evidence-based policy making on the determinants of manufacturing development in Africa.

The rest of the paper is organized as follows. Section 2 analyzes the trends of the manufacturing share of GDP over time in Africa and across Africa's sub-regions. Section 3 reviews the empirical literature on industrial policy and manufacturing development in Africa. Section 4 uses four-year averages panel data over the period 1995–2014, and estimates an augmented version of [Chenery \(1960\)](#) model by adding policy and governance (institutions) variables to investigate the drivers of manufacturing development in Africa. Section 5 presents the results, while Section 6 discusses the main findings and Section 7 concludes the paper with some policy implications.

2. TRENDS OF MANUFACTURING SHARE OF GDP IN AFRICA AND ACROSS AFRICA'S SUB-REGIONS

The objective of this section is to highlight similarities and differences in the dynamics of the manufacturing sector across time and Africa's sub-regions. Industrial development in Africa has gone through three broad phases since independence. The first phase, which began in the 1960s and ended in the late 1970s, is the import substitution industrialization (ISI) phase. The second phase, which represents the structural adjustment program (SAP) phase, began in the early 1980s and ended in the late 1990s. The third phase, the poverty reduction strategy papers (PRSP) phase, began in 2000 ([UNCTAD and UNIDO, 2011](#)). For an in-depth analysis, I

split out the ISI and SAP phases in two periods of 10 years each. Due to data availability constraint, in this paper, the period 2000–14 represents the PRSP phase.

[Figure 1](#) shows that the average share of African manufacturing in GDP rose from a low level of 9.2% in the 1960s to a peak of 11.9% in the late 1990s. Since then, there has been a decline in the contribution of manufacturing to Africa's GDP. The share of manufacturing in GDP fell from 11.9% in the late 1990s to 10.5% during the period 2000–14. Thus, the average share of manufacturing in GDP during the period 2000–14 was almost equal to its value in the 1970s. The decline in the contribution of manufacturing to GDP since 2000 has been observed in all sub-regions of the continent (except in Eastern Africa). Several factors may have contributed to this situation.

First generation PRSPs led to a shift of resources from production to the social sectors. And though second generation PRSPs have tried to address this social sector bias problem, interest in the productive sectors in second generation PRSPs in Africa tends to be in agriculture and its related industries, largely reflecting the widespread view that African countries have a comparative advantage in these industries and that agriculture is an important source of pro-poor growth ([UNCTAD and UNIDO, 2011](#)).^{3,4} Moreover, the 2000s is a period marked by the acceleration of globalization with fierce competition among countries; since African countries tend to be less competitive than countries from other regions, they have witnessed a shrink of their manufacturing sectors to the benefit of other countries, especially China.

Unlike the PRSP phase, the ISI phase was accompanied by an increase in the manufacturing share of GDP in Africa. During the ISI phase (1960–79), the share of manufacturing in GDP has increased by 2.1 percentage points, from 9.2% in 1960–69 to 11.3% in 1970–79. The implementation of ISI involved substantial government support as well as protection of domestic firms from foreign competition; consequently, the ISI phase was accompanied by an increase in the manufacturing share of GDP.⁵

During the SAP phase, the share of manufacturing in Africa's GDP was almost stagnant, registering a low growth rate, though its level was higher than during the ISI phase. Indeed, during the period 1980–89 (the first decade of the SAP phase), the share of manufacturing in Africa's GDP was 11.14% and grew to just 11.89% during the period 1990–99 (the second decade of the SAP phase). [Figure 1](#) shows similar trends of the manufacturing share in GDP during the ISI and SAP phases across all Africa's sub-regions.

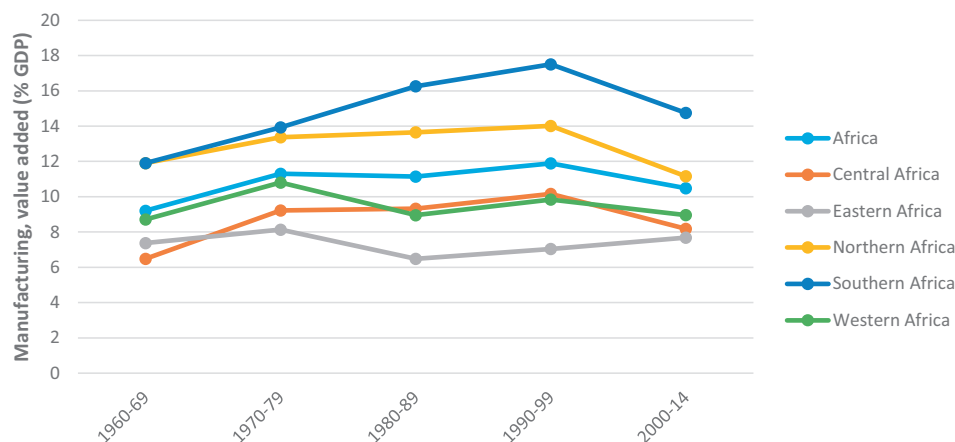


Figure 1. Trend of manufacturing value added share in GDP in Africa and across Africa's sub-regions. Source: Author's calculations based on data retrieved from the World Bank, 2016 WDI database.

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