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Toward an Understanding of Economic Growth in Africa: A Reinterpretation of the Lewis Model

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Summary. — We develop a model economy that has many of the features of Lewis (1954) but that also includes an in-between sector as described by Lewis (1979). Our model underscores the importance of the following determinants of structural change: (i) productivity growth in the agricultural sector; (ii) productivity growth in the nonagricultural sector and; (iii) the terms of trade. Public investment enhances productivity growth in all sectors but when it is financed by foreign inflows, it also causes a real exchange rate appreciation leading to a contraction in the open modern sector. These results provide a partial explanation for recent patterns of growth in Rwanda and elsewhere in Africa where the nontradables or what we call the in-between sector has expanded more rapidly than the tradable sector. Our results also highlight the dilemma faced by poor countries in dire need of public investment with a very limited tax base.
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An economy does not divide into a capitalist sector hiring workers for factories and other large units on the one hand, and a small farming sector on the other hand. In between are units of production of all sizes, and in particular a great number of one-to-five-man undertakings in manufacturing, transport and a wide range of services—often nowadays called the informal sector. Some of this activity belongs in the modern sector as we have defined it; i.e., it will expand with economic development; the rest—e.g., some of the handicrafts and some of the services—belong to the traditional sector in that they will contract.

The expansion of small scale activity in the modern sector is an important part of the development process. This is not because it is a temporary resting-place for migrants from the countryside seeking jobs in large scale enterprise. In LDCs, no less than in MDCs (as we shall see in our next section) jobs in large scale urban enterprises are not normally awarded to people who have no connections. It is rather because this sector of the economy is useful in its own right, meeting genuine market needs, and providing a lot of employment in the process.

[—*Arthur Lewis, "The Dual Economy Revisited*]

1. INTRODUCTION

Africa's recent economic growth has sparked a heated debate over its sources and sustainability. Some argue that growth across the continent is fundamentally a result of a mining boom and rising commodity prices (Lipton, 2012). The underlying tone of this message is that when commodity prices collapse, so too will Africa's growth rates. A more fundamental concern is that Africa's recent growth has not been accompanied by adequate structural change (see, among others, the UN Economic Commission for Africa [2014] and the (African Center for Economic Transformation [2014]). What has been seen as poor prospects for industrialization has led some to argue that we need to manage our expectations about Africa's future growth prospects (Rodrik, 2016a).

In this paper, we argue that Africa's recent growth is not well understood. We do know that the growth has not been driven by labor-intensive large-scale manufacturing in the way it was in many developing Asian countries (McMillan, Rodrik, & Verduzco-Gallo, 2014). But we are equally ignorant about the roles that domestic markets and small- and medium-size enterprises have played in Africa's recent growth. In many Asian countries, large declines in the employment share in agriculture were matched by significant increases in the employment share in labor-intensive and export-oriented manufacturing. Instead, the recent and significant decline in the employment share in agriculture in most African countries has been accompanied by a proliferation of small- and medium-size enterprises in manufacturing, transportation, construction, and a wide range of services (McMillan *et al.*, 2014).

Because such enterprises often operate in the informal sector, they are typically viewed as backward and unproductive and as an employer of last resort (La Porta & Shleifer, 2014; Levy, 2008; Loayza & Rigolini, 2011). In fact, there is a tendency by researchers to lump them all together into what Lewis (1954) described as the traditional sector. But as Lewis (1979) clearly points out, such enterprises exhibit a wide range of heterogeneity with many looking more like modern than traditional-sector firms. Further, he says, these "in-between" enterprises play a very important role in the develop-

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ment process meeting genuine market needs and providing sorely needed employment in the process.

This in-between sector has been growing more rapidly in most African countries than large-scale modern manufacturing (McMillan *et al.*, 2014). Thus, Africa's growth cannot be explained without considering the contribution of such activities. This represents a challenge because counting activity in this sector is difficult; many of the businesses are unregistered and their owners often do not keep accounts. The practical ramifications of these issues are well illustrated by the recent national account rebasing in Nigeria and Ghana. In Nigeria, officials discovered an additional 89% of value-added that was mostly accounted for by small and informal manufacturing and services. A similar exercise was done in Ghana in 2007 and also revealed an additional 60% of gross domestic product (GDP), again, mainly derived from small businesses.

These businesses often produce the same goods and services as those produced in the formal modern sector albeit of a different quality (Rothenberg *et al.*, 2016). Next to the Four Seasons hotel in Tanzania's Serengeti, there are hotels for those on a more modest budget with chairs, beds, food, and drinks all made by local businesses. Meanwhile, practically everything at the Four Seasons is imported (including the customers!) except of course the labor. In a national accounting sense, the productivity of the housekeeper at the Four Seasons will be multiples of the productivity of the housekeeper in the local hotel because the Four Seasons is highly capital intensive and not because the workers are of a different quality nor because they are doing different jobs. There are thousands of local hotels that provide decent jobs whereas there is (so far) only one Four Seasons with a handful of jobs. Thus, as large amounts of labor exit from agriculture, as Filmer and Fox (2014) predict, many of those laborers will end up owning, operating or working for small businesses. The implication is that economic performance across the continent of Africa is likely to be affected by the performance of these small firms.

We already have some evidence pointing to the potential of small firms in the informal sector in Africa. For example, using the 1-2-3 surveys, Grimm, Krüger, and Lay (2011) study the return to capital in SMEs in urban areas in seven West African countries. They find evidence of significant heterogeneity in profitability as well as evidence of under-investment in seemingly profitable activities by small firms. Randomized controlled trials in several countries across continents also provide some evidence to support the view that there are constrained microenterprises that would grow if they had access to capital (De Mel, Suresh, & Woodruff, 2008; Dodlova, Göbel, Grimm, & Lay, 2015; Fafchamps, McKenzie, Quinna, & Woodruff, 2014; Grimm *et al.*, 2011; McKenzie & Woodruff, 2008; McKenzie, 2015]. Perhaps the most relevant to this paper is recent work by Banerjee, Breza, Duflo, and Kinnan (2015) showing the heterogeneous impact of microfinance on borrowers. Specifically, in line with our thinking about the in-between sector, not all small firms have the potential to expand when offered credit. They classify the owners of microenterprises into "gung-ho" and "reluctant" entrepreneurs and show that unlike "reluctant" entrepreneurs, "gung-ho" entrepreneurs benefitted significantly from access to microfinance. Thus, there appears to be a growing body of evidence that supports the idea that whereas some microenterprises belong in the traditional sector as conceptualized by Lewis (1954), many do not.

So, where does this leave us? In our view, the coexistence of "in-between" and large-scale activities within a given sector for producing similar products or services is not a sign of the failure of the development process. Instead, it is an indication of a kind of dualism within the modern sector. When seen this way, it opens our minds to thinking about the development process in a different way. For example, the in-between sector can now be a meaningful part of a growth strategy. As Temple (2005) points out, the central problem policymakers face in developing countries is not simply how to raise growth rates, but rather, which policies will promote *labor-intensive* growth and raise the incomes of the poorest members of society. The in-between sector as conceptualized by Lewis (1979) contributes to this kind of labor-intensive growth.

In this paper, we model an economy that has many of the features of Lewis (1954) but that also includes an in-between sector a la Lewis (1979). We begin with a conceptual framework that includes three sectors—an open modern sector, a closed modern sector including the in-between sector and an agricultural sector. Using this framework, we highlight the importance of structural change in the growth process of developing countries. In a second step, we endogenize structural change and model it as a function of demand-side and supply-side factors to emphasize the interaction between technological progress and structural change.

This analytical work delivers two key results. First, for many African countries where food is primarily locally produced and consumed, productivity growth in the agricultural sector is a pre-condition for structural change. This is not new but it is worth emphasizing given the low levels of agricultural productivity that still prevail in most of Africa. Second, productivity growth in the nonagricultural sector is also a fundamental determinant of structural change. While it is well known that differential productivity growth across sectors is a determinant of structural change, the mechanisms for delivering productivity growth that we focus on in this paper are different and are meant to capture the reality of Africa's economies. In particular, we focus on public investment and the way in which it is financed as a driver of structural change.

We use these results to inform our investigation into the following question: how do Africa's prospects for future growth and structural change depend on public investment that is financed by foreign inflows? We focus on foreign inflows because of the role of foreign inflows in financing public investment and because of public investments role in driving economy-wide productivity growth in low income countries. We perform this analysis using data from Rwanda because Rwanda is characteristic of many of the high-growth countries in Africa whose growth has not been driven by natural resource exports. However, the results are generalizable to a country where foreign inflows come primarily from natural resources. Using a general equilibrium model we simulate two growth scenarios: one based on continued high growth in foreign inflows, and the second based on a substantially lowered growth rate of such inflows.

We find that the composition of economic growth differs significantly depending on the assumptions about foreign inflows. This is because foreign inflows that are used to finance infrastructure investment can also cause real exchange rate appreciation. More investments in infrastructure improve the broad economy's productivity across all sectors, while an appreciation of the real exchange rate makes exortables less competitive. The result is growth that is primarily led by the closed part of the economy in which the in-between sector is dominant. When public investment is less dependent on foreign inflows for financing, the open sector becomes the primary engine of structural change and growth. Although public investment is lower and as a result the productivity growth associated with this investment is lower, because the open sector is significantly more productive than the closed

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