



Editorial

Introduction – Understanding Structural Transformation in Africa

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Summary. — The limitations of neo-classical growth models have led to a resurgence of interest in dual economy models and structural change. Structural change entails the movement of labor from low productivity sectors like agriculture into more modern sectors of the economy. Because the share of the labor force in agriculture is so high in most of Sub-Saharan Africa, the potential for structural change to lead to growth and poverty alleviation in Africa appears to be enormous. Yet, very little of this new literature on structural change focuses on Africa. This special issue begins to fill that gap. The first half of this special issue contains five original contributions that provide new insights with respect to the nature of Africa's growth over the past two decades. The second half contains six original contributions that examine opportunities for structural transformation in Africa.

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1. UNDERSTANDING STRUCTURAL TRANSFORMATION IN AFRICA

Among the earliest and most central insights of the literature on economic development is the fact that development entails structural change. In most poor countries, large numbers of people live in rural areas and devote most of their time to the production of food for home consumption and local markets. By contrast, in richer countries, relatively few people work in agriculture. This is a robust and long recognized feature of the cross-sectional data from different countries (Chenery & Syrquin, 1975). It is also a feature of the historical experience of development in almost all rich countries.

During development, people move out of agriculture into other sectors—typically manufacturing and services. This transformation is accompanied by a set of concomitant effects within agriculture and beyond. Within the agricultural sector, the movement of labor into nonfarm activities and migration to cities implies consolidation of farms and changes in the nature of production. Increasingly, farmers are oriented toward urban markets and commercial opportunities. Outside agriculture, the sectoral movements of people are necessarily accompanied by urbanization and the growth of urban labor markets. Small family-run production units, financed through household savings, give way to larger firms that draw on intermediated sources of capital. Fertility rates fall, and age dependency ratios first rise from a low base, and then eventually fall as the age distribution of the population shifts.

These broad outlines and patterns of structural change were described by Kuznets (1966), among others. Structural transformation appears to be inextricably connected to productivity growth and development. However, the causal relationships are unclear. Do countries diversify because they are growing? Or do they grow because of successful diversification? Does agricultural productivity growth lead the process, or does agricultural productivity rise only when low marginal product labor is pulled out of the sector?

Recently, there has been a resurgence of interest in the study of structural transformation. A useful review of this new literature is provided in a recent paper by Herrendorf, Rogerson, and Valentinyi (2011). This research reflects a growing realization that dual economy models may be more useful than the Solow model for studying growth processes in developing countries (as argued in Temple, 2005). Many of these recent studies aim to quantitate the magnitude of the gap between labor productivity in agriculture and the rest of the economy. For example, using cross-section data from 1996 for several countries, Caselli (2005) comes to the conclusion that three characteristics differentiate poor countries from rich countries. First, poor countries have much lower labor productivity in agriculture than rich countries. Second, they also have lower labor productivity than rich countries in manufacturing and services, though the magnitude of these gaps is not as large as those in agriculture. And finally, a larger share of the workforce in poor countries is concentrated in agriculture—the least productive sector. Arriving at a similar conclusion, albeit for a much smaller sample of only 29 countries that notably does not include any countries from Africa, Duarte and Restuccia (2010) use a calibrated general equilibrium model to show that sectoral differences in labor productivity levels and growth explain broad patterns of structural transformation across countries.

In addition to examining productivity gaps, the recent literature is driven by a desire to understand the connections between different sectors of the economy and the forces that drive the process of structural change through various approaches. For example, modern dual-economy models (e.g., Temple, 2005; Vollrath, 2009) depart from the assumption that sectoral allocations are efficient and consider the possibility that a variety of forces can lead to differing levels of productivity across sectors. Another approach focuses on the dynamics of the structural transformation to show how economic growth is related to changes in the sectoral composition of output. For example, Gollin (2002), Parente (2004), and Rogerson (2007) explore nonhomotheticities in preferences that lead to income-linked changes in consumption

patterns. Still another approach, typified by [Imbs and Wacziarg \(in press\)](#), examines the relationship between a country's sectoral patterns of specialization and its interaction with the world economy.

The question underlying all this literature is why quasi-subsistence agriculture is so pervasive in poor countries, particularly since rural areas seem to be very poor and unproductive relative to urban areas. [Caselli and Coleman \(2005\)](#) and [Restuccia, Yang, and Zhu \(2008\)](#) suggest that barriers and policy distortions can lead to allocative inefficiencies. [Gollin and Rogerson \(2011\)](#) ask specifically whether transportation and transaction costs can explain the prevalence of subsistence agriculture in poor countries. An interesting contribution by [Vollrath \(2011\)](#) suggests that although there are important and statistically significant differences in productivity across sectors in poor countries, the gains from reallocation would be relatively modest. And a recent paper by [Bryan, Chowdhury, and Mobarak \(2012\)](#) suggests that risk aversion and information asymmetries may produce inefficiently low rates of migration from rural areas.

Little of this literature, however, focuses on Africa despite the fact that these questions have a particular relevance for thinking about development in sub-Saharan Africa today. Most of Africa's labor force still works in agriculture: the proportion is as high as 80% in a number of countries. Agriculture also accounts for large fractions of Gross Domestic Product (GDP) in most countries. In recent years, between 15% and 20% of GDP for the sub-Saharan region as a whole has originated in agriculture (see [Figure 1](#)). In a number of countries, agriculture's share of GDP reaches 30–40%. Moreover, the data clearly show that in almost all countries in Africa, agriculture's share of employment is substantially higher than its share of GDP. The direct arithmetic implication is that output per worker in agriculture must be lower than in nonagriculture. Average productivity, in other words, differs markedly across sectors. Very large numbers of Africa's laborers are working in a sector with extremely low levels of relative productivity.

These stylized facts raise immediate sets of questions related to structural transformation in Africa. The first set of questions revolves around a desire to understand the specific characteristics of Africa's structural transformation. Why are so many people employed in a low productivity sector? Are these

numbers evidence of allocative inefficiency? Or do they reflect efficient responses to some set of real constraints? For example, do Africa's rural poor simply have very low levels of human capital and skill, which prevents movement of labor across sectors? Are Africa's migration and urbanization patterns conducive to successful structural change and poverty reduction? And what are the policy implications of these diagnoses? The second set of questions is targeted at understanding specific opportunities for and constraints to structural transformation in Africa. Does Africa have any advantages as a manufacturing base? Can the commercialization of agriculture foster structural change and, if so, what are the constraints on commercial agriculture? What is the role of China in the structural transformation of Africa?

Our goal in this special issue is not to provide definitive answers to all of these questions. Rather, our goal is to bring together a collection of papers that help to shed light on the process of structural transformation in Africa. Research on structural change in Africa has been limited by a lack of reliable data. Thus, the studies in this volume rely primarily on previously unexploited data—much of which was collected for the purposes of this project.

The first half of this issue contains three empirical contributions dedicated to enhancing our understanding of the nature of structural transformation in Africa over the past two decades ([McMillan, Rodrik & Verduzco, 2014](#); [de Brauw, Mueller, & Lee, 2014](#); [Christiansen & Todo, 2014](#)). These papers examine the extent of changes in the composition of output and changes in the nature and location of employment with a view to assessing the implications for growth and poverty reduction. The second half of this special issue contains five contributions that point to important opportunities for and challenges to structural transformation in Africa ([Braitigam & Tang, 2014](#); [Collier & Dercon, 2014](#); [Harrison, Lin, & Xu, 2014](#); [Zhang & Hu, 2014](#); [Dorosh & Thurlow, 2014](#)). These papers provide evidence of a significant potential for growth in Africa's manufacturing sector and the ways in which this growth could be linked to agriculture. They also provide evidence of a role for China and public investment in fostering structural change in Africa.

The remainder of this introduction consists of three sections. The first section provides a brief review of the existing literature on the empirics of structural transformation followed by a description of the contributions of the papers in this volume to that literature. Section two discusses in more detail the roles of manufacturing, agriculture, and the government in Africa's structural transformation. We conclude with a discussion of the lessons learned and the puzzles remaining.

2. RECENT EVIDENCE ON STRUCTURAL TRANSFORMATION IN AFRICA

Empirical studies of structural transformation date back to the 1960s. [Kuznets \(1966\)](#) provided the historical empirics and conceptual framework for modern analysis of the structural transformation, although he used no econometric techniques himself. The first quantitative analyses of patterns in the transformation process were by [Chenery \(1960\)](#) and his collaborators ([Chenery & Syrquin, 1975](#); [Chenery & Taylor, 1968](#)). The first systematic effort to study the evolution of the structural gap between labor productivity in agriculture and the rest of the economy is in [van der Meer and Yamada's \(1990\)](#) analysis of productivity differences in Dutch and Japanese agriculture. More recently, we have seen a resurgence of interest in the

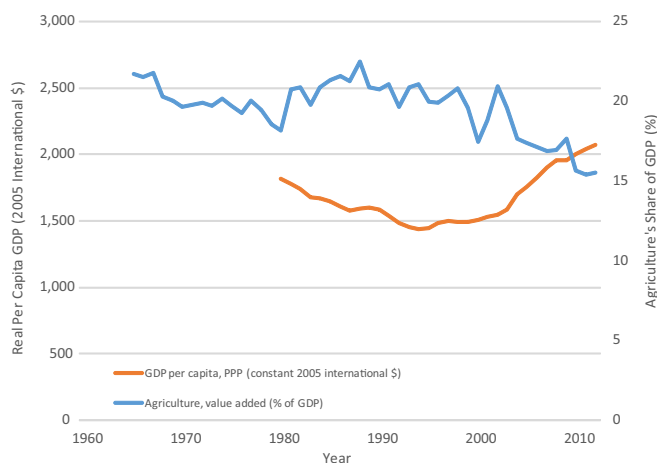


Figure 1. Real per capita GDP and agriculture's share of GDP, Sub-Saharan Africa (1965–2012). Source: World Bank, *World Development Indicators* online. Accessed 17 March 2014.

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