

Contents lists available at [ScienceDirect](#)

World Development

journal homepage: [www.elsevier.com/locate/worlddev](http://www.elsevier.com/locate/worlddev)

## Small firms, structural change and labor productivity growth in Africa: Evidence from Tanzania

Xinshen Diao<sup>a</sup>, Josaphat Kweka<sup>b</sup>, Margaret McMillan<sup>a,c,d,\*</sup>

<sup>a</sup> International Food Policy Research Institute (IFPRI), United States

<sup>b</sup> Economic and Social Research Foundation (ESRF), Tanzania

<sup>c</sup> Tufts University, United States

<sup>d</sup> NBER, United States

### ARTICLE INFO

Article history:  
Available online xxx

Keywords:  
Structural change  
Employment  
Labor productivity  
Tanzania  
Small firms

### ABSTRACT

At roughly 4 percent per annum, labor productivity in Tanzania grew more rapidly between 2002 and 2012 than at any other time in recent history. Roughly 80 percent of this productivity growth is accounted for by structural change as employment shares in agriculture declined while employment shares in services and manufacturing rose. Although employment in the formal sector has increased, the bulk of employment growth is accounted for by firms in the informal sector; these informal firms contributed more than one percentage point to economywide labor productivity growth. However, 94% of this labor productivity growth came from a very small subset of informal firms that belong to the in-between sector – a term meant to capture the idea that some of the firms in the informal sector share characteristics with firms in formal sector. An argument is made for targeting these firms for financial and other business services as a means of generating sustained and inclusive labor productivity growth in Tanzania's manufacturing and services sectors.

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### 1. Introduction

Africa's impressive economic performance over the past two decades has been accompanied by a proliferation of small firms, many of which operate in the informal sector. Researchers at the [African Development Bank \(2013\)](#) estimate that the informal sector accounts for approximately 55 percent of the gross domestic product (GDP) in Africa south of the Sahara and 80 percent of its employment.<sup>1</sup> This finding is potentially alarming because firms in the informal sector are widely viewed as unproductive employers of last resort ([La Porta & Shleifer, 2011, 2014](#)).

Yet, a large body of literature documents significant heterogeneity among small, typically informal firms in developing countries ([Fafchamps, McKenzie, Quinn, & Woodruff, 2014](#); [Grimm, Krüger, & Lay, 2011](#); [McKenzie & Woodruff, 2008](#)). [Schoar \(2010\)](#) argues that unless this heterogeneity is understood, development policies aimed at fostering entrepreneurship are likely to be unsuccessful. Both [Schoar \(2010\)](#) and [La Porta and Shleifer \(2011, 2014\)](#)

argue that the number of entrepreneurs that transition from the informal sector to the formal sector is likely to be small. However, as [Li and Rama \(2015\)](#) point out, not much is known about these firms due to a lack of comprehensive, nationally representative, firm-level data. It follows, then, that the role of small, largely informal firms in the growth and development of poor economies is likely not well known.

The goal of this paper is to contribute to the understanding of the role that small firms play in a rapidly growing, but still poor, African economy. We chose Tanzania for two reasons. First, the government of Tanzania's National Bureau of Statistics makes available on its website most of the data required to estimate the informal sector's contribution to labor productivity and employment growth. Second, the Tanzanian government recently conducted the country's first nationally representative firm-level survey of micro-, small-, and medium-sized enterprises (MSMEs), which allows us to examine labor productivity at the firm level. Although household surveys are often nationally representative and sometimes capture household enterprises, they do not provide an accurate picture of all firm-level activity; the same is true of labor force surveys.

We begin our analysis using national accounts and census data to show that, between 2002 and 2012, Tanzania's economy grew more rapidly than at any other time in recent history. Average annual GDP

\* Corresponding author at: IFPRI and Tufts University, United States.

E-mail address: [Margaret.mcmillan@tufts.edu](mailto:Margaret.mcmillan@tufts.edu) (M. McMillan).

<sup>1</sup> These numbers also include agriculture. In this paper, we focus on the nonagricultural private sector. There is clearly room for modernizing agriculture but that is not the focus of this paper.

growth was 6.5 percent, and average annual labor productivity growth was 4.1 percent. More than three-quarters of this labor productivity growth was accounted for by structural change; the remainder of the growth is largely attributable to within-sector productivity growth in agriculture. The labor productivity growth attributable to structural change is almost entirely explained by a rapid decline in the agricultural employment share and an increase in the nonagricultural private-sector employment share. Combining the information from the census data with information from the Formal Employment and Earnings Survey (FEES), we find that only about 17.7 percent of employment growth in the nonagricultural economy is due to the expansion of the formal sector; the remaining 82.3 percent of nonagricultural employment growth occurred outside the formal sector. The two sectors that contributed most significantly to labor productivity growth were manufacturing and trade services; job creation in these two sectors was dominated by the informal sector, leaving open the possibility that informal firms contributed to economywide labor productivity growth.

Using the MSME survey, we estimate that the value-added of all MSMEs accounted for 32.4 percent of national private nonagricultural GDP in 2010. The relatively high share of nonagricultural employment and low share of nonagricultural GDP accounted for by MSMEs implies that MSMEs are on average relatively unproductive compared to other firms in the nonagricultural sector. This is not surprising and is consistent with new work by [Diao, McMillan, and Rodrik \(2017\)](#) who find that within sector productivity growth in African manufacturing and services has been slow and sometimes negative. This does not mean that these firms have not contributed to labor productivity growth through structural change. They have and this is because even at relatively low levels of productivity they are still more productive on average than agriculture the dominant source of rural employment in Africa. It is however of concern in that without productivity growth in the nonagricultural sector, growth from structural change will eventually peter out.

To determine the extent to which MSMEs could contribute to labor productivity growth in Tanzania's nonagricultural sector, we use Tanzania's first nationally representative survey of micro, small and medium sized enterprises (MSMEs) to explore the productive heterogeneity of MSMEs. We hypothesize that the subset of MSMEs most likely to contribute to future productivity growth are those that are currently highly productive. This hypothesis is supported by the literature on firm level productivity ([Syverson, 2011](#)) which finds the following: (i) significant persistence in firm productivity and; (ii) firm productivity is an accurate predictor of firm survival. We find that around 7 percent of highly productive MSMEs account for almost one-third of the total value-added produced by MSMEs and about 15 percent of MSMEs account for almost half of the value-added created by MSMEs. We explore the extent to which observable characteristics of these firms and their owners predict firm performance relative to the rest of the firms in the MSME sample. We find that businesses whose owners keep written accounts and whose owners keep savings in a formal bank account are more productive. By contrast, measures associated with formality, such as having a tax identification number or being registered with Tanzania's Business Registration and Licensing Agency (BRELA), are not significant predictors of labor productivity.

This exercise serves two purposes. First, using firm characteristics that others have found to be good predictors of firm performance makes it possible to check the reliability of the productivity estimates. For example, it is widely accepted that keeping accounts and electricity use enhance firm-level labor productivity.<sup>2</sup> If electricity use and bookkeeping were not positively

correlated with firm-level labor productivity, then we would have less confidence in our measures of labor productivity. Second, identification of readily observable and salient traits of productive businesses helps us to think about the role for targeting financial and other products at promising businesses. For example, almost all of the firms in our sample report that finance is a serious constraint. This is not that surprising in a country like Tanzania where the cost of borrowing is very high and collateral requirements are often prohibitive. Although it is clearly complex, our work suggests that some businesses may already possess readily observable characteristics such as written accounts that could be used to both lower the cost of borrowing and target lending to the most promising businesses.

The evidence presented in this paper contributes to the small but growing literature on structural change in Africa by demonstrating the role played by the large and growing number of informal businesses in one African country that has experienced rapid labor productivity growth. This work reinforces that of [Schoar \(2010\)](#) and others (for example, [Banerjee, Breza, Duflo, & Kinnan, 2015](#); [McKenzie, 2015](#)), who argue that programs designed to stimulate entrepreneurship in developing countries must consider the heterogeneous nature of small firms and their owners. This argument is supported by research showing that the impact of access to credit on business outcomes depends on borrower attributes ([De Mel, McKenzie, & Woodruff, 2008](#); [Banerjee et al., 2015](#)). This analysis of MSMEs also contributes to a growing body of literature that attempts to identify high-potential firms, or what are commonly referred to as gazelles ([Grimm, Knorringa, & Lay, 2012](#); [Fafchamps and Woodruff, 2016](#)). Our work can be viewed as a complement to and supportive of previous work that had been limited by small sample size and often restricted to one or two locations. Finally, this work contributes to an ongoing effort by senior researchers and policy makers in Tanzania to better understand the nature of the nation's informal economy in order to guide national policy.

The remainder of this paper is organized as follows: Section 2 briefly describes the datasets used for this analysis. Section 3 places Tanzania's MSMEs in the context of the macro economy and estimates their contribution to economywide labor productivity growth. Section 4 explores the correlates of the most productive firms and analyzes their constraints to doing business relative to the rest of the MSMEs. Section 5 explores the extent to which MSMEs might contribute to future labor productivity and employment growth. Section 6 concludes.

## 2. The macro setting: structural change, productivity growth and employment

Before diving into the analysis, a few words are in order about the data and this paper's definition of informality. The value-added data at the national level are drawn from two reports published by the National Bureau of Statistics (NBS, 2014a,b). The statistics in the second NBS report (2014b) reflect the national accounts rebasing using 2007 as the base year; thus, the results in this paper incorporate that rebasing. The total employment figures are also based on two reports published by the NBS based on the 2002 and 2012 censuses, in which employment is reported at the industry level (NBS, 2006, 2014d). Formal-sector employment is based on FEES data (NBS, 2007, 2014c).<sup>3</sup> The measure of employment in the informal sector is computed as the difference between total employment as reported in the census and formal-sector

<sup>2</sup> See for example "2014 World Bank Doing Business Report," ([World Bank, 2013](#)); "The Global Competitiveness Report," ([Schwab, 2013](#)); [Arnold, Mattoo, & Narcisco \(2008\)](#), [Escribano, Guasch, & Pena \(2010\)](#), [Saliola and Seker \(2010\)](#), and [Moyo \(2013\)](#).

<sup>3</sup> The Tanzanian government has conducted the Formal Employment and Earning Survey (FEES) annually and the survey analytic reports titled "Employment and Earning Survey, Analytic Report" are published by NBS of Tanzania in 2001, 2002, 2007, 2011, and 2013. More information about FEES can be found in [online Appendix 2](#) or on the NBS website.

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