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Productivity, shocks, and management practices in Ethiopia and Uganda



In brief

- Ethiopia and Uganda are two land-locked economies dependent on imported inputs for a small but growing manufacturing sector.
- They have contrasting exchange rate regimes affecting the cost of imports in different ways. Ethiopia uses a crawling peg exchange rate regime while Uganda has a floating exchange rate regime.
- Currency fluctuations are associated with the fall in importers in Ethiopia, while in Uganda the number of importers and exporters remains stable and unaffected by such fluctuations.
- In Uganda, the productivity of firms is unaffected by the currency shocks to imports, while the shocks to exports are associated with increases in productivity. In Ethiopia, currency shocks are associated mainly with a fall in the share of importers.
- It is generally accepted that the exchange rate regime in Ethiopia has constrained manufacturing firms. This research quantifies the impact, provides a benchmark in Uganda to measure this against, and suggests the rationing regime has been distortionary.

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Introduction

Developing countries experience different kinds of macroeconomic shocks. Measuring the effect of such macroeconomic shocks on different firm outcomes is important for policy. Furthermore, the effects of shocks under different circumstances and policy regimes can be different. In addition, it is important to understand the microeconomic effects of macroeconomic shocks and their transmission mechanisms. One example of such macroeconomic shocks are exchange rate shocks. Exchange rate shocks can occur due to various international and domestic factors. The effect of these shocks on productivity and other firm level outcomes is important.

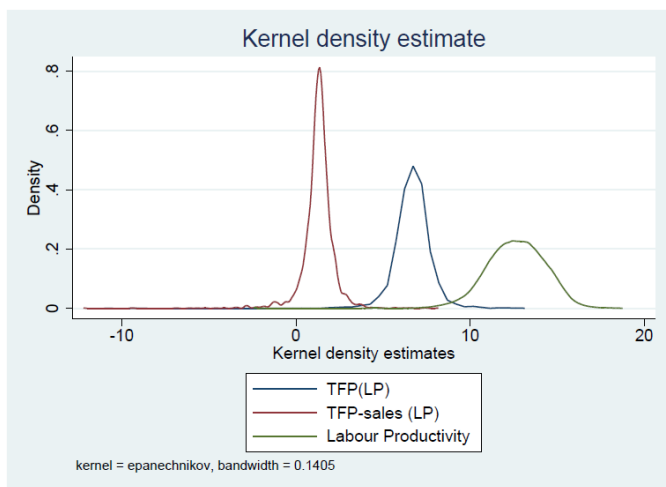
This study contributes to policy by measuring the effect of exchange rate shock on productivity of manufacturing firms under different exchange rate regimes. We do this by comparing the effect of exchange rate shocks on Ethiopian and Ugandan firms. In Ethiopia the exchange rate is quasi-fixed, with a de facto crawling peg exchange rate regime while the Ugandan exchange rate regime is a floating regime. Manufacturing firms respond to exchange rate shocks differently depending on the foreign exchange regime and their management capabilities. We examine the effect of exchange rate shocks on firm outcomes and also examine the role of management practices in Ethiopia where data on these practices was collected for 2017.

In this brief we summarise the policy relevant findings of the study. We discuss the results of the productivity estimation and its dispersion, the findings on managerial practices applying management practices survey similar to Bloom et al. (2018), and the effects of exchange rate shocks on productivity in the two countries.

Productivity

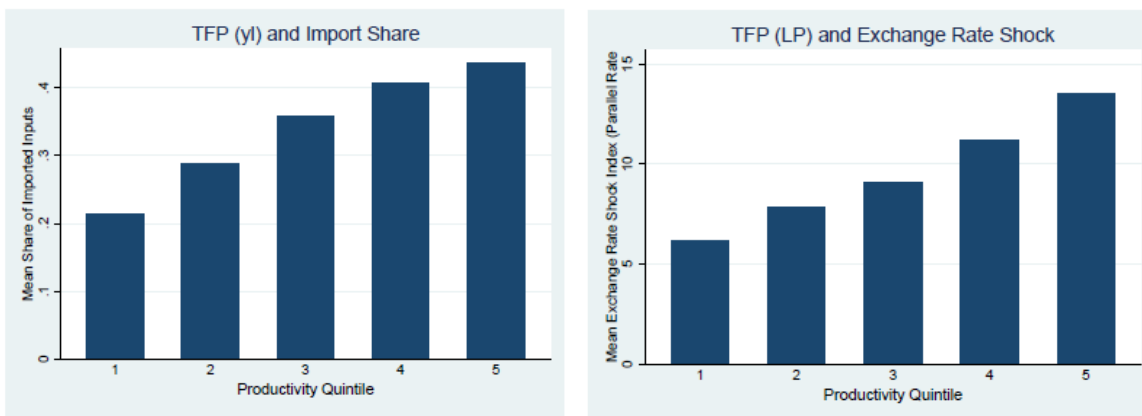
We use both quantity-based and revenue-based measures of total factor productivity (TFP) estimation for Ethiopia using census of large and medium scale manufacturing firms. For Uganda, we only have data on firms from the tax administration. Thus, we are only able to estimate a revenue-based TFP in this case. We also calculate labour productivity for both countries. We compare our estimates of productivity estimation dispersion with other studies. We find similar results of TFP dispersion of the difference between the 90th and 10th percentiles to be a factor of 2. This result is similar to the US benchmark surprisingly: dispersion seems lower than in other developing countries such as India, for instance. Production function estimation also reveals that the marginal productivity of raw materials is large followed by marginal productivity of labour and lower for capital.

Figure 1: Productivity dispersion



The revenue-based TFP has a narrower dispersion compared to the quantity based TFP and labour productivity. We relate productivity estimates with various firm attributes. In Ethiopia, we find that larger firms, better-managed firms, firms with large proportion of imported inputs, and firms with good quality labour have higher TFP and labour productivity. We do not infer any causal relationship between these attributes and productivity. As we are interested in understanding the effect of exchange rate fluctuations on firms the share of imported raw materials is particularly relevant. Firms with a large proportion of imported inputs are more productive in both Ethiopia and Uganda. – but also face a larger incidence of exchange rate shocks as illustrated in Figure 2.

Figure 2: Productivity quintiles and import share and shock



(a) Productivity: yl

(b) Productivity: LP

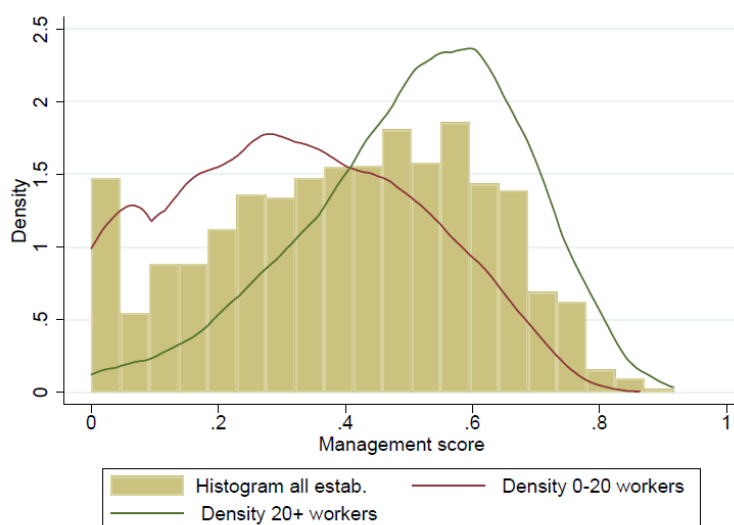
Management practices

We incorporated a management practices module in the Ethiopian large and medium scale manufacturing survey in 2017. The module is similar to the one developed by Bloom et al. (2018) and collected information on human resource management, dealing with bureaucracy, foreign exchange requests among others.

The findings of the management practices survey indicate that;

- Average management scores in Ethiopia are lower (0.5) when compared to that of US firms (0.6) as reported by Bloom et al. (2018).
- Large firms are distinctly better managed compared to small firms as the distribution lies notably to the right.
- Older firms, incorporated firms and state-owned firms are better managed.
- There is little management difference between family and non-family managed firms, in contrast to the picture in other countries.
- Exporters and direct importers are better managed.
- Better managed firms are also more productive.

Figure 3: Management score by size of firms



Source: Large and medium scale manufacturing survey, management module

Exchange rate shocks and productivity

For Ethiopia, we consider two types of foreign-exchange related shocks. One is a self-reported shock where firms reported that they suffered from an operation break or suspension because of shortage of raw materials and/or spare parts. The second shock is constructed from exchange rate fluctuations weighted by the share of the currency of invoicing in trade. The incidence of the shock is measured using transaction level data and the currency of invoicing for direct importers – and attributed to other importers by using the average size of the shock by industry.

Management practices have a strong direct effect on productivity but we do not find evidence that better management helps firms cope with exchange rate shocks. The currency shocks seem to lower the share of firms using imported inputs in Ethiopia but the effects on productivity are noisy over this two-year period. However, in Uganda where we are able to use data from 2010-2016, we find no effect of currency fluctuations on the share of importers or exporters over this period. The effect on productivity of importers is insignificant but exporters appear to have positive shocks to productivity, over this period of a falling exchange rate.

Conclusion

Ethiopia has a crawling peg exchange rate regime with foreign exchange controls while Uganda runs a floating exchange rate regime. We examine the impact of currency fluctuations on firms in both countries. We find that currency shocks lower the share of firms using imported inputs in Ethiopia but these fluctuations do not affect firms using imported inputs in Uganda. We also find that better management practices strongly affect firm productivity in Ethiopia.

It is generally accepted that the exchange rate regime in Ethiopia has constrained manufacturing firms in many ways; this research quantifies the impact, provides a benchmark in Uganda to measure this against and suggests that the rationing regime has been distortionary. It appears to have reduced the share of importers in Ethiopia where currency fluctuations cannot be smoothed away but left similar firms in Uganda unaffected.

References

Bloom, N., E. Brynjolfsson, L. Foster, R. Jarmin, M. Patnaik, I. Saporta-Eksten, and J. Van Reenen (2018), "What drives differences in management practices?", *American Economic Review*.