

Trade liberalisation, infrastructure, and firm performance

Evidence from Ethiopia



In brief

- Starting in 1997, Ethiopia implemented large investments in infrastructure with the road sector development programme. This followed a wave of trade reforms aimed at reducing tariff barriers that occurred between 1996 and 2003.
- This brief analyses the complementarities between trade and infrastructure reforms, asking whether improvements in the quality of roads magnifies the effects of trade liberalisation on firms performance.
- The authors find strong complementarity between the effects of a reduction in input tariffs and road infrastructure, highlighting that trade liberalisation can boost firm productivity only if firms have access to good roads.
- For a majority of observations in the data (67%), a fall in the input tariff is associated with an increase in firm productivity. However, for a majority of towns, a reduction in tariffs would not result in an increase in productivity for firms located there due to lack of road infrastructure.
- The authors provide a series of policy recommendations on how to best reap the rewards of globalisation through improving infrastructure.

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Policy motivation

Trade and infrastructure policies are high on the development agenda. Governments around the developing world have put in large efforts to liberalise trade and invest in infrastructure. According to World Bank estimates, closing the infrastructure quantity and quality gap relative to the best performers in the world could increase growth of GDP per capita by 2.6% per year¹. Yet, while the literature has highlighted trade liberalisation and infrastructure development as effective strategies for economic growth and development, not much is known about the complementarity between the two in generating growth and economic dynamism.

In this brief, we argue that the absence of an efficient infrastructure network can limit gains from globalisation, particularly for remote areas. We hence highlight a specific concern that potential benefits from trade liberalisation may be hampered by regional disparities in connectivity and access to main markets, exacerbating economic inequality, which remains a looming concern for policymakers in most developing countries. This is especially relevant in a landlocked, developing country such as Ethiopia, where intra-national trade costs are significantly higher than in advanced economies (Atkin and Donaldson estimate them to be 4-5 times those in the US²). In addition to this, the case of Ethiopia is particularly relevant from a policy point of view since the country embarked on extensive trade reforms during the nineties by progressively reducing tariff and non-tariff barriers and has recently undertaken an ambitious plan of infrastructure development via the Road Sector Development Programme (RSDP) aimed at improving connectivity throughout the country. Determining if recent improvements in the transport sector undertaken by the Ethiopian government allowed domestic firms, including those in more remote areas, to take advantage of trade liberalisation has important implications for achieving more balanced and equal growth in Ethiopia and for providing useful lessons for other developing countries. Finally, an analysis of the combined effects of trade liberalisation and infrastructure investment can contribute to a better understanding of how a mix of different policies can accelerate economic development.

Findings

Suppose we consider two hypothetical firms, firm *A* and firm *B*, at two ends of the distribution of access to road infrastructure. Suppose that only 30 percent of firms in our data have better access to road infrastructure than firm *A*, while almost 70 percent have better access to road infrastructure than firm *B*. We find that a ten percentage point fall in the input tariff is

1. See: <http://documents.worldbank.org/curated/en/348741492463112162/pdf/114375-REVISED-4-18-PMWB-AfricasPulse-Spring2017-vol15-ENGLISH-FINAL-web.pdf>

2. See: <http://www.nber.org/papers/w21439>

associated with a ten percentage point larger increase in productivity for firm *A* relative to firm *B*. For a majority of cases in our data (67 percent), a fall in the input tariff is associated with an increase in productivity. This is primarily because most firms are located in the few Ethiopian towns with adequate road infrastructure. However, for a majority of towns in our data, due to lack of adequate infrastructure, a reduction in tariffs would not result in an increase in productivity for firms located there. The moderating role of road infrastructure is magnified once we account for what we call a “demand” effect, whereby better demand conditions engendered by greater economic activity in the local region allow higher rents for intermediaries with market power. At the mean value of total production by firms in a town (our proxy for local demand), a ten percentage point fall in the input tariff would be associated with a 19 percentage point larger increase in productivity for firm *A* relative to firm *B*.

Results are robust to an instrumental variables estimation strategy, alternative measures of both productivity and road infrastructure and various cuts of the data. In an extension of the analysis, we show that our results are also robust to controlling for the effects of a reduction in output tariffs (the tariff on the final good produced by the firm) on firm productivity that operate by increasing competition. Moreover, we find a negative and economically significant coefficient on the interaction between the output tariff and road infrastructure, suggesting that a reduction in the output tariff is associated with a larger increase (or smaller decrease) in productivity for firms located in areas with better local infrastructure. This is an additional important finding of our work. Previous literature has found weak effects of a reduction in output tariffs on firm productivity. We show that in the presence of high costs of intra-national trade, the pro-competitive effects of an output tariff reduction are conditional on the quality of local infrastructure.

Policy recommendations

With this project, we provide first evidence on how **domestic infrastructure can shape gains from globalisation**. We show that the effects of trade liberalisation on the performance of manufacturing firms in Ethiopia are conditional on the development of road infrastructure, the latter including the quality of local roads and connectivity to major hubs and the port of Djibouti. Findings confirm the importance of tackling both tariff and non-tariff barriers to get the most from globalisation. But they also imply that gains from globalisation are spread unevenly within the country. The quality of infrastructure for the majority of towns hosting manufacturing firms is not sufficient— according to our analysis — for local firms to exploit gains from tariff reduction.

This has important implications in the Ethiopian context. First, it lends **support to the strategy of expanding special economic zones** (both in industry and in agriculture). Firms (both domestic and foreign) based in such zones largely rely on low trade and infrastructural costs, two among the key conditions to allow firms to participate in global production networks.

Additionally, recent efforts to re-establish the railway connecting Addis to the port of Djibouti that will reduce transport costs even more significantly (travel time will reduce from the current two days by truck to 6-7 hours) are a step in the right direction, as emphasised in our work. Continued investments under the RSDP, particularly targeted at peripheral areas, are important to ensure that firms everywhere in Ethiopia are able to tap into international markets, generating employment and growth uniformly across the country, reducing concerns of raising regional inequalities.

Our study also captures a possible “**unintended effect**” of **infrastructure development**. In an environment where access to goods in local regions depends on intermediaries or transport agents with market power, better road infrastructure, by invigorating local demand, may provide incentives for agents to capture and retain some of the gains from liberalisation. Policies are therefore needed to regulate intermediaries and their market power and support domestic firms by improving trade-related services like clearing goods from the port and transporting them to destination regions within the country.

While the focus of our study is on transport infrastructure, our results point to the **need for improving the quality of other types of infrastructure** such as information and communication technologies (ICT), as well as lowering non-tariff barriers such as transaction costs involved in moving goods from the border to destination regions. Such efforts might be equally relevant to reducing the costs for firms in local regions within the country of accessing international markets. Further research is needed to understand the exact role of these additional factors in ensuring more uniform gains from trade liberalisation.