INDIA'S VAT REFORM BOOSTED TRADE ACROSS STATE BORDERS

New research by **Lucie Gadenne** of the University of Warwick explores how the tax system affects intra-national trade within developing countries. The study, which will be presented at the annual congress of the European Economic Association in Manchester in August 2019, shows how India's major reform of its VAT system in 2017 increased trade between VAT-paying firms across state borders and contributed to making supply chains more integrated among the country's regions.

In most of the developing world, high transport and regulatory costs act as a barrier to firm-to-firm trade, and the economic gains from better integration of supply chains within countries are potentially large. This study investigates to what extent the tax system, and in particular value-added taxes (VAT), contribute to these high trade costs, and what this implies for tax policy.

Intuitively, VAT can affect trade because under a VAT system transactions between two VAT-paying firms are not taxed, but a tax is levied on a transaction between firms that do not pay VAT and firms that do. In a context in which many firms do not pay VAT, this has the potential to put severe limitations on firm-to-firm trade by segmenting supply chains.

Using novel data on 180,000 firms in the state of West Bengal, India, and the universe of transactions between them, the study finds that supply chains are indeed segmented along tax lines: firms that pay VAT are a lot more likely to trade with other VAT-paying firms than firms that don't. This is due to two main factors:

- First, firms that do not pay VAT are reluctant to buy their inputs from VAT-paying suppliers: these firms trade 12% less with large VAT-paying suppliers than they would were they also paying VAT.

- Second, firms that are in supply chains with more VAT-paying suppliers and clients are themselves more likely to pay VAT: the results imply that a firm is 8-10 percentage points more likely to pay VAT if all of its suppliers and clients pay VAT.

These findings have wide-ranging implications for policy. First, they indicate that the tax system affects firms' decisions of whether to trade with other firms, and which other firms to trade with. Tax policy reforms can therefore boost firm-to-firm trade, allowing local firms to reap gains from trade and specialisation and creating conditions for stronger economic growth.

In particular, the results speak to the consequences of India's major reform of its VAT system in 2017, known as the General Sales Tax (GST) reform. Prior to the GST reform (and during the period of study), India's VAT system was organised at the state level and effectively taxed transactions that occurred across state borders even if both firms involved in the transaction paid VAT. The GST reform removed this tax-induced trade distortion, which is very similar to the one we study.

The results imply that removing it will have increased trade between VAT-paying firms across state borders and contributed to making supply chains more integrated across regions in India.

Second, the findings help us understand what determines firms' choice of whether or not to pay VAT, a choice of first-order importance for the tax authorities. They imply that tax compliance policies that induce some firms to pay VAT will have spillover effects on firms in their supply chains, as some of these firms' clients and suppliers will also start paying VAT. This suggests that the tax revenue returns to these policies may well be higher than previously thought, and higher than what can be estimated by looking only at the firms directly targeted by the policy.

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