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Policy Briefing Note

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Key Points

- In common with high income countries, most low and middle income countries (LMICs) do not make traders with turnovers below a certain threshold register for and comply with standard value added tax (VAT) schemes. Depending on the country, these firms may or may not have to pay a different tax, such as a turnover tax, instead. But one thing is common across countries: unlike other firms, those which are not registered for VAT cannot reclaim VAT paid on their input purchases.

- This can lead to distortions to firms' trading decisions and segmentation of supply chains. Firms that are not registered for VAT have an incentive to avoid buying from firms that are as they cannot reclaim the VAT charged. Conversely, firms that *are* registered for VAT have an incentive to buy from other firms that are registered: they cannot deduct purchases from unregistered firms from their turnover when calculating their VAT liabilities.

- These distortions could affect the productivity of supply chains and stymie growth opportunities for unregistered firms. Evidence on the scale of these distortions is limited though as representative data on supply chains is difficult to come by. West Bengal in India, where firms below a turnover threshold can voluntarily register for and pay VAT, or instead pay simplified taxes, does have such data. It also has characteristics common to many LMICs: lots of small traders and a large informal sector.

- We find strong evidence of distortions to firms' trading decisions. Both before and after controlling for firms' location and sector, those registered for VAT are more likely to trade with other VAT-registered firms than those registered for the simplified taxes. And when firms change VAT status, the VAT-status of their trading partners changes as well.

- Increases in the rate of VAT are found to have two significant effects. First, some firms directly affected by the VAT increase switch to the simplified tax scheme, with knock-on effects to their suppliers who are also less likely to be registered for VAT following this. Second, those directly affected firms that remain registered for VAT after the reform sell more to other VAT-registered traders, who can reclaim the higher levels of VAT charged. Finally, directly affected firms seem to grow slower following the VAT increase.

- These findings illustrate that policymakers should be mindful of the supply chain effects of changes to VAT registration thresholds and tax rates and simplified tax schemes for smaller firms. Our ongoing research aims to estimate the productivity impact of the supply chain distortions observed. Further work will also consider whether, and if so how, tax systems should be reformed on account of these supply chain issues.

Introduction

Since it was pioneered by France in the 1950s, the value added tax (VAT) has been adopted by more than 160 countries across the world, including the majority of low and middle income countries (LMICs). The aim of the textbook VAT is to tax final consumption but leave intermediate transactions between VAT-registered firms untaxed in order to avoid distorting production and supply-chain decisions. This is achieved by allowing VAT-registered firms to deduct the VAT paid on inputs to their production.[1]

However, in order to limit administration and compliance costs, most VAT systems incorporate a registration threshold based on turnover, below which firms need not register for VAT. In some countries they are exempt from sales-based taxes altogether, while in others they must pay a simplified tax such as a turnover tax instead. In all instances though, they cannot reclaim any VAT that they may have paid on input purchases. Nor can firms operating in the informal sector. This could push up the effective cost to VAT-registered firms of the goods or services unregistered firms sell.

The opportunity for some (generally smaller) firms to opt out of the VAT can therefore lead to distortions to firms' trading decisions and supply chains. Firms that are not registered for VAT have an incentive to avoid buying from firms that are as they cannot reclaim the VAT charged. Conversely, firms that *are* registered for VAT have an incentive to buy from other firms that are registered: any simplified taxes or VAT embedded in the price of goods or services purchased from unregistered firms cannot be deducted when they are calculating their VAT liability.

These distortions could affect the productivity of supply chains and stymie growth opportunities for unregistered firms. Evidence on the scale of these distortions is limited though as representative data on supply chains is difficult to come by. West Bengal in India, where firms below a turnover threshold can voluntarily register for and pay VAT, or instead pay simplified taxes, does collect such data though via its VAT administration system. It also has characteristics common to many LMICs: lots of small traders and a large informal sector. Its level of GDP per capita (around $5,500 on a purchasing power parity basis) is a little lower than Nigeria, and a little higher than Pakistan and Ghana.[2]

This note summarises ongoing work being undertaken by Lucie Gadenne, Tushar Nandi and Roland Rathelot on the scale and nature of supply chain distortions in West Bengal.[3] Earlier work examined the effects of reforms to West Bengal's simplified tax schemes on revenues.[4]

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[1] See Abramovsky, L., D. Phillips and R. Warwick (2017), 'Redistribution, efficiency and the design of VAT: a review of the theory and evidence', IFS Briefing Note 212, available at: https://www.ifs.org.uk/publications/9350.

[2] Source: authors' calculations and IMF World Economic Outlook Database, October 2017, available at: http://www.imf.org/external/pubs/ft/weo/2017/02/weodata/download.aspx.

[3] This research builds on existing work: De Paula, A.& J. Scheinkman (2010), 'Value-Added Taxes, Chain Effects and Informality', American Economic Journal: Macroeconomics, Vol. 2, No. 4, pp 195-221; and D. Pomeranz (2015), 'No Taxation with Information: Deterrence and Self-Enforcement in the Value Added Tax', American Economic Review, Vol. 105, No. 8, pp 2539-69. .

[4] See Gadenne, L. (2017), 'VAT and simplified tax schemes: preliminary results', IFS Briefing Note 219, available at: https://www.ifs.org.uk/publications/10013.

How does West Bengal's VAT system work?

The analysis underlying this note uses data from 2010 to 2015. In the first year of this period, West Bengal's VAT accounted for 60% of the state's tax revenues and 24% of the state's overall revenues.[5] The state levied different rates of VAT on different goods and services: a medium rate of 4%, a high rate of 14%, and low rates of either 0% or 1% on a few specific items. All firms with a turnover of more than 500,000 Indian Rupees (INR) – roughly £5,500 – were required to register to pay state taxes, but those with a turnover up to 5 million INR – roughly £55,000 – could opt to pay a tax of 0.25% of their turnover, rather than VAT.[6] This was designed to reduce tax administration and compliance costs for smaller firms.

Compared to many LMIC contexts, West Bengal's tax authorities have access to detailed records on the transactions of VAT-registered firms. Firms registered for the turnover scheme only need to report their overall sales and overall input purchases (only the former is used to calculate tax liabilities). But VAT registered firms need to report not only their overall sales and purchases of inputs from VAT-registered firms: they must also provide detail on which turnover tax or VAT-registered firms they transact with and the value of those transactions. This data helps the West Bengali tax authorities enforce the VAT and audit taxpayers. For our purposes, it allows us to estimate the share of firms' sales that go to and purchases that come from VAT registered businesses.[7] This is the key information we use to assess distortions to the trading decisions and supply chains of the 180,000 firms in our data.

Does the system distort firms' trading decisions and supply chains?

Of those 180,000 firms, in 2010–11: 13% were registered for the turnover tax; 54% were registered for VAT even though they could register for the turnover tax; and 33% were above the VAT registration threshold.

The fact so many firms voluntarily register for VAT is a priori surprising given the low turnover tax rate (0.25%). One possible reason for it is that registering for VAT makes them more attractive suppliers for potential VAT clients, and allows them to claim taxes back on their purchases from their own VAT-registered suppliers. Looking at the data on transactions with other firms allows us to test this hypothesis.

Cross-Sectional evidence

Doing this, we find more suggestive evidence that firms are self-selecting in to different tax statuses, and their supply chain decisions may be being distorted:

[5] Marjit, S., J.K. Dwibedi and T. Nandi (2014), 'Evaluation of State Finances', Project Report submitted to the State Finance Commission, Government of West Bengal.

[6] Since 2013-14, firms outside the manufacturing sector with a turnover of between 500,000 and 5 million INR have also been able to opt to pay fixed tax amounts. For further details, see Gadenne (2017), *ibid*.

[7] TAXDEV researchers have access to this data thanks to a collaboration and data sharing agreement with the Office of the Commissioner for Commercial Taxes for West Bengal.

- 25% of the sales of VAT-registered small firms go to other VAT-registered traders, compared to just 1% of firms registered for the turnover tax.

- 52% of the inputs of VAT-registered small firms come from other VAT-registered firms, compared to 36% of inputs for firms registered for the turnover tax.

Part of these 'raw' differences could be driven by what people are selling and where they are located. For instance, firms registered for the turnover tax are often 'downstream' firms selling mostly to final consumers: small retailers and service providers. Controlling for these factors though, we still find a strong link between the VAT status of customers and suppliers and a firm's own VAT status. We also find that there is a correlation between changes in the VAT status of customers and suppliers and changes in a firm's own VAT status, although this effect is weaker in magnitude. Overall though, the analysis suggests there is a significant degree of segregation between markets based on VAT status.

Evidence from an increase in the rate of VAT

To be more confident we are picking up a causal effects rather than just correlations, we can consider what happens when VAT rates are increased.

We would expect a VAT increase to have several effects.

- First, the tax increase makes VAT registered suppliers more expensive for turnover tax clients: firms in the turnover tax would therefore become less willing to buy from VAT registered suppliers when the VAT rate increases.

- Second, we would expect some firms selling goods and services subject to the VAT increase to exit the VAT scheme and enter the turnover tax scheme; complementarities in tax status choice imply that some of their suppliers will also leave the VAT scheme.

- Conversely, some firms buying goods and services subject to the VAT increase might *enter* the VAT scheme so they can reclaim the higher rate of VAT.

Overall an increase in VAT would be expected to lead to both fewer firms paying the VAT and less efficient and more distorted supply chains, increasingly segmented by tax status. Empirical evidence from West Bengal finds support for these theoretical predictions.

In 2013-14, the medium rate of VAT increased from 4% to 5% and the high rate increased from 14% to 15%. In proportionate terms this 1 percentage point increase is a much bigger increase in the medium rate (25%) than in the high rate (7%). We therefore compare what happens to the tax status, input purchases and sales of firms selling goods or services subject to the medium rate to those selling goods or services subject to the high or low rate.

Analysis of the results shows that:

- Firms selling items subject to the increased medium VAT rate see a 1.5 to 2.3 percentage point reduction in the probability of being registered for VAT, switching to the turnover tax instead. This is from a starting point of around 70% of affected small firms being registered for VAT.

- Among those who remain VAT-registered though, there is a small increase in the share of sales to other VAT-registered businesses and a 1 percentage point reduction in the probability of having any sales to firms in the turnover tax scheme.

- The suppliers of firms selling goods facing the increased medium VAT rate sell less to VAT-registered firms overall. This could be explained by a negative impact of the VAT increase on the growth of affected firms.

- The customers of firms selling goods facing the increased medium VAT rate are around 2 percentage points *more* likely to register for VAT. Registering for VAT means that they can claim back the higher rate of VAT charged following the reform.

Next steps: should tax systems be reformed in light of these distortions?

There is therefore clear evidence that the co-existence of a standard VAT scheme and simplified tax schemes in West Bengal is distorting companies' trading decisions and supply chains. The presence of informal firms operating outside of the tax system is likely having similar effects. And similar things could easily be occurring in other LMICs that operate dual tax systems for small firms. This could be adversely affecting productivity and impacting the growth of firms.

The next stage of our work has two main objectives. First, we plan to investigate the likely scale of these productivity and growth impacts. Second, we will consider whether, and if so how, tax policy should be changed in light of the distortions identified. As this is work in progress, we do not have the answers yet. But our analysis does allow us to highlight some of the key trade-offs with different policy options.

Take one potential reform: allowing VAT-registered firms to deduct the cost of turnover taxes paid by turnover-registered suppliers, as well as the cost of VAT paid on purchases from their VAT-registered suppliers. Ghana allows this for its retail and wholesale sector turnover tax, for instance. Doing this should reduce supply chain distortions that in schemes' like West Bengal's discourage VAT-registered firms from trading with firms registered for the turnover tax. However, such a move could entail costs as well. Most obviously the deductions would reduce revenues. But they could also reduce the incentive for firms to voluntarily register for VAT. The threshold where VAT registration becomes compulsory could then become a bigger barrier to firms' growth than currently. Future work will enable us to rigorously compare effects like this so that we can set out potential tax reforms for West Bengal, and characterise what optimal rules around VAT, turnover and other simplified taxes may be in different contexts.