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Using incomplete VAT rebates to promote exports: evidence from China during the global crisis

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Compared to most developed countries, China's value-added tax (VAT) system is not neutral and makes it less advantageous to export a product than to sell it domestically. However, the large and frequent changes to the VAT refunds which are offered to exporters have led China to be accused of providing its firms with an unfair advantage in global trade. We use city-specific export quantity data at the HS6-product level over the 2003-12 period to assess how changes in these VAT rebates have affected Chinese export performance. We find that changes in VAT rebates have significant export repercussions.

INCOMPLETE VAT REBATES AS A SYSTEMATIC FORM OF EXPORT MANAGEMENT

The 2010 Global Trade Alert Report identified China's system of Value Added Tax (VAT) rebates for exporters as **the most important discriminatory state measure in terms of trade** covered during the recent crisis (Global Trade Alert, 2010). The charge may seem surprising insofar as China, contrary to most countries with a VAT system, does not fully rebate the VAT on exports. Instead, exporters may receive VAT rebates that vary across commodities, and range from zero to the full refund of the typical 17% VAT rate. **The Chinese VAT system thus imposes a tax on exporters whose goods receive a VAT refund rate lower than the applicable VAT rate.**

Two features have been highlighted as evidence that this VAT rebate system is nevertheless a systematic form of export management, providing Chinese exporters with an advantage with respect to foreign competitors. First, there is **tremendous variation across goods in the levels of and changes to the VAT rebates.**

Second, **no other country amends its VAT rebates so often**. Over the last decade, export VAT rebate rates have been adjusted frequently, both upwards and downwards. In particular, since the beginning of the global financial crisis in 2008, China has increased VAT rebate rates several times.

It is thus crucial to study the importance of the China's VAT rebate system, which appears to be a major instrument of Chinese industrial policy.

Figure 1 : Evolution of the VAT-rebate share (over VAT rate) 2002-2012

Note : The VAT rebate share is calculated as the simple average over all products

A FLEXIBLE POLICY TOOL

In China, export VAT rebate changes have been carried out frequently to address various economic issues: managing the trade surplus, increasing government revenue or guiding the growth of certain industries. **In the 2000s, growing concerns about energy and environmental problems** have prompted Chinese authorities to attempt to shift China's exports toward more value-added and high-tech products, and away from those generating pollution and consuming large amounts of natural resources. VAT rebates were also manipulated to address looming trade disputes.

The booming of the Chinese trade surplus since 2000 generated worries from its WTO trade partners. In order to keep its trade surplus under control, China profoundly modified its export VAT rebates system in 2007: these adjustments were designed to substantially reduce the VAT refund rate. More recently, the global economic crisis induced the authorities to raise the export VAT refund rates on thousands of commodities, while continuing to promote technological upgrading. However, the adjustments also benefited labor-intensive goods, and VAT rebates were also raised for some steel products and other final products of energy-intensive sectors (HKTDC, 2009).

The logic of the rebate system is simple. Products that the government wants to deter would get a reduced VAT rebate, while the VAT rebate would rise for products the government wants to encourage.

According to Circular No.7 (2002), the total amount of tax burden a firm bears for its exports, assuming it does not sell domestically is the export value times the unrebated VAT rate (VAT rate minus the VAT rebate). **The official formula used to calculate VAT payable** for general trade and processing exports with purchased imported materials is as follows:

$$\text{VAT payable} = \underbrace{(\text{domestic sales} \times \text{VAT rate})}_{\text{output VAT}} - \underbrace{(\text{inputs} \times \text{VAT rate})}_{\text{input VAT}}$$

$$+ \underbrace{(\text{Exports} - \text{BIM}) \times (\text{VAT rate} - \text{VAT rebate rate})}_{\text{VAT export tax}}$$

As theoretically underlined by Feldstein and Krugman (1990), incomplete export VAT rebates amount to export taxes and lead to lower exports. The immediate effect of a VAT rebate cut, if it is not passed through to prices, is a fall in exporters' profits. This may encourage manufacturers to change their mix of production and reorient their sales domestically. If exporters pass rebate cuts through to prices then foreign importers might consider alternative sources of supply. Both of these responses lead to lower export production. A contrario, exports are expected to rise following an increase in the VAT refund rate.

A TRIPLE DIFFERENCE APPROACH USING AN ELIGIBILITY RULE

The few studies that investigate the impact of VAT rebates in China rely on aggregate data and look at average rebates. In Gourdon et al. (2014), **we depart from this analysis as we directly link the rebate at a very detailed product level (HS6)** to corresponding Chinese exports and study the effect of VAT rebates on export performance for an extended period of ten years.

Moreover, we build on recent efforts to address the problem of omitted variables which has traditionally hindered the evaluation of the impact of trade policies on export performance. It is indeed likely that the timing and scope changes in the refund rate are correlated with various broader economic variables, such as worldwide economic conditions and product characteristics, as well as other industrial policies which likely affect export performance. **Chinese authorities may have simultaneously increased VAT rebates and implemented other trade-promotion measures**. We then risk over-estimating the positive export effects of VAT refunds. Another problem comes from reverse causality: export VAT rebate rates may increase to boost the exports of poorer-performing products or, on the contrary, of those commodities with greater export-growth potential. In both cases we have endogeneity.

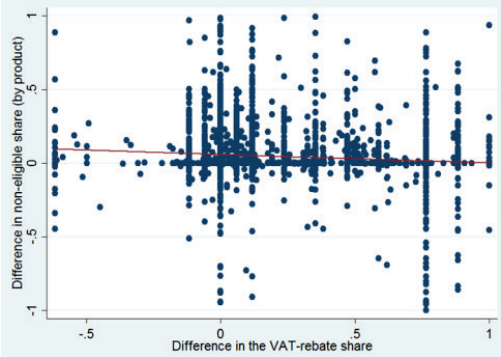
Our main strategy to counter endogeneity exploits variations in the expected impact of the VAT rebates by trade regime, which comes from an eligibility rule disqualifying processing trade with supplied materials from the rebates. The typical export VAT policy is that of "exempt, credit, and refund" (or "refund after collection"). By contrast, the "no collection and no refund" policy applies to processing trade with supplied inputs. In this type of trade, the firm undertakes processing or assembly work on materials it does not own. Even if the exporter pays VAT on local purchases, there is no entitlement to any export refund.

We thus expect VAT rebates to only have an effect on eligible export activities (ordinary and processing trade with imported materials). We use HS6-product level export data for a panel of Chinese cities and isolate the causal effect of the VAT rebates using a triple difference estimate. We compare the difference in export quantity growth between eligible and non-eligible transactions of products for which the rebate grew sharply to that of products where it grew more slowly. This strategy will be a good one only if the VAT rebate policy does not affect the trade form chosen by firms, i.e. if a cut in the VAT rebate for a given product does not lead firms to switch from eligible to non-eligible trade.

Several arguments and evidence from our data suggest that this assumption is valid.

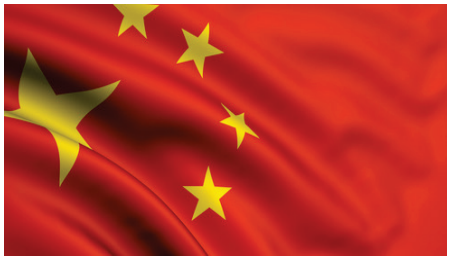
First, a recent and growing literature has underlined the specific motives behind the ineligible regime of processing trade with supplied materials in China, which are unrelated to the VAT rebate system. Manova and Yu (2012) show for example that the regime type of trade chosen by companies is driven by the importance of financial constraints. Consistent with this argument, Figure 2 plots for every product the change in the VAT rebate between 2002 and 2012 against the change in the share of non-eligible exports. It suggests that there is little correlation between the evolution of rebates and the trade form chosen by exporters.

Figure 2 : Change in VAT-rebate share and share of non-eligible exports (product) between 2002 and 2012



Note : The share of non-eligible exports is the export value share of processing trade with supplied inputs

RESULTS SUGGEST HIGH EFFICIENCY OF THE REBATE POLICY



Our results support the theoretical prediction that the VAT system with incomplete rebates for exports reduces trade quantities. We find a negative and significant effect of non-rebated VAT only when exports are eligible. Our benchmark estimate suggests that **a one percentage-point rise in the VAT rebate will lead to a 6.5% increase in eligible export quantities with respect to non-eligible trade**. This change in export quantities is the same in the case of a fall in the VAT rebate. We check that our results are robust to various measures of the VAT rebate policy and subsamples and we control for the possibility that products are misclassified in order to avoid higher rates (Ferrantino et al., 2012; Fisman and Wei, 2004).

We find no evidence of an impact of VAT rebate changes on the pricing strategy of exporters. This suggests that the massive rise in Chinese VAT rebates in 2008 helped to maintain the profitability of domestic exporters amid declining world prices, and resulted in greater Chinese export quantity and value.

The lack of a significant link between VAT rebates and non-eligible exports is consistent with the recent literature which finds that the choice between trade forms relates to a variety of intrinsic factors such as the extent of financial constraints, which are independent of any VAT rebate policy (Manova and Yu, 2012).

Overall, **our results yield a better understanding of the strong resistance of Chinese exports during the global recession**, in which export rebates increased substantially. They also suggest that the adoption of a full VAT rebate system, as in many Western countries, would potentially increase Chinese exports by 40%. If we consider the full VAT rebate system to be “normal", then this impressive figure represents a challenge to the accusation of unfair export subsidies in China.

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