

# Exporters, VAT Refunds, and Tax Compliance

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## What is a VAT refund?

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- Destination-based VAT → exports are zero-rated
  - Face 0% VAT rate when sold, but still claim input tax credit
- Some goods are zero-rated also when sold domestically
  - E.g. some fuels are zero-rated in RSA, subject to separate excise tax
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  - Think immediate expensing in CIT

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- ➡ **Cannot have a VAT system without refunds!**

# Why Care About VAT Refunds?

- How should tax administrations administer refunds?



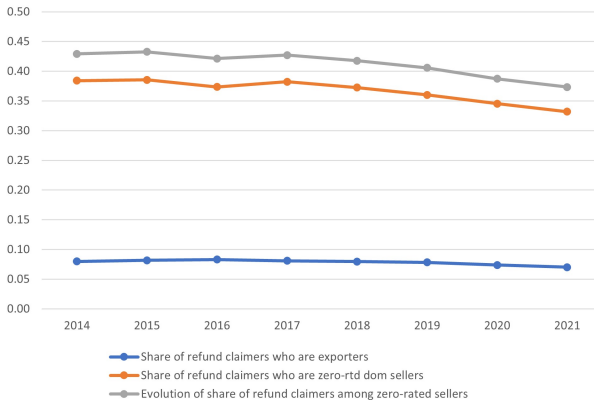
- Why South Africa?
  - Effect of delays likely exacerbated by credit constraints
  - No mandatory carry-forward
  - South Africa has particularly high refunds
    - Cross-country graph
    - Sizeable zero-rated production
    - Harrison-Krelove methodology

## Research question

**How do delays in VAT refunds  
impact firm behavior?**

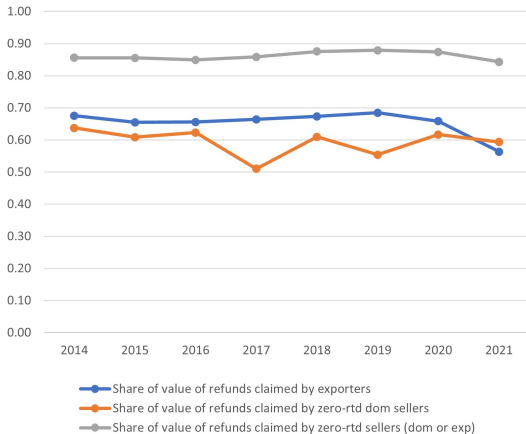
# A few exporters...

## Evolution of share of refund claimers among zero-rated sellers



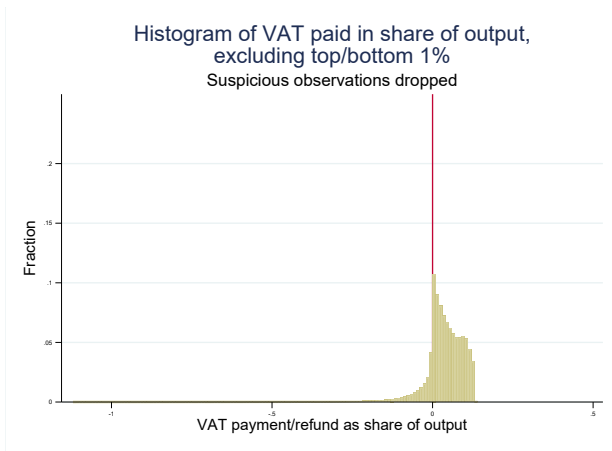
# ...ask big refunds.

## Evolution of refunds value shares for zero-rated firms





# Firms avoid claiming refunds...



▶ Exclude exact zeros

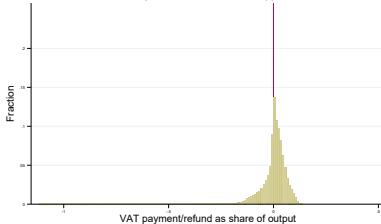
▶ Unscaled VAT payment/refund

▶ Exclude firms w/ zero-rtd sales

...unless they are expected to.

Histogram of VAT paid in share of output  
of exporters, excluding top/bottom 1%

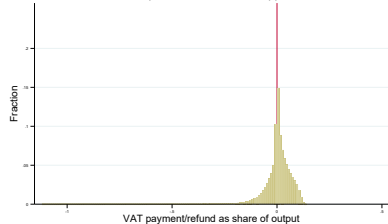
Suspicious observations dropped



▶ Unscaled VAT payment/refund (exporters)

Histogram of VAT paid in share of output of zero rated  
domestic sellers, excluding top/bottom 1%

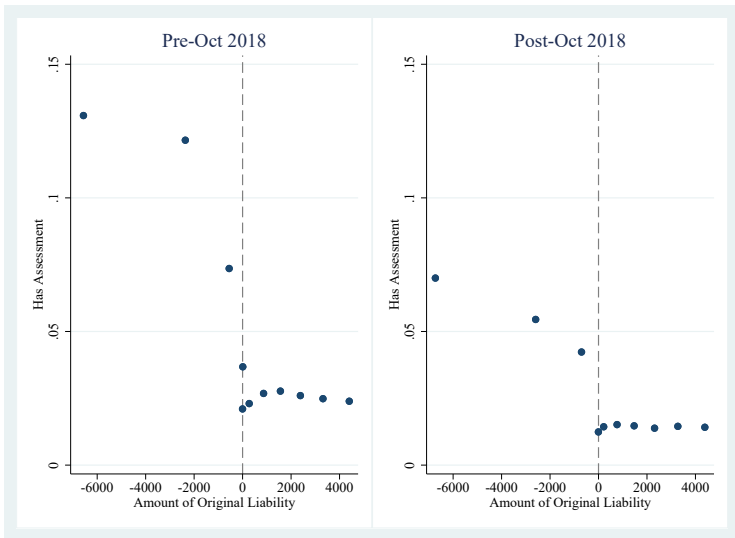
Suspicious observations dropped



▶ Unscaled VAT payment/refund (domestic)

▶ Firms with capital expenditures still bunch

# Why is There Bunching?



## Not-So-Causal Evidence

- Can look at firms after they experience a long delay

$$Y_{it} = \beta \mathbb{1}[\text{Waited for Long Time}] + \alpha_j + \gamma_t + \delta X_{it} + \epsilon_{it},$$

- $\mathbb{1}[\text{Waited for Long Time}] = 1$  iff ever experienced delay in upper quartile of dist'n
- $\alpha_j, \gamma_t$ : firm and year FE
- $X_{it}$  other firm observables

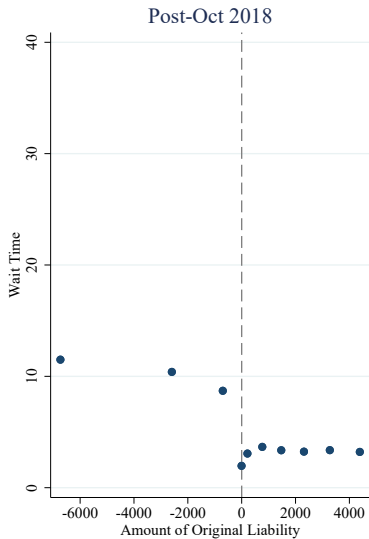
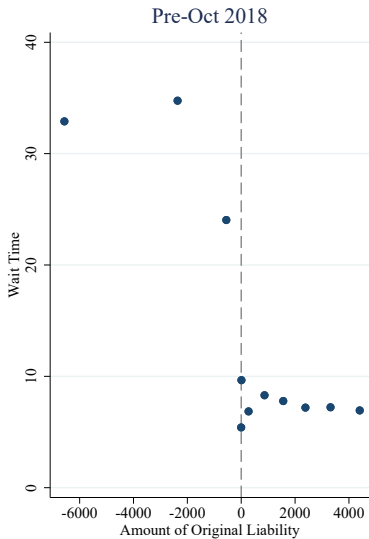
# Compelling Correlations

	(1)	(2)	(3)	(4)	(5)	(6)
	Submits refund	Submits refund	Frac. CapEx	Frac. CapEx	Net VAT Liability	Net VAT Liability
Waited Long for Refund = 1	-0.081*** (0.0005)	-0.098*** (0.0015)	-0.033*** (0.0004)	-0.036*** (0.0011)	76,812.64*** (18,389.1)	131,554.7*** (25,936.72)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Age Dummies	No	Yes	No	Yes	No	Yes
Growth-quartile dummies	No	Yes	No	Yes	No	Yes
Size-quartile dummies	No	Yes	No	Yes	No	Yes
Exclude Frac. CapEx Outliers	No	No	Yes	Yes	No	No
<i>N</i>	7,107,711	1,255,767	5,845,963	1,233,418	7,107,711	1,255,767
<i>R</i> <sup>2</sup>	0.5025	0.5795	0.4463	0.4821	0.7729	0.6342

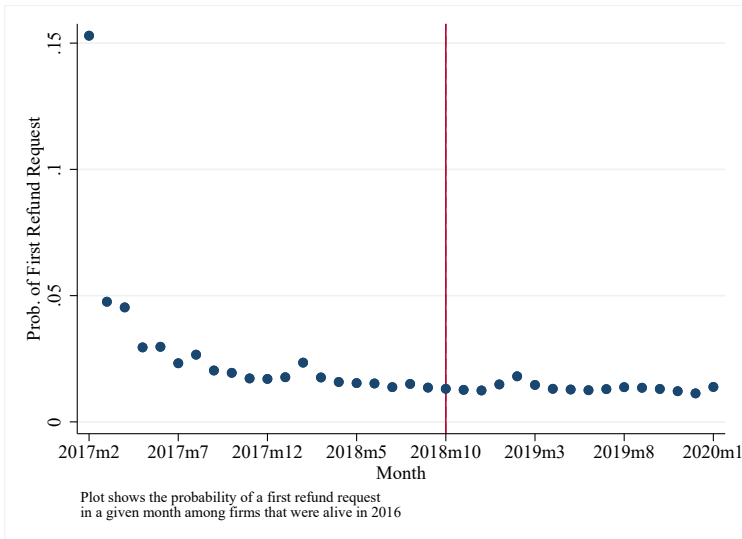
Standard errors in parentheses. (\*):  $p < 0.10$ ; (\*\*):  $p < 0.05$ ; (\*\*\*):  $p < 0.01$ .

**Table:** Regressions of several outcomes on a dummy for whether a firm experienced longer-than-usual (more than 25th percentile within year) delays between `dateprocess` and `datetransaction` in some *previous* year.

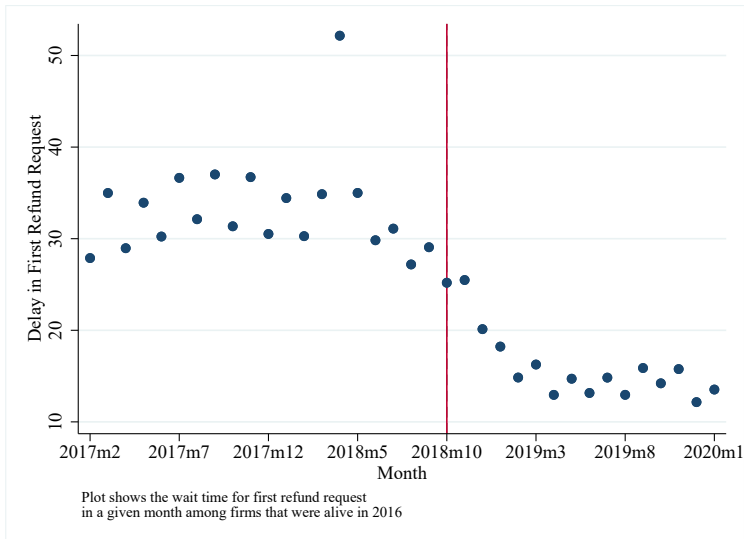
# Next Steps: Causal Identification



# Strategy: First-Time Requesters



# Waiting time for first refund requests





## Conclusion

- Value of refunds dominated by zero-rated sellers, but many refund claimers have no zero-rated sales
- Strong bunching among non-zero-rated sellers suggests sizeable behavioral response
- Preliminary evidence shows waiting long for a refund decreases investments but decreases the likelihood of claiming a refund in the future and increases net VAT liability
- Future work will focus on a causal estimation strategy around October 2018 change in leadership

# THANK YOU!

Please contact us if you have questions or comments:

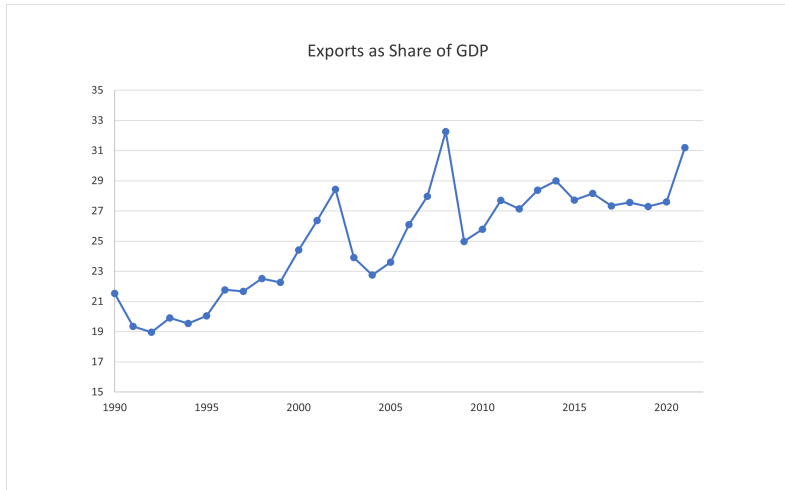
**giacomo.brusco@uni-tuebingen.de**

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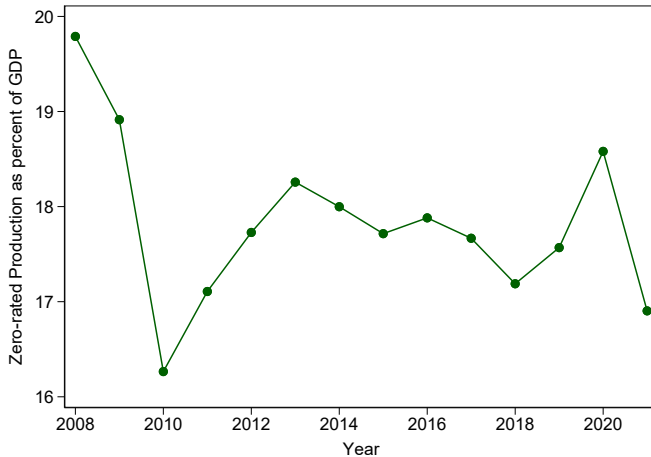
**tvelayud@uci.edu**



# Exports as a share of GDP



# Zero-rated production as a share of GDP



## Harrison and Krelove Formula

IMF provides a simple formula that formalizes the above-described reasons why refunds arise. Refunds as a share of gross VAT collection ( $R$ ) is given by:

$$R = \frac{\alpha I + \beta(1 - \lambda)Z}{\tilde{\epsilon}}$$

where  $I$  and  $Z$  denote the share of capital investment and zero-rated sales, respectively, in GDP. These shares are scaled by parameters that capture how a dollar more of investment or zero-rated sales translate to dollars of refunds ( $\alpha$  and  $\beta(1 - \lambda)$ ). The share of value added in the export and zero-rated domestic sales sectors are given by  $\lambda$ . The share of zero-rated goods sellers who also have non-zero-rated sales is given by  $\beta$ .  $\tilde{\epsilon}$  is a term proportional to VAT efficiency.

## Harrison and Krelove Formula

In South Africa, we calculate these parameters as:

$$\alpha = 0.5$$

- Half of all investment (by value) generates excess credits. As we will see, this comes from some very large investments.

$$\beta = 0.3$$

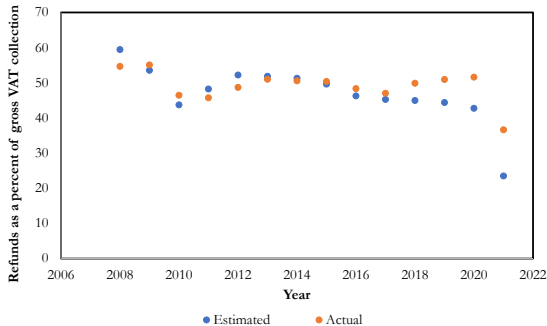
- This implies a very large share of exporters and zero-rated domestic goods-sellers also make non-zero rated sales. To what extent is this influenced by refund policy?

$$\lambda = 0.7$$

- Exporters and zero-rated sellers have high value-added.

$$\tilde{\epsilon} = 0.003$$

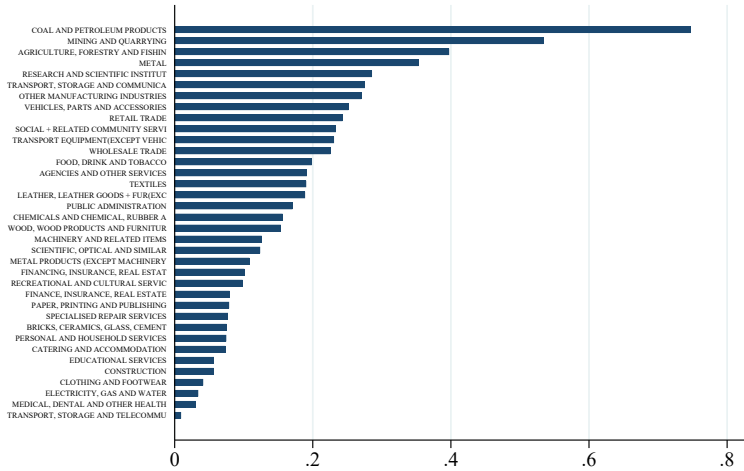
# Estimated and Actual Refunds as Share of Gross VAT Collection





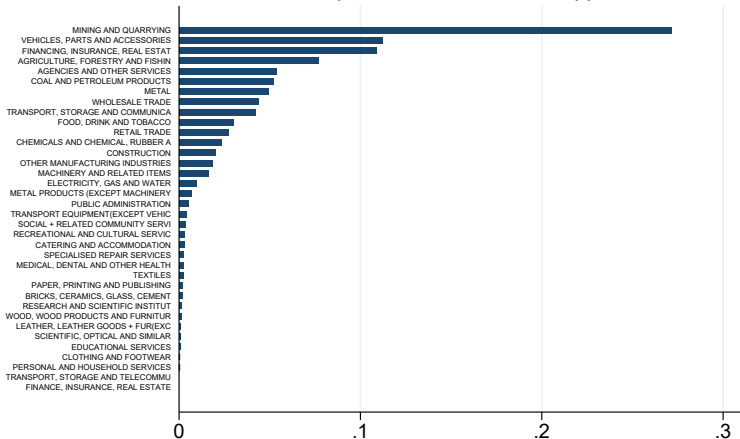
# Sectors with zero-rated sales

Total zero-rated sales (domestic or exported) over total output, by sector



# Sectors with the biggest refunds

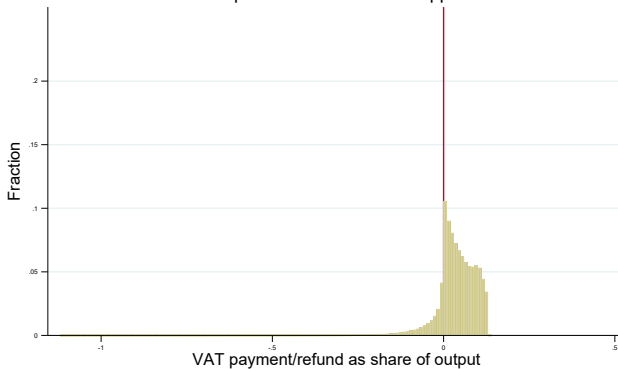
Total refunds by sector, in proportion to overall total refunds  
Suspicious observations dropped



# Exclude exact zeros

Histogram of VAT paid in share of output,  
excluding exact zeros and top/bottom 1%

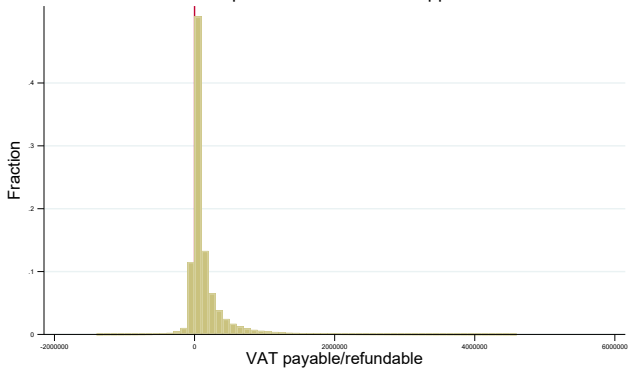
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# Unscaled VAT payment/refund

Histogram of VAT payable/refundable firms with no zero-rated sales, excluding top/bottom 1%

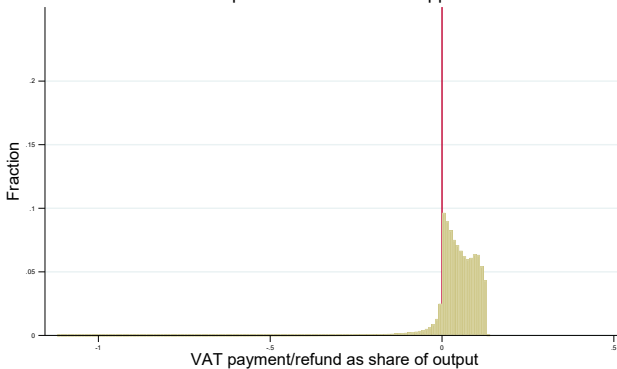
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# Exclude zero-rated sellers

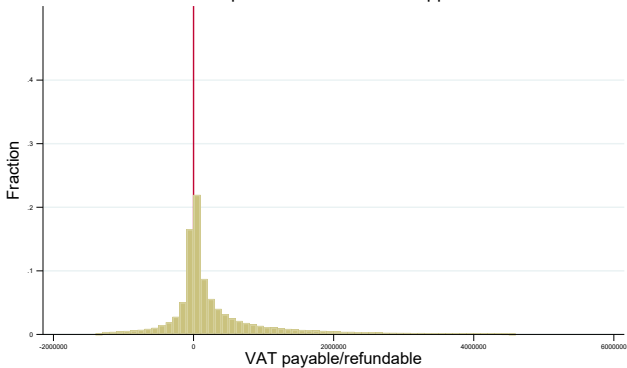
Histogram of VAT paid in share of output of firms with no zero-rated sales, excluding top/bottom 1%

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# Unscaled VAT payment/refund (exporters)

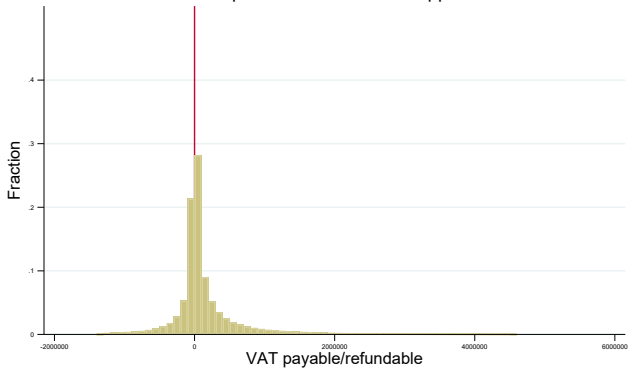
Histogram of VAT payable/refundable  
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# Unscaled VAT payment/refund (zero-rtd. dom. sellers)

Histogram of VAT payable/refundable of zero rated domestic sellers, excluding top/bottom 1%

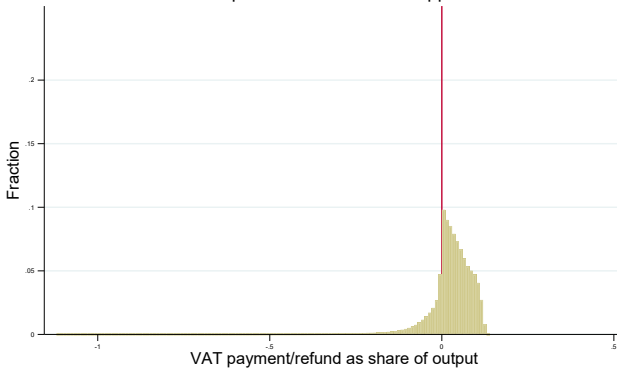
Suspicious observations dropped



# Effect on Investment?

Histogram of VAT paid in share of output of firms with any capital expenditure, excluding top/bottom 1%

Suspicious observations dropped



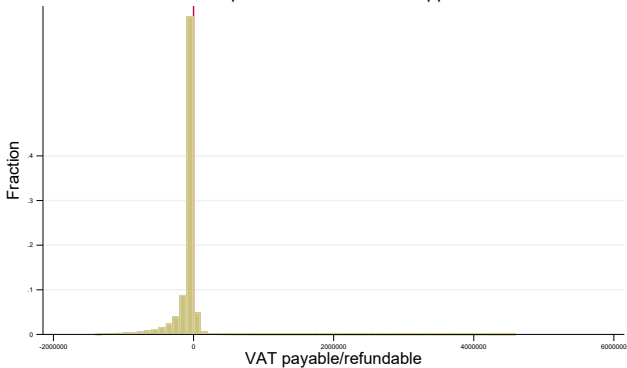
► Unscaled VAT payment/refund



# Unscaled VAT payment/refund (capital purchasers)

Histogram of VAT payable/refundable firms with any capital expenditures, excluding top/bottom 1%

Suspicious observations dropped



# Effects of Waiting in the Future

	(1)	(2)	(3)	(4)	(5)	(6)
	Submits refund	Submits refund	Frac. CapEx	Frac. CapEx	Net VAT Liability	Net VAT Liability
Will Wait Long for Refund = 1	0.042*** (0.0004)	0.008*** (0.0014)	0.0105*** (0.0003)	0.003*** (0.001)	54,213.97*** (13,783.23)	22,386.08 (24,505.19)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Age Dummies	No	Yes	No	Yes	No	Yes
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