Exporters, VAT Refunds, and Tax Compliance

Giacomo Brusco  Marlies Piek  Teju Velayudhan
University of Tübingen and RSIT
UNU-WIDER
University of California, Irvine

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What is a VAT refund?

Whenever input tax credit exceeds tax liability on output, this results in a **refund**: taxpayer is owed money from gov’t.
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

- High growth → large capital purchases
  - Think immediate expensing in CIT
What is a VAT refund?

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**Cannot have a VAT system without refunds!**
Why Care About VAT Refunds?

- How should tax administrations administer refunds?

  - Automatically pay refund
  - Firms evade

  - Never pay refund
  - VAT design impaired

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-Krelow methodology
Research question

How do delays in VAT refunds impact firm behavior?
A few exporters...
...ask big refunds.

Evolution of refunds value shares for zero-rated firms

- Blue: Share of value of refunds claimed by exporters
- Orange: Share of value of refunds claimed by zero-rtd dom sellers
- Gray: Share of value of refunds claimed by zero-rtd sellers (dom or exp)
Firms avoid claiming refunds...

Histogram of VAT paid in share of output, excluding top/bottom 1%
Suspicious observations dropped

Include 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

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

► Unscaled VAT payment/refund (exporters)

► Unscaled VAT payment/refund (domestic)

► Firms with capital expenditures still bunch
Why is There Bunching?

Pre-Oct 2018

Post-Oct 2018
Not-So-Causal Evidence

- Can look at firms after they experience a long delay

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

- \( \mathbb{1}[\text{Waited for Long Time}] = 1 \) iff ever experienced delay in upper quartile of dist’n
- \( \alpha_i, \gamma_t \): firm and year FE
- \( X_{it} \) other firm observables
## Compelling Correlations

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<tr>
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<tbody>
<tr>
<td></td>
<td>Submits refund</td>
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<td>Frac. CapEx</td>
<td>Frac. CapEx</td>
<td>Net VAT Liability</td>
<td>Net VAT Liability</td>
</tr>
<tr>
<td>Waited Long for Refund $= 1$</td>
<td>$-0.081^{***}$</td>
<td>$-0.098^{***}$</td>
<td>$-0.033^{***}$</td>
<td>$-0.036^{***}$</td>
<td>$76,812.64^{***}$</td>
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<td>$N$</td>
<td>7,107,711</td>
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<td>1,233,418</td>
<td>7,107,711</td>
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<tr>
<td>$R^2$</td>
<td>0.5025</td>
<td>0.5795</td>
<td>0.4463</td>
<td>0.4821</td>
<td>0.7729</td>
<td>0.6342</td>
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</tbody>
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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.

[Forward-looking regs]
Next Steps: Causal Identification

Pre-Oct 2018

Post-Oct 2018
Strategy: First-Time Requesters

Plot shows the probability of a first refund request in a given month among firms that were alive in 2016.
Waiting time for first refund requests

Plot shows the wait time for first refund request in a given month among firms that were alive in 2016.
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
piek@wider.unu.edu
tvelayud@uci.edu
South Africa has a high level of refunds in VAT collection.

Source: Author’s calculations based on data from IMF-RA Fit and UNU-WIDER Government Revenue Database in 2018.
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.
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.

\( \tilde{e} = 0.003 \)
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%

Suspicious observations dropped
Unscaled VAT payment/refund

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

Suspicious observations dropped
Exclude zero-rated sellers

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

Suspicious observations dropped

VAT payment/refund as share of output

Fraction

VAT payment/refund as share of output
Unscaled VAT payment/refund (exporters)

Histogram of VAT payable/refundable of exporters, excluding top/bottom 1% Suspicious observations dropped
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
Histogram of VAT payable/refundable firms with any capital expenditures, excluding top/bottom 1% Suspicious observations dropped
# Effects of Waiting in the Future

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<td>0.0105***</td>
<td>0.003***</td>
<td>54,213.97***</td>
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