

# ASSESSING THE IMPACT OF THE WITHHOLDING VAT INTERVENTION IN ZAMBIA

## ANALYSIS USING THE DIFFERENCE-IN-DIFFERENCES METHOD



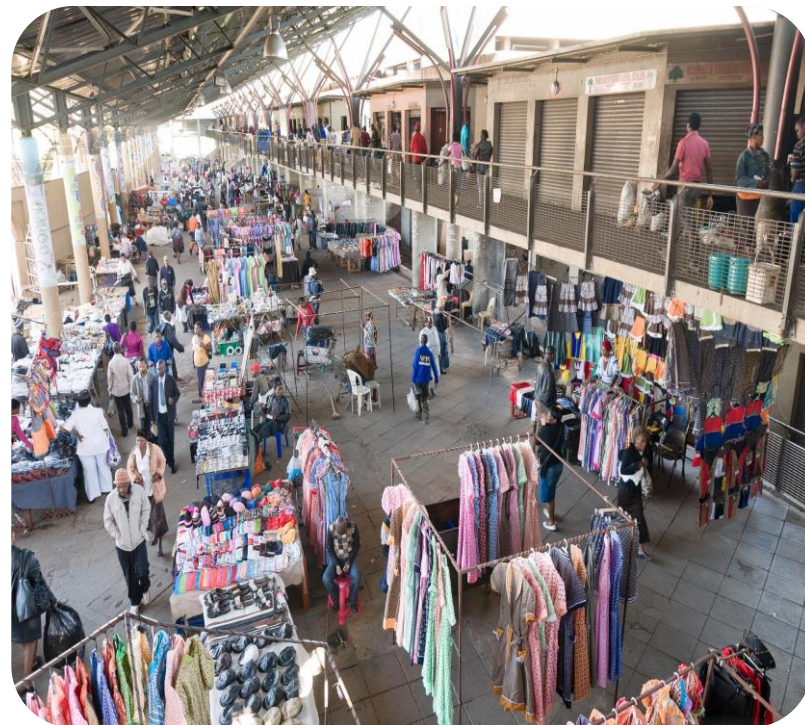
# Outline

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# Background

- Developing economies are generally characterized by **low tax compliance** mainly due to:
  - 1) Large informality & cash-based transactions.
  - 2) Poor book-keeping.
  - 3) Limited ICT systems and interoperability.
  - 4) Limited expertise to uncover sophisticated tax avoidance schemes
- Withholding mechanisms, through third-parties, have become common in developing countries to address low tax compliance.



# Withholding VAT in Zambia



- **Challenges** - Key challenges observed in Zambia's VAT system were:

1. Low return filing (reporting) and payment compliance.
2. Limited self-enforcement mechanism.
3. Under and mis-reporting.
4. Narrowing gap between refund claims and gross collections.



- **Solution** - As part of the cure, Zambia introduced the withholding VAT (WVAT) in 2017.

- ❖ An appointed WVAT agent withholds **100%** of VAT on payments made to a supplier of goods and services, and remits it to the Zambia Revenue Authority (ZRA).

# Questions Answered and Method

- i. What is the impact of the WVAT Mechanism on firm behaviour in Zambia?
- ii. What is the impact of WVAT on reported VAT revenues?
- iii. What is the effect of WVAT based on registered supplier's location and economic sector?

- Used the Difference-in Differences (DiD) approach: Empirically analyses the behaviour of two different groups (treatment and control) before and after the intervention.

**i. Treatment group** firms who had their VAT withheld by WVAT agents

**ii. Control group** similar firms who never had their VAT withheld during the study period.

- The variables of interest: reported *Sales*, *Purchases*, *Value-Added*, and *Output VAT*.
- The study utilized administrative data of monthly VAT returns covering 2014 to 2020.
- Analysed behaviour of firms that are not WVAT agents themselves.



# Data

- The study utilized administrative data of monthly VAT returns covering 2014 to 2020;
  1. VAT returns for the period 2014 to 2020 – **13,309 unique firms**
  2. firm-level WVAT data from 2017 to 2020 – **4,559 unique firms.**
- The treatment sample, restricted to only suppliers who interact with WVAT agents, consisted 4,488 firms.
- Control group consisted of 9,203 firms.
- Total of 53,482 VAT filings and withholdings, by 13,692 unique VAT registered firms.



# Descriptives: Filings by Sector & Charge Year

- Almost half (43.7%) of the filings were by the Wholesale and Retail Trade sector

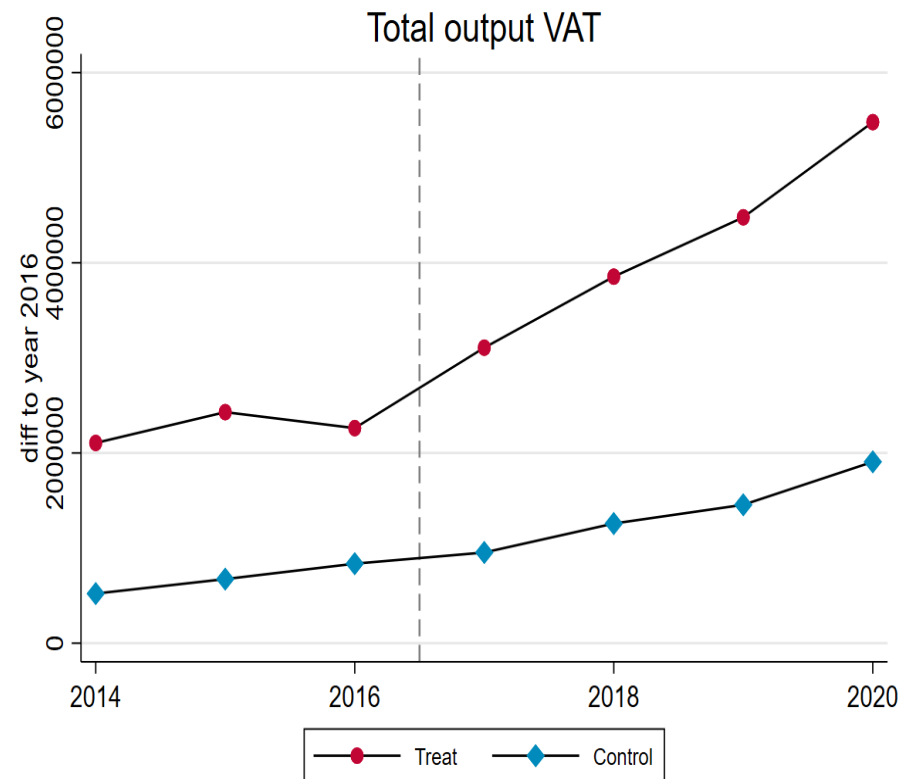
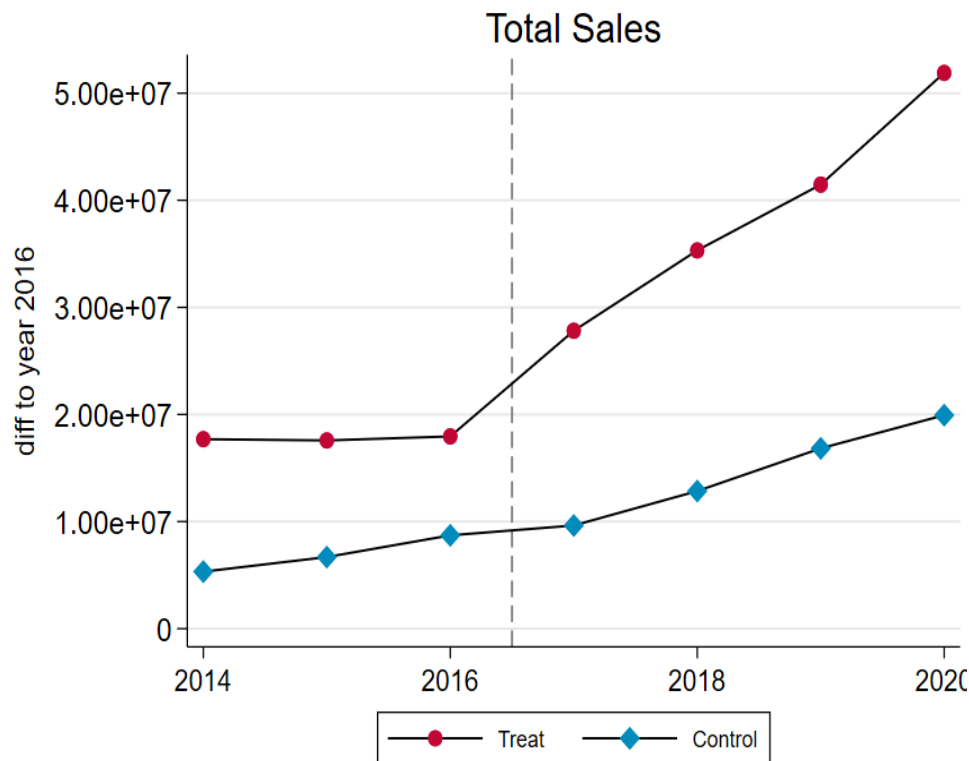
Sector	Control %	Treated %	Total	%		
Wholesale and retail trade; repair	12,833	40.94	9,738	47.87	22,571	43.7%
Manufacturing	3,019	9.63	1,933	9.5	4,952	9.6%
Construction	2,678	8.54	1,449	7.12	4,127	8.0%
Other service activities	2,379	7.59	1,159	5.7	3,538	6.8%
Prof., sci, and tech activities	1,499	4.78	1,700	8.36	3,199	6.2%
Administrative and support service	1,437	4.58	1,032	5.07	2,469	4.8%
Agriculture, forestry, and fishing	2,074	6.62	370	1.82	2,444	4.7%
Transportation and storage	1,469	4.69	946	4.65	2,415	4.7%
Accommodation and food service activities	1,060	3.38	638	3.14	1,698	3.3%
Mining and Quarrying	720	2.3	524	2.58	1,244	2.4%
Real estate activities	703	2.24	163	0.8	866	1.7%
Information and communication	330	1.05	341	1.68	671	1.3%
Financial and insurance activities	369	1.18	93	0.46	462	0.9%
Arts, entertainment, and recreation	312	1	48	0.24	360	0.7%
Electricity, gas, steam, and air con	153	0.49	79	0.39	232	0.4%
Water supply; sewerage, waste	98	0.31	74	0.36	172	0.3%
Human health and social work act	121	0.39	22	0.11	143	0.3%
Education	53	0.17	21	0.1	74	0.1%
Public admin & defence; social sec	13	0.04	14	0.07	27	0.1%
Activities of extraterritorial organizations	17	0.05	0	0	17	0.0%
Activities of households	6	0.02	0	0	6	0.0%
<b>Total</b>	<b>31,343</b>	<b>100</b>	<b>20,344</b>	<b>100</b>	<b>51,687</b>	<b>100.0%</b>

Charge Year	Total	
	Count of returns	Annual % change
2014	5,697	na
2015	6,284	10.3%
2016	6,917	10.1%
2017	7,937	14.7%
2018	8,837	11.3%
2019	8,839	0.0%
2020	8,764	-0.8%
<b>Total</b>	<b>53,275</b>	<b>na</b>



# DiD Results1: Total Sales & Output VAT

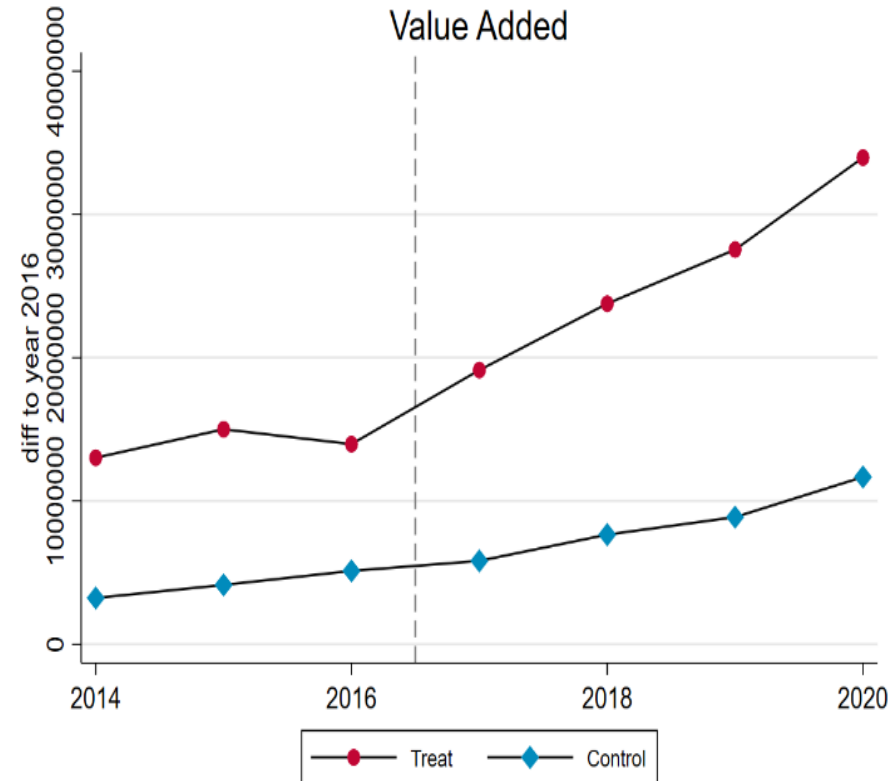
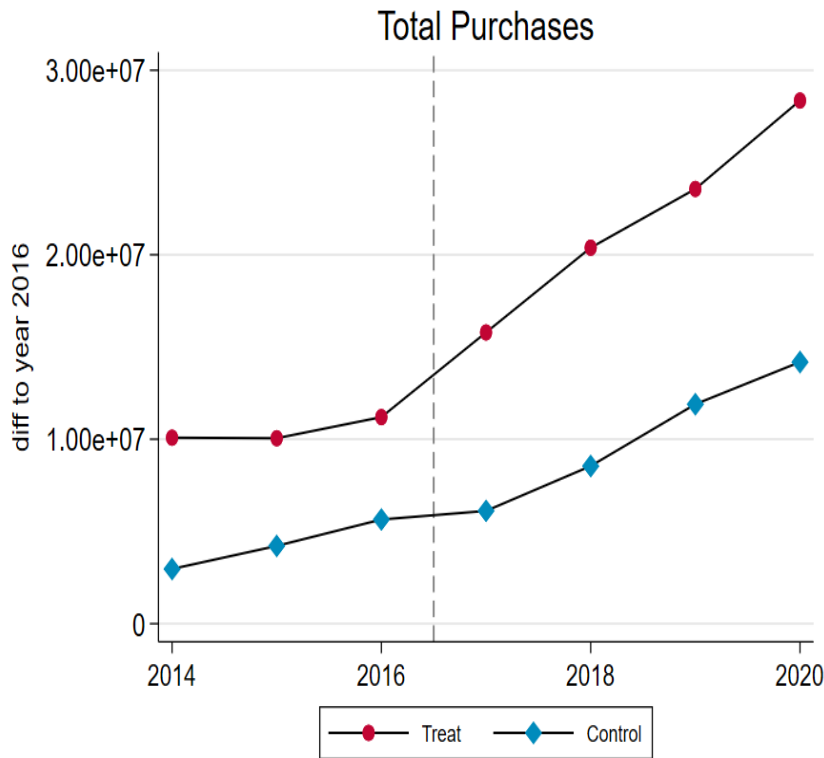
- Shows that the trend for **firms with VAT withheld** diverges upwards post-reform for both declared Total Sales and Output VAT (**note**, parallel trend assumption holds pre-reform).





# DiD Results2: Total Purchases & Value Added

- Shows that the trend for firms with VAT withheld diverges upwards post-reform for both reported Total Purchases and Value-Added (**note**, parallel trend assumption does not hold pre-reform for Total Purchases ).



# DiD Estimates of the Effect of WVAT; Overall

- WVAT has a significant positive effect on *Value Added*, *Sales* and *Output VAT*.
- On average, the reform had caused an increase of:
  - 15.0% on reported Value Added
  - 11.7% on reported Totals Sales
  - 21.7% on reported Output VAT

Ambiguous effect is observed on Purchases

Variable	Value Added	Sales	Purchases	Output VAT
Impact of WVAT	2.119* (15.0%)	4.501** (11.7%)	-0.189 (-0.9%)	0.342* (21.7%)

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 and figures adjusted for Inflation in 2020 amounts.

# DiD Estimates of Impact of WVAT by Location

1. WVAT mechanism significantly impacted reported *Value Added* and *Output VAT* in Copperbelt and other provinces.
2. The impact on reported Sales and Purchases is not significant all the provinces
3. Reported output was significantly higher in Copperbelt could be attributed to higher concentration of WVAT transactions

Variable/Province	Copperbelt	Lusaka	Other
Value Added	2.535** (8.3%)	1.758 (6.2%)	4.201*** (5.1%)
Sales	1.903 (4.7%)	2.790 (7.4%)	3.390 (3.2%)
Purchases	1.502 (8.4%)	-0.628 (-2.7%)	0.025 (0.0%)
Output VAT	0.420* (18.5%)	0.285 (20.7%)	0.680***(25.5%)

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 and distribution of firms not uniform across provinces

# Policy Insights

- 1. Withholding mechanisms improve compliance behavior:** Withholding mechanism statistically improved reporting by VAT registered firms.
- 2. Design is everything:** The design of the mechanism should take into account administrative and compliance costs.
  - The study did not investigate the compliance/administrative costs of the withholding mechanism, including its spill over effects.
  - This extends to the withholding rate (100% or fraction)
  - E.g Zambia has recently exempted withholding amongst VAT withholding Agents
- 3. Localising such initiatives could help:** In certain instances and based on evidence, such initiatives could be localized to selected regions.



# THANK YOU

