

# Increasing VAT revenues and formalization through lotteries: Evidence from Tanzania

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# Motivation

- ▶ VAT is a crucial source of revenue, but compliance is very low.
- ▶ In Tanzania, few businesses print receipts automatically, but do so when customers ask (Fjeldstad et al. 2020).
- ▶ Introduce a receipt lottery to push customers to ask for receipts.

# The lottery

- ▶ Each TRA receipt becomes a lottery ticket. Valid receipts have a QR code that can be scanned and checked with a mobile phone, *fake* receipts can be reported.
- ▶ VAT registered ( $n \approx 30,500$  in total in mainland Tanzania) and not-registered businesses ( $n \approx 103,000$  in total in mainland Tanzania).
- ▶ Four weekly prizes of TSH 250,000 ( $\approx 10\%$  of annual gdp/capita, PPP USD 316) and one monthly prize of TSH 1,000,000 ( $\approx 40\%$  of annual gdp/capita, PPP USD 1,265).
- ▶ Introduced in one tax region, Tegeta (about 4,700 businesses).
- ▶ Advertized through public announcements, social media, posters, flyers.
- ▶ Started in July 2022.



**MAMLAKA YA MAPATO TANZANIA**

Imethibitishwa na ISO 9001: 2015

## DAI RISITI HALALI YA EFD USHINDE PESA!



Mamlaka ya Mapato Tanzania (TRA) Mkoa wa kikodi Tegeta, inakutaarifu wewe mwanajamii Na mfunyabiashara wa eneo la Tegeta, Goba, Mbezi beach, Bahari beach, Ununio, Mbweni, Boko, Madale, Wazo, Mbopo, Salasala, Kunduchi, Bunju na Mabwepande kudai risiti halali ya EFD kwa manunuzi yako yote ili kukuwezesha kuingia kwenye bahati nasibu itakayoendeshwa kuanzia mwezi wa saba.

**Jinsi ya kushiriki kwenye bahati nasibu.**

1. Kudai niti halali ya EFD,
2. Kuhakikisha namba yako ya simu imeandikwa kwenye risiti yako halali ya EFD,
3. Bidhaa iwe imenunuliwa kwenye maeneo ya Mkoa wa kodi Tegeta (yaliyotajwa hapo juu),
4. Manunuzi yawe ni ya kuanzia mwezi July, 2022.

### ANGALIZO:

Bahati nasibu hii haitowahusu Watumishi wa Mamlaka ya Mapato Tanzania. Vigezo na masharti kuzingatiwa.

**Ukiua toa risiti, ukinunua dai risiti!**

**"Pamoja Tunajenga Taifa Letu"**

Kwa mawasiliano zaidi, piga simu bure:  
0800750075 / 0800780078 / 0800110016  
Whatsapp: SMS 0744-233 333.

Twitter: @tratanzania Instagram: @tratanzania Facebook: TRA Tanzania



**TRA Tanzania** @TRATanzania · 18.07.2022

**#TEGETA** Kamishina wa Kodi za Ndani wa TRA, Bw. Herbert kabyemela leo 18.07.2022 amezindua Bahati nasibu iliyoandaliwa na mkoa wa Kikodi wa Tegeta ambapo Mmnuuzi yeyote kuanzia leo hadi tarehe 3 Oktoba, 2022 anaweza kujishindia zawadi kwa kudai risiti halali ya #EFD.



**TRA Tanzania** @TRATanzania

**#DARESSALAAM** TRA Mkoa wa kodi Tegeta leo 09/08/2022 imekabidhi zawadi ya fedha taslimu TZS 250,000 kwa washindi 4 wa wiki iliyopita ikiwemo kutangaza washindi wengine 4 wa 250,000 na mmoja wa 1,000,000 katika bahati nasibu ya DAI RISITI USHINDE PESA inayochezesha kila wiki.



# Measuring the effects of the lottery

- ▶ Difference-in-difference event-study estimator, comparing Tegata to the other tax regions before and after the introduction of the lottery.
- ▶ Main outcomes from TRA's Electronic Fiscal Devices, per business per months:
  - ▶ number of TRA receipts,
  - ▶ sales,
  - ▶ VAT collected (if VAT registered),
  - ▶ above registration threshold (if not VAT registered).

# Measuring the effects of the lottery

Difference-in-difference event-study estimator:

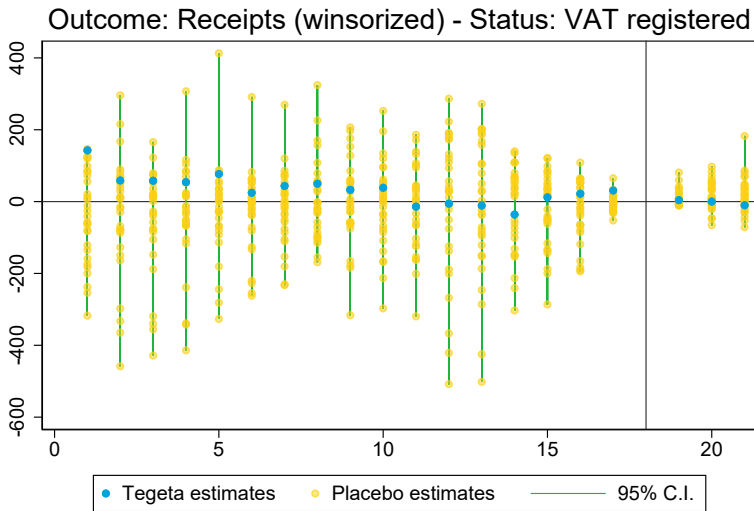
$$Y_{im} = \alpha + \beta * T_i + \gamma * Month_m + \delta * T_i * Month_m + \rho * X_i + \epsilon \quad (1)$$

Where

- ▶  $Y_{im}$  is the outcome for firm  $i$  in month  $m$ ,
- ▶  $T_i$  is equal to one if  $i$  is in Tegeta and to zero otherwise,
- ▶  $Month_m$  is a vector of time dummies (month indicators),
- ▶  $X_i$  stands for firm fixed effects,
- ▶  $\epsilon$  is the error term,
- ▶  $\delta$  is the estimator of interest.

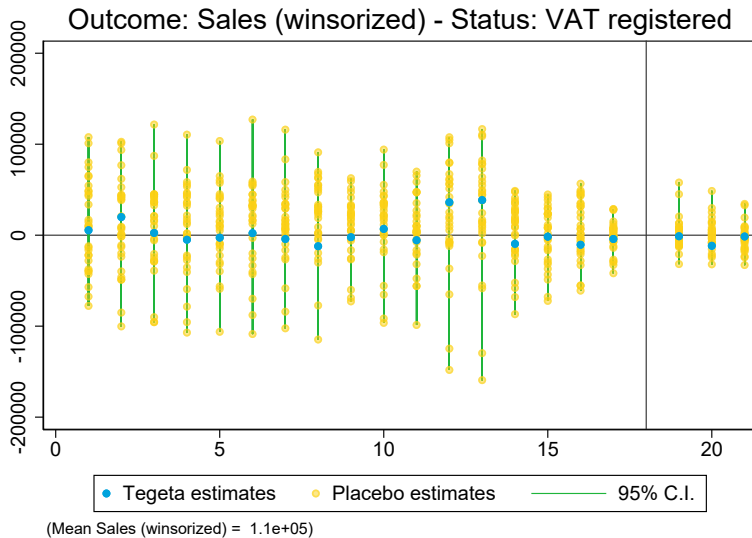
Equation 1 is estimated separately for VAT registered and not-registered firms.  
Randomization inference (RI- $\beta$  procedure of MacKinnon 2020).

# No effect on receipts printed among VAT-registered firms



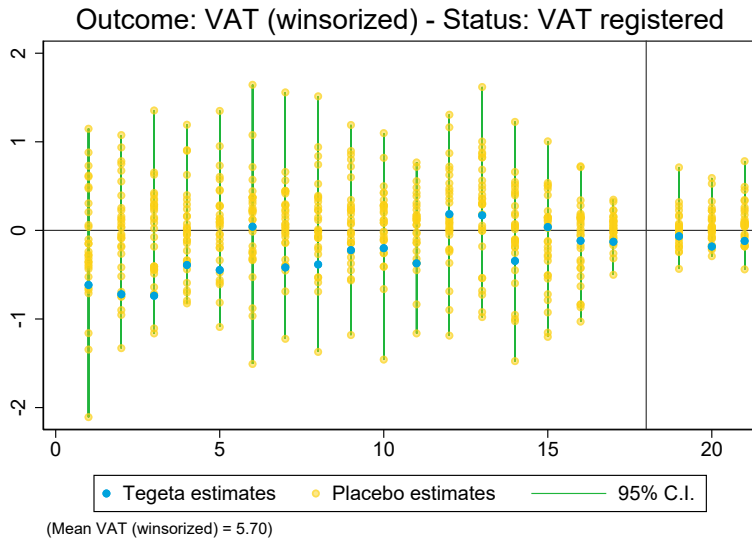
(Mean Receipts (winsorized) = 276.46)

# No effect on sales among VAT-registered firms

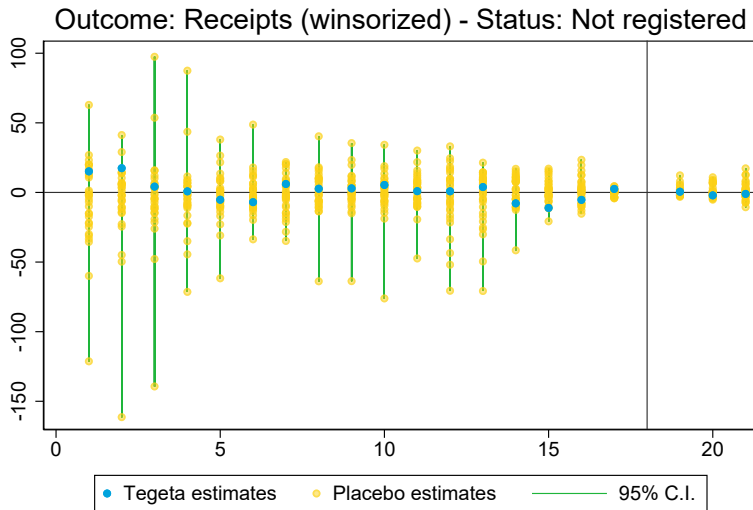




## No effect on VAT among VAT-registered firms

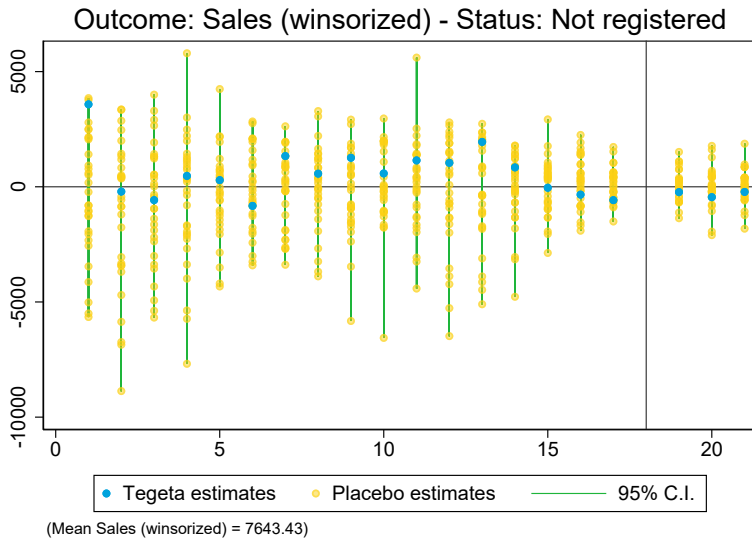


## No effect on receipts printed among non-registered firms

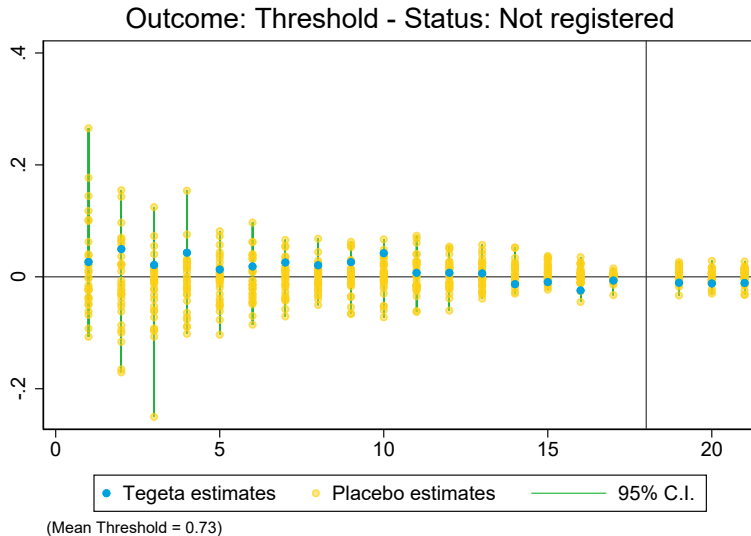


(Mean Receipts (winsorized) = 62.73)

## No effect on sales among non-registered firms



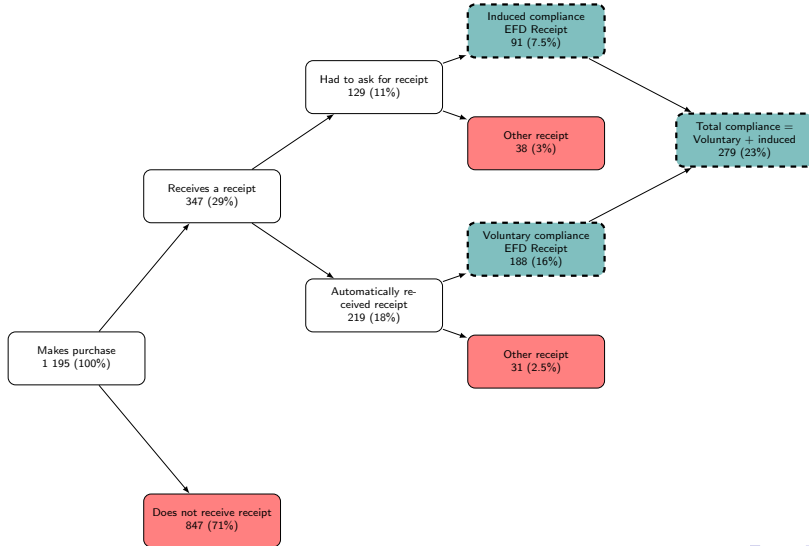
# No effect on crossing the VAT-registration threshold among non-registered firms



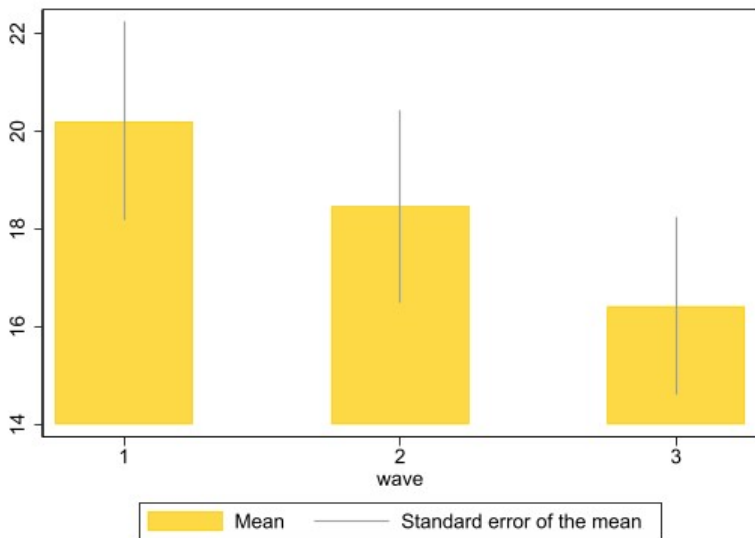
## Understanding the effects: survey.

- ▶ First-hand data collection, in Tegeta,
- ▶ during the lottery: early July, August and September,
- ▶ walk around the region and interview people in the street, ask if they bought something today . . . ,
- ▶ Sample of about 1,200 customers,
- ▶ Finding: knowledge of the lottery increases substantially over time (10, 37 and 49 percent of people know).

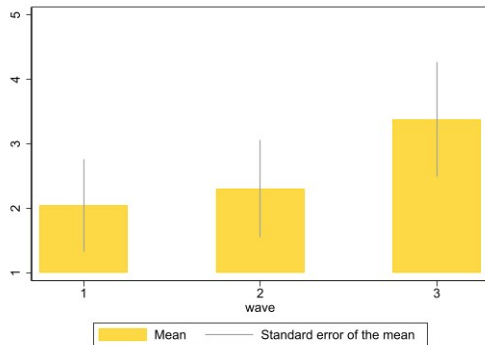
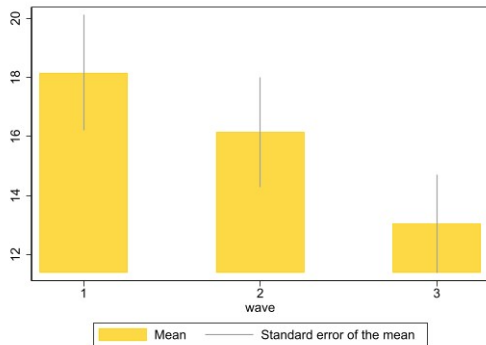
Figure: The compliance process.



The proportion of businesses automatically giving a receipt goes down.

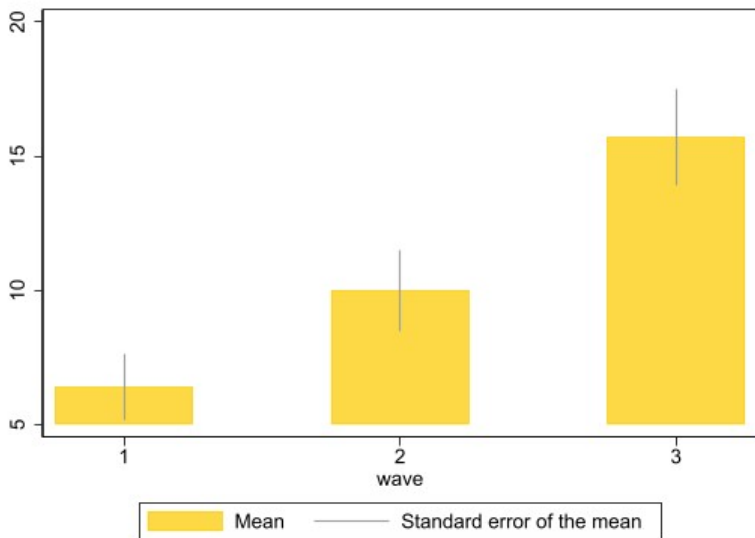


They automatically give fewer TRA receipts and more *fake* receipts.

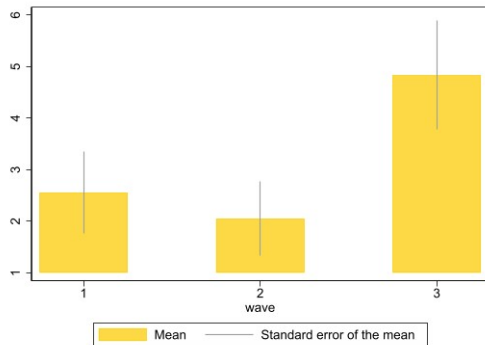
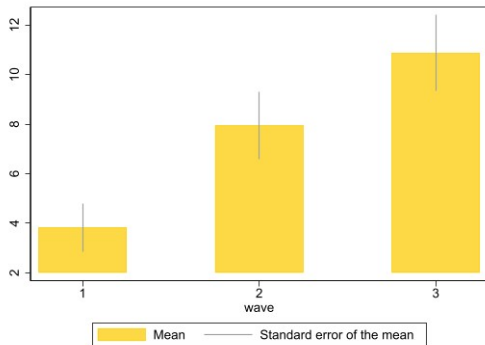




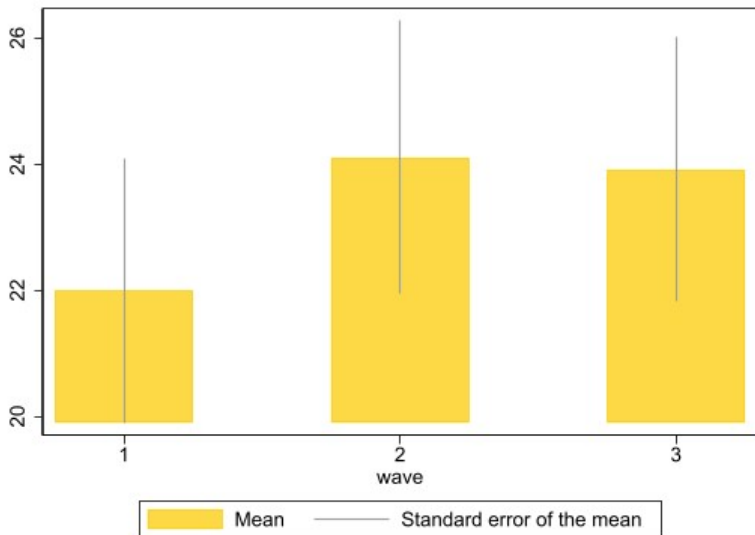
The proportion of customers asking for a receipt triples.



When asking, customers are receiving more TRA receipts but also more *fake* receipts.



Overall, the proportion of customers with a TRA receipt does not change significantly over time.



# Conclusion

- ▶ In its first three months, the lottery does not have effects on sales, receipts, VAT, formalization threshold, on average.
- ▶ But it had important effects:
  - ▶ businesses' voluntary compliance is reduced,
  - ▶ customers are more likely to ask for receipts,
  - ▶ but they receive more *fake* receipts.
- ▶ importance of first-hand investigations, beyond administrative data
- ▶ research feeding into policy
- ▶ to be continued ...