Excise Taxes and Digital Tax Stamps

Do Digital Tax Stamps Work?

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URA has made substantial progress in adopting digital technologies …

- **Over the past few years, the URA has adopted several digital technologies:**
  - **E-Tax**
  - **Electronic Fiscal Receipting and Invoice System (EFRIS)**
  - **Digital Tax Stamps**
- Collectively, these tools have the potential to be revenue-enhancing by providing URA with greater information about taxpayers and by boosting compliance.
- It is also possible that these solutions could ease the time burden for firms when complying with URA, promoting firm productivity and economic growth.
- **It is it vital to understand if these benefits are being realised.**

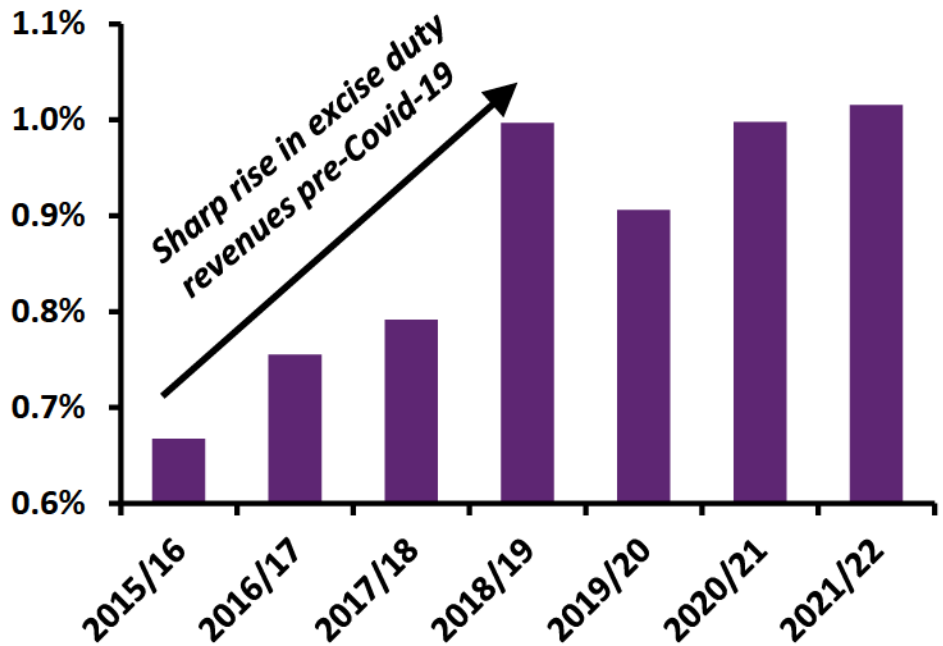
Key Messages

- There is great potential for Uganda to increase tax revenues if technological tax administration solutions are effectively implemented.
- This study focuses on the impact of the introduction of Digital Tax Stamps (DTS) on excisable firms' ex-factory prices, sales revenues and Government Tax revenues.
- We find that the introduction of DTS appears to have been successful in boosting excise tax revenues once initial implementation challenges were overcome.
- Given the apparent success of the solution, it is plausible to consider reducing the costs of the tax stamps to discourage tax avoidance.

Motivation

- Excise taxes in Uganda are often used as a way to expand the tax base and raise more government revenue – not just as a 'sin tax' or correction for negative externalities.
- The scope of excise goods is much wider in Uganda
  - Includes phone talk time, water, cooking oil, mobile money, bank interest
  - The rates are adjusted regularly
- However, impact of policy reforms in generating required revenue with minimum distortions depends on ability of tax administration to enforce changes.
- **There is therefore a need to effectively examine the effectiveness of new digital technologies at URA in boosting tax revenues. –DTS and Excise taxes**

Excise Duty Revenues (% of GDP)



Source: URA via MoFPED

Motivation continued …

- In FY 2019/20, Government introduced Digital Tax Stamps (DTS) on some excisable goods.
- DTS can be paper stamps or markings on excisable goods. The stamps have track and trace capabilities.
- The introduction of DTS has increased compliance costs for manufacturers.
- **There is a need to assess the extent to which the introduction of DTS has boosted tax revenues, and how firms might have changed their behaviour.**
- **Excisable good subject to DTS brought in UGX 761.0bn in excise duty revenues FY 20/21 (0.51% of GDP), but how much of this can be attributed to the introduction of DTS?**

Some background on the introduction of DTS

- When DTS were introduced in FY 2019/20, Government paid for the cost of stamps in the first year.
    - One-off payment of UGX 62bn
- In the second year after the policy intervention, the cost of DTS was passed on to businesses.
    - Cost reviewed and more products added in Feb 2022
- Continuous treatment variable that captures the cost of DTS?
    - An extension of the paper while making very strong assumption
    - Treatment varies over time and dosage of treatment varies as well

Excisable goods subject to DTS & the costs

Excisable Good	Unit Cost of DTS in FY 19/20 (UGX)	Excise Duty Rate Changed in FY 19/20?	Excise Duty Rate Changed in FY 20/21?	Excise Duty Revenues in FY 21/22 (UGX Bn)
Cigarettes	110	No	No	81
Beer	55	No	Yes	322.6
Spirits	240	No	Yes	112.9
Wines	200	No	No	0.9
Soft Drinks	20	No	Yes	176.0
Other Alcoholic Beverages	55	No	No	2.1
Bottled Water	15	No	No	31.1
Sugar	0	No	No	59.6
Cement	0	No	No	44.0
Cooking Oil	0	No	No	40.0
TOTAL				**810.6**

Source: URA

Data Used In Estimation

Number of Excise Tax Returns and the Percent of Returns which are Treated				
Financial Year	**Treated Tax Returns**	**Comparison Group Tax Returns**	**All Returns**	**Percent of Returns that are Treated**
2017/18	4258	7895	12,153	35.0%
2018/19	4363	8777	13,140	33.2%
2019/20	4539	8340	12,879	35.2%
2020/21	5846	8812	14,658	39.9%
TOTAL	**19,006**	**33,824**	**52,830**	**35.8%**

Source: URA

- An increase in treated returns by 4% and 34% in the first and second year post-DTS, respectively – relative to the baseline period.
- A decrease of 5% and an increase of 0.4% in comparison group returns in the first and second year post-DTS, respectively – relative to the baseline.
  - Attrition not a problem
- **Treated firms are actually filing more post-DTS, which may suggest increased compliance**

To empirically estimate the impact of the introduction of the solution …

- The **Difference –in – Difference (DID)** estimation method is used:

$$\ln(Y_{it}) = f_i + \tau time + \boldsymbol{X}_{it}\beta + \delta(I_i * \textit{After November 2019}) + \varepsilon_{it} \quad \textbf{(1)}$$

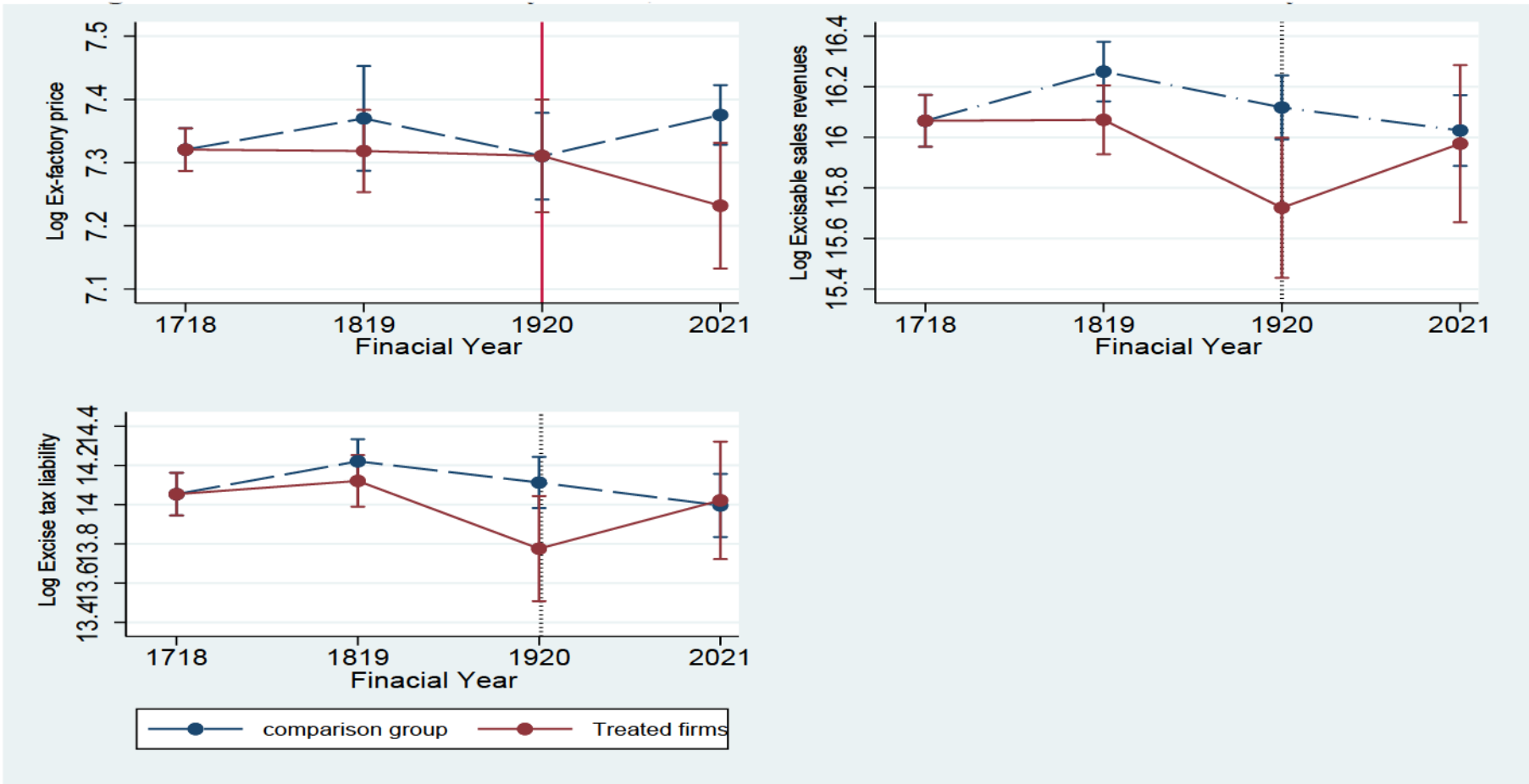
$$\ln(Y_{it}) = f_i + \tau_0 time + \tau_1(time * I_i) + \boldsymbol{X}_{it}\beta + \delta_1(Govment\ pays\ for\ DTS * I_i) + \delta_2(Company\ pays\ for\ DTS * I_i) + v_{it} \quad \textbf{(2)}$$

where:

- $\ln(Y_{it})$ is the log of the outcome variables (firm ex-factory prices, sales revenue and government excise tax revenues) for firm i at time t,
- f_i is a firm-level fixed effect,
- $time$ is a time trend that is assumed to be the same for both treated and comparison group firms;
- $\boldsymbol{X_{it}}$ is included to control for time-varying observable firm-specific characteristics, such as changes in effective excise tax rates. .
  - Includes a dummy variable for period $t = 4$ to control for any time-specific shocks that affect both treated and comparison group firms in the same way at that time. Effects of the prolonged lockdown are captured in this variable.
- I_i is a time-invariant dummy variable that equals 0 for comparison group firms, 1 for treated firms
- *"After November 2019"* is a dummy variable that equals 1 for $t = 3\ and\ 4$.
  - The coefficient on the interaction term is the impact of introducing DTS.
- ε_{it} is a time-varying firm-level error term
  - assumed to be uncorrelated with all observed variables in regression. That is, $E(\varepsilon_{it=3,4}|I_i, X_{it=3,4}) = 0$.

A graphical representation of our results …

Trends in Ex-Factory Prices, Excisable Sales Revenues and Excise Duty Revenues



Source; Author's estimation using URA data

Results

	Coefficients of Product Having a DTS		
Outcome Variable	Equation One: Assume parallel trends	Equation Two: Allows for non-parallel trends & varying treatment effect	
		Government pays for DTS (t=3)	Firms pay for DTS (t=4)
Log Ex-Factory Prices	-0.086*	-0.049	**-0.174***
	(0.044)	(0.037)	**(0.098)**
Log Excisable Sales Revenue	-0.145	-0.249***	**0.307***
	(0.121)	(0.069)	**(0.157)**
Log Excisable Tax Revenue	-0.107	-0.248***	**0.293***
	(0.129)	(0.069)	**(0.160)**

Source: Authors' estimations using URA data

*Notes: Robust standard errors in parentheses and are clustered at a firm level; ***, ** and * show the statistical significance at 1, 5 and 10% levels respectively.*

Key Conclusions

- Treated firms' ex-factory prices decreased by 5% and 17.4% in the 1st and 2nd year post-DTS, suggesting firms underreported their ex-factory prices to shift part of the cost of the stamps to Government

- Excise duty revenues fell by 24.8% in the 1st year post-DTS – this is when Government paid for the stamps.

- However, **revenues rose by 29.3% in the 2nd year post-DTS**, when firms took on the cost.

- This suggests initial teething problems:
  - New technologies take time
  - Implementation challenges
  - Pricing issues

- Excisable goods brought in UGX 761.0bn in duty revenue in FY 20/21, meaning a 29.3% increase could translate to a **UGX 223.0bn revenue gain** from DTS (0.15% of GDP).

Policy Implications

- The price of stamps should be lowered further and made uniform across products:
  - May minimise tax avoidance response by firms.
  - Leave issues of influencing consumption and minimising externalities to the main excise law.
- Improve implementation to minimise the downtime by firms, mitigating the negative effects of track and trace mechanism.

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