Using fixed cargo scanners to combat tax evasion in Uganda

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- Low-income countries (LICs) often rely on trade taxes for revenue but struggle with tax evasion due to undercounting, undervaluing, and misclassifying imports, necessitating enhanced enforcement mechanisms.
- This research studies the implementation of fixed cargo scanners at two border control points in Uganda in 2018 to analyse whether the scanners impacted such undercounting, undervaluing and misclassification, and consequently, on tariff revenues and tax evasion.
- The research finds ambiguous effects: While scanner implementation increased reporting of taxed goods, suggesting a successful reduction in undercounting and misclassifying goods, it also likely led to underpricing, which resulted in lower import values and reduced tax collections, particularly VAT receipts.
- The research reveals several policy recommendations, most importantly the need for a holistic approach to combat evolving evasion tactics effectively. These recommendations include implementing robust price audit mechanisms, enhancing scrutiny of frequent importers, fostering international cooperation, maintaining scanner efficiency, and providing advanced training for customs officers.

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Research motivation and policy overview

Low-income countries (LICs) struggle with tax evasion and difficulty collecting domestic tax revenues. As a result, many LICs rely on trade taxes, but taxing imports is also challenging: importers have incentives to lower their tax burden by under-reporting trade volumes (undercounting), manipulating prices to reduce ad valorem taxes and tariffs (undervaluing), and misclassifying their imports as low-tariff products rather than high-tariff ones (misclassification).

Hence, enhancing enforcement mechanisms is essential to reduce undercounting, undervaluing and misclassification. Uganda, a low-income country where border taxes play a crucial role in revenue collection, implemented cargo scanners in 2018 in Malaba and Busia, its two main border crossings with Kenya. Policy evaluations that quantify the effects of such reforms are key for governments to assess their effectiveness and realise cost-benefit analyses. As such, this research analyses whether the scanners had any impact on undercounting, undervaluing and misclassification, and consequently, on tariff revenues and tax evasion.

The introduction of cargo scanners enhances detection capabilities, particularly targeting undercounting and misclassification. Scanners are expected to deter firms from undercounting and misclassifying imports. Hence, when both mechanisms are at play, scanner implementation can potentially increase the reporting of taxed goods while decreasing non-taxed imports, thus combatting tax evasion via the undercounting and misclassification channels.

However, firms may seek alternative evasion methods, such as underpricing, which cargo scanners cannot detect. Thus, the introduction of scanners may reduce the unit value of taxed goods. Taken together, introducing scanners can lead to ambiguous impacts on tax revenue: higher reporting of taxed goods and correct quantities can be overshadowed by increases in underpricing.

The study employs a difference-in-difference estimation approach to examine the effectiveness of fixed cargo scanners in curbing tax evasion in Uganda, taking into account the interactions between undercounting, undervaluing and misclassification. It uses transaction-level customs data from the Uganda Revenue Authority which contains, among other things, information on the value of each import transaction, including data on the importing firm, product category, and country of origin.

Summary of key findings

Firstly, quantities and unit values for taxed and non-taxed goods after scanners are implemented move in directions consistent with 1) a **decline in misclassification and undercounting** and 2) a **simultaneous increase in underpricing**.

TABLE 1: Change in quantities declared and unit values for taxed and non-taxed goods after the implementation of scanners

Type of imports	Quantities Declared	Unit Values
Non-taxed goods	Decreased	Increased
Taxed goods	Increased	Decreased

Secondly, **the total value of imports of taxed goods fell by 7.7%** compared to the period before the scanner was implemented, leading to an estimated **9.8% reduction in tax receipts**, particularly VAT receipts. The fall in the imports of taxed goods suggest that the **reduction in misclassification and undercounting is more than offset by more aggressive underpricing maneuvres**.

TABLE 2: Changes in value of imports of taxed goods and tax receipts after the implementation of scanners

Imports of taxed goods	Tax receipts
-7.7%	-9.8%

Thirdly, **most frequent importers** pay **less taxes** after the implementation of the scanners, whereas **moderately frequent importers** pay **more taxes.** This result is mainly driven by high levels of newly observed underpricing among the most frequent importers (but not among the less frequent importers). It is likely that this result is driven by large multinational corporations, suggesting that this tariff-induced underpricing might be related to broader corporate tax-induced price manipulation strategies.

TABLE 3: Change in taxes paid by moderately frequent and most frequent importers

Moderately frequent importers	Most frequent importers
Increase in taxes paid	Reduction in taxes paid

Policy Recommendations

Implementing robust audit mechanisms to cross-check declared values against international market prices

- Underpricing must also be tackled to effectively combat tax evasion, a task for which scanners alone are insufficient. Hence, there is a crucial need to comprehensively investigate unit value, including monitoring pricing practices. Focusing on verifying the accuracy of declared unit values can identify discrepancies and ensure accurate tax collection. We also recommend strengthening penalties for evasion.

Enhanced scrutiny on targeted intra-firm transactions and frequent importers

- Underpricing is often found within intra-firm transactions and for frequent importers. These observations call for an enhanced scrutiny of the transactions undertaken by these two categories of importers.

International cooperation and information sharing

- Underpricing is likely prevalent amongst multinational corporations, which use transfer mispricing to evade tariffs and shift profits to lower-tax jurisdictions to reduce their corporate income tax bill. Collaboration with international organisations and partner countries is crucial to coordinate efforts to effectively combat such cross-border tax evasion.

Training for customs and trade officials to detect underpricing

- Provide training and resources to customs and trade officials to improve their ability to detect underpricing, helping them to deter tax evasion effectively.

Enhance scanner efficiency

- Invest in technological upgrades and maintenance to ensure the continued effectiveness of fixed cargo scanners in detecting undeclared or misclassified imports.