Detecting Evasion at the Container level: French-Madagascaran shipments

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Road map

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I. Introduction
Introduction

• **Tax evasion** at the border, especially in developing countries,
  • Has **significant consequences** on
    (i) government revenues
    (ii) the calculation of the benefits of tariff policies
    (iii) the distribution of those benefits
  • May hamper industrial policies (Atkin and Khandelwal, 2019)
  • Creates opportunities for corruption

• **WCO Revenue Package**
  • Use of **external data to manage valuation risks**
    (e.g. aggregate statistical data and trends, mirror data)
Mirror analysis

- Discrepancies in bilateral trade statistics (mirror data)
  - Evasion Gap = (Export value)− (Import value)
- Assumptions
  - Export data of good quality
  - Export declarations are compliant (no incentives to misreport value/quantities, misclassify)
- Usual data source: UN COMTRADE
- Evasion gaps increase with
  - Tariffs and non-tariff barriers (Fisman and Wei, 2004, Kee and Nicita, 2019)
  - Product differentiation (Javorcik and Narciso, 2008)
  - Country characteristics (e.g., level of corruption in Jean et al. 2018; Carrère and Grigoriou 2015; Javorcik and Narciso, 2017)
  - Lack of enforcement (Mishra et al., 2008)

=> Unit of analysis: HS6-country of origin-year level
Matching at the container level: a step forward

1. Identification of fraudulent transactions/non-compliant importers
   (versus literature: identification of risky products)

2. Reduced noise
   i) Import value is expressed f.o.b (access to freight cost data, versus c.i.f in the literature)
   \[ \Rightarrow \text{Same incoterm} \] (export value: f.o.b)
   ii) Orphan shipments are excluded from the study sample
      (only matched shipments are considered)
   \[ \Rightarrow \text{More precise estimation of undervaluation} \]

3. Computation of new gaps
   i) Gap in the number of items listed \[ \Rightarrow \] more accurate estimation of misclassification
   ii) Tax gap: more accurate estimation of tax losses

4. Help to monitor customs’ daily work (e.g. value added of controls)
Characteristics of undervalued transactions
Period: [2014;2016]

• High-taxed declarations

• Operators
  • “Superstar evaders”
  • Unregistered importers (missing importer ID)
II. Data
Required data

• The following information are required to perform the matching
  • Container ID

• Date of departure (export)/date of arrival (import)
  • Reason: existence of recurrent container IDs

• Country of destination (export)/country of provenance (import)

• Port of departure
  • Reason: the port of departure might be abroad (e.g. Anvers, Rotterdam)
**Provided data**

- **French customs** provided a database at the declaration-item level with information on:
  - Container ID
  - Date of departure
  - Country of destination
  - Customs office
  - Port of departure
  - Exporter name
  - Value, weight, HS code

- **Madagascar customs** provided a database at the declaration-item level with information on:
  - Container ID
  - Type of container
  - Date of arrival
  - Country of provenance
  - Port of departure
  - Importer name
  - Value, weight, HS code
  - External freight costs
  - Customs clearance system

**Difficulties to get access to data + confidentiality clauses**

2 set of databases at the **declaration-item level** covering French-Madagascan flows for the **period [2014;2016]**
III. Matching results
Matching results

- Database at the container(-day) level
- **Matched sample**
  - ≈ 10,000 observations
  - ¼ of the total exported value (uncontainerized shipments included)

- **Matching rates**
  - **Global matching rate**
    - 50.5%
  - Import customs regime
    - Entry for home use: 48.7%
    - Temporary admissions: 73.4%
  - **Multiple containers**
    - 1 MDG declaration => 1 container: 64%
    - 1 MDG declaration = many containers: 37%
IV.
Discrepancies
Containers DO NOT always have identical reported values

Decomposition of the export value

- Initial declared import value
- Adjustment made by customs
- Final gap

Note: Zero-taxed declarations excluded. Initial declared import value: f.o.b + insurance
Mis-valuation increases with the tax rate

- Gap = ln(Export value) – ln(Import value)

Transportation costs substantially reduce the Gap hence an under-estimation of undervaluation.

Note: Zero-taxed declarations excluded. Period: [2014;2016]
Highly taxed containers are more adjusted

- Madagascar customs tend to **focus** more on **highly taxed containers** (i.e. the most undervalued containers)

**Post Clearance Unit:** focus on the remaining evasion gap

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**Note:** Zero-taxed declarations excluded. Period: [2014;2016]
Monitoring inspectors’ actions (1/2)

- Declarations initially routed to the physical control channel
  - Downgraded declarations are less undervalued

![Graph showing initial gap vs. downgrade]

Note: Only imports for home use. Zero-taxed declarations excluded. Period: [2014;2016]
Monitoring inspectors’ actions (2/2)

• Declarations initially routed to the documentary control channel
  • Not subject to an upgrade: smaller gap
  • Subject to an upgrade: despite the occurrence of a physical frontline inspection, the post-clearance undervaluation (= final gap) is non-negligible.

Note: Only imports for home use. Zero-taxed declarations excluded. Period: [2014;2016]
Focus on valuation advices

• Riskiest declarations subject to a valuation advice (given by an external entity)

• Declarations subject to a valuation advice
  • Initially **more undervalued** (expected)
  • **More adjusted by customs** (increased efficiency)

Cf. Next presentation
Identification of non-compliant importers

- Importers that are not well known by customs tend to evade more
  => full **professionalization of the customs environment**

- **Superstar evaders**: more than 50% of total undervaluation comes from less than 10 importers
  => Focus on **top evaders**
Conclusion

- **Container data** allow to conduct a more in depth analysis
- Access to freight cost data $\Rightarrow$ FOB-FOB gap
- **Lessons from descriptive statistics (period: [2014;2016])**
  - Evasion is highly concentrated
  - High-taxed declarations are substantially undervalued
  - Gap is higher for unregistered importers
- **Next steps**
  - Extension to other fraud techniques
    - Underreporting of quantities (differences in weight)
    - Misclassification (mismatch of HS codes)
    - Smuggling (orphan containers)
  - Causal relationships (elasticity of evasion)
Thank you for your kind attention
Appendix
Data processing (1/2)

- **Main goal**: Make use of container IDs to match declarations from French and Madagascan customs

- **4 main steps**:
  - 1. Cleaning container IDs
    - Not all containers IDs follow the international classification (ISO 6346) [2% of French containers IDs]

```
BICU  123456  5
Owner code  Equipment ID  Serial number  Check digit
"U": containers,  "J": detachable freight container-related equipment  "Z": container-related trailers and chassis.
```
Data processing (2/2)

2. Aggregation of each dataset at the **container-day** level
   - Declared values and weights are split between the number of containers in case of multiple containers/declarations

3. Treatment of observations with **recurrent container IDs**
   - **Exporting** country
     - Presence of **multiple** successive declarations -> need to aggregate beyond the container-day level
     - Aggregation or selection of redundant obs based on the **min of the weight difference** with matched Madagascar data
   - **Importing country:**
     - Drop temporary declarations (temporary customs regime, e.g. **national transshipment, warehousing**)

4. **Matching** container-day transactions from each dataset
   - Maximum transit time: 90
     - Usual transit time: <30 days
     - Enable delays in the procedure in each country
   - In case of multiple declarations (dropped or aggregated), use of
     - the last registration date for **EXPORTS**
     - the first registration date for **IMPORTS**
Key statistics (2/2)

- **Average transportation time**: 35 days

La Réunion (French island) => Madagascar:

a very short trip
Expectations

- Identical number of items
- Identical reported values
- Identical reported quantities
- Identical reported HS codes (6 digit level)
Differences in classification

- Importers seem to take advantage of differences in classification across countries to evade taxes

**Note:** Zero-taxed declarations excluded. Period: [2014;2016]
Statistics

• **La Réunion** (French island)
  • 26%

• Import customs regime (% matched obs)
  • Entry for home use: 80%

• Import customs office
  • Toamasina Port: 71%

La Réunion (French island)
=> Madagascar:

a very short trip