

# **Illicit Financial Flows and Trade Misinvoicing in the Arab Region**

## **Background and Methodology**

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# **BACKGROUND: ESTIMATION OF ILLICIT FINANCIAL FLOWS**



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“The undeniable existence of an unknown but undoubtedly substantial amount of deliberately falsified information presents a unique feature for the theoretical social sciences...” (Oskar Morgenstern)



# Focus on Trade Misinvoicing

- Unlike many other forms of IFFs, trade misinvoicing can be partially estimated using official statistics
- Other measurable form is leakages from the balance of payments; country idiosyncrasies do not allow for this approach to be reliably used in the Arab region
- Various other forms of IFFs exist that are not systematically measurable, such as bulk cash smuggling



# Alternative Approaches to Estimating TM: Micro Approaches

- “Micro” approaches might be based on (1) field and case studies; (2) surveys and interviews with business people, law enforcement experts, and, in some cases, criminals, and (3) reports to financial intelligence units
- Advantage: rich detail on the nature of the crimes
- Disadvantages: costs of preparing such estimates, frequent lack of comparable estimates across jurisdictions, concerns about how representative the sample can hope to be



# Alternative Approaches to Estimating TM: Macro Approaches

- “Macro” approaches work toward an estimate of TM from the top down and are typically based on macroeconomic trade data available in the public domain. Indirect methods of inference and assumptions are needed.
- Examples include residual method, discrepancies in trade data, etc.
- Advantage: More comprehensive than the micro approaches
- Disadvantages: Necessarily indirect, cannot distinguish with certainty legitimate gaps and discrepancies from illicit ones, incomplete data coverage



# Motivations for Trade Misinvoicing

	<b>Overstated</b>	<b>Understated</b>
<b>Imports</b>	OUTFLOW (e.g., overstating the cost of imported inputs to reduce income tax liability)	INFLOW (e.g., evasion of import duties)
<b>Exports</b>	INFLOW (e.g., increasing subsidy revenues from qualifying exports)	OUTFLOW (e.g., exploit currency controls, income tax evasion)



# METHODOLOGY: MIRROR TRADE GAPS



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# Gaps in Mirror Trade Statistics: Notation

$$V_{ijkt}^M \equiv P_{ijkt}^M Q_{ijkt}^m$$

(i.e., the value of imports reported by i shipped from j of product k at time t)

$$V_{ijkt}^X \equiv P_{ijkt}^X Q_{ijkt}^X$$

(i.e., the value of exports reported by i shipped to j of product k at time t)

- V variables are trade flows in dollars
- Q variables are reported volumes in physical units (e.g., kilograms)
- P variables are unit values (usually calculated as  $V/Q$  when Q is not zero) reported in dollars per unit (e.g. \$/kg)



# Basic Misinvoicing Calculations: Trade Value Gap

$$\Delta^X_{ijkt} \equiv (V^M_{jikt} - V^X_{ijkt})$$

$$\Delta^M_{ijkt} \equiv (V^M_{ijkt} - V^X_{jikt})$$



# Complete Misinvoicing Calculations: Volume-Weighted Trade Value Gap

$$(1) \quad \Delta^X_{ijkt} \equiv (V^M_{jikt} - V^X_{ijkt}) \\ * [1 - \{|Q^M_{jikt} - Q^X_{ijkt}|\} / \max(Q^M_{jikt}, Q^X_{ijkt})]$$

$$(2) \quad \Delta^M_{ijkt} \equiv (V^M_{ijkt} - V^X_{jikt}) \\ * [1 - \{|Q^M_{ijkt} - Q^X_{jikt}|\} / \max(Q^M_{ijkt}, Q^X_{jikt})]$$



# Assigning Direction to Misinvoicing Flows

Export under-invoicing (outflow):  $\Delta^X_{ijkt} > 0$  (3)

Export over-invoicing (inflow):  $\Delta^X_{ijkt} < 0$  (4)

Import under-invoicing (inflow):  $\Delta^M_{ijkt} < 0$  (5)

Import over-invoicing (outflow):  $\Delta^M_{ijkt} > 0$  (6)

- Misinvoicing flows can be added over countries, products and or time to yield estimated outflows, inflows, and gross misinvoicing at any desired level of disaggregation



# Gaps in Mirror Trade Statistics: Caveats

In practice, the gaps could arise for a multitude of reasons, legitimate or illegitimate. Leading examples of (mostly) legitimate reasons:

- Valuation. By convention, exports are reported on an FOB basis while imports are reported on a CIF basis that includes margins for transport costs, insurance, etc. We generally don't have data on the CIF/FOB margin and must make some assumption.
- Timing. The exports were shipped on a different date than the imports were received (the two "t"s don't match reality). For example, even in annual data, some transactions will straddle one year to the next.
- Commodity misidentification. It may happen that a commodity is identified one way at one port and another way at the other port (the two "k"s don't match reality). This could happen due to honest error or due to deliberate misinvoicing (e.g., a commodity label is misstated to avoid import duty).
- Re-exports and transshipments. ("Rotterdam effects") It may happen that goods are reported as imports by a country that are only an intermediate stage in their transit toward another final destination (the "j"s don't match reality).

There are ways of mitigating such problems in practice, though none is perfect.



# Data

- Exports: UN Comtrade Database
  - Free-on-board (FOB) export prices
- Imports: BACI Database
  - Though imports are typically reported on a cost, insurance, and freight (CIF) basis to UN Comtrade, this database (also utilized by UN ECA and UN ECLAC) uses an econometric estimation to generate FOB import values, which are directly comparable to the export values from UN Comtrade
- 6-digit Harmonized System (HS) codes (2007 classification) are downloaded for 2008-2015



# Data Decisions

- Trade gaps are only calculated with advanced economies
- Trade gaps of less than US\$1 million for country-partner-commodity-time observation are not considered
- HS codes under the 2-digit HS 27 (mineral fuels) are excluded from the main analysis, though they are reported in the appendix
- Weighting procedure



# Alternate Data Decisions

- Trade gaps are calculated with all possible countries
- Trade gaps of less than US\$1 million for country-partner-commodity-time observation are not considered
- HS codes under the 2-digit HS 27 (mineral fuels) are included in the main analysis
- Weighting procedure





# Why Weight?

- Idea: large discrepancies on the volume are more likely to indicate aberrant reporting than large differences in the values themselves
- Mitigates the impact of value gaps where large volume gaps also exist
- Adjustment factors in the brackets on the right side of each identity correspond to scaling factors
- Value discrepancies (differences between the Vs) are scaled down by the degree to which the corresponding reported volumes (the Qs) differ



## **Helpful Resources**

*Illicit Financial Flows in Developing Countries: 2005-2014*

(M. Salomon & J. Spanjers, April 2017)

[www.gfintegrity.org](http://www.gfintegrity.org)

*Can mirror data help to capture informal international trade?*

(C. Carrère & C. Grigoriou, March 2015)

[www.ferdi.fr](http://www.ferdi.fr)

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