Presenting an atlas of illicit financial flows from trade misinvoicing

Based on a collaboration with William Davis and Gamal Ibrahim

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Data: https://doi.org/10.5281/zenodo.3610557

Code: https://github.com/walice/Trade-IFF

Illicit financial flows (IFFs)

- Illicit financial flows refers to the movement of money across borders that is illegally earned, transferred, or utilized (Baker, 2005).
- Trade misinvoicing is a subset of IFFs which involves misreporting trade invoices to clandestinely shift money abroad or repatriate money domestically.
- Diverse motivations:
  - laundering proceeds of crime
  - financing of terrorism
  - corruption
  - tax evasion by shifting profits to lower-tax jurisdictions (multinationals) or hiding transfers of wealth (individuals)
  - market and regulatory abuse

Trade misinvoicing 101

Manipulate shipment invoices according to motivations below, and present doctored invoices to customs authorities.

Optional: bribe customs officials, collude with a foreign partner.

	Imports	Exports
Outflow	Over-invoicing Disguise illicit capital flight Evade taxes Avoid capital controls	Under-invoicing Disguise illicit capital flight Evade taxes Avoid capital controls
Inflow	Under-invoicing Repatriate undeclared capital Launder money Evade tariffs	Over-invoicing Repatriate undeclared capital Launder money Exploit export subsidies

Research question

- What is the dollar amount of trade that is misinvoiced between any given pair of countries and in different sectors?
- What are the main patterns in the sinks, sources, and sectors of misinvoiced trade?
- What is the extent of trade misinvoicing in developing countries?

How much trade misinvoicing is there?

The problem

- Existing estimates suggest developing countries lose hundreds of billions of dollars a year from trade misinvoicing.
- But they have been faulted for detecting "phantom" illicit flows: illusions from the way international trade is recorded.
- Illicit financial flows are unobservable: they are deliberately hidden, so they will not be systematically recorded.
- The problem reduces to asking what we can learn about an unobservable random variable given observed variables.

We need to estimate unobserved illicit trade using information from observed bilateral trade flows.

Inferential framework

Chapter 2 constructs a measure of the dollar value of illicit trade that is embedded in each bilateral trade transaction.

Estimand

Population-level amount of trade misinvoicing conditional on observed bilateral trade flows

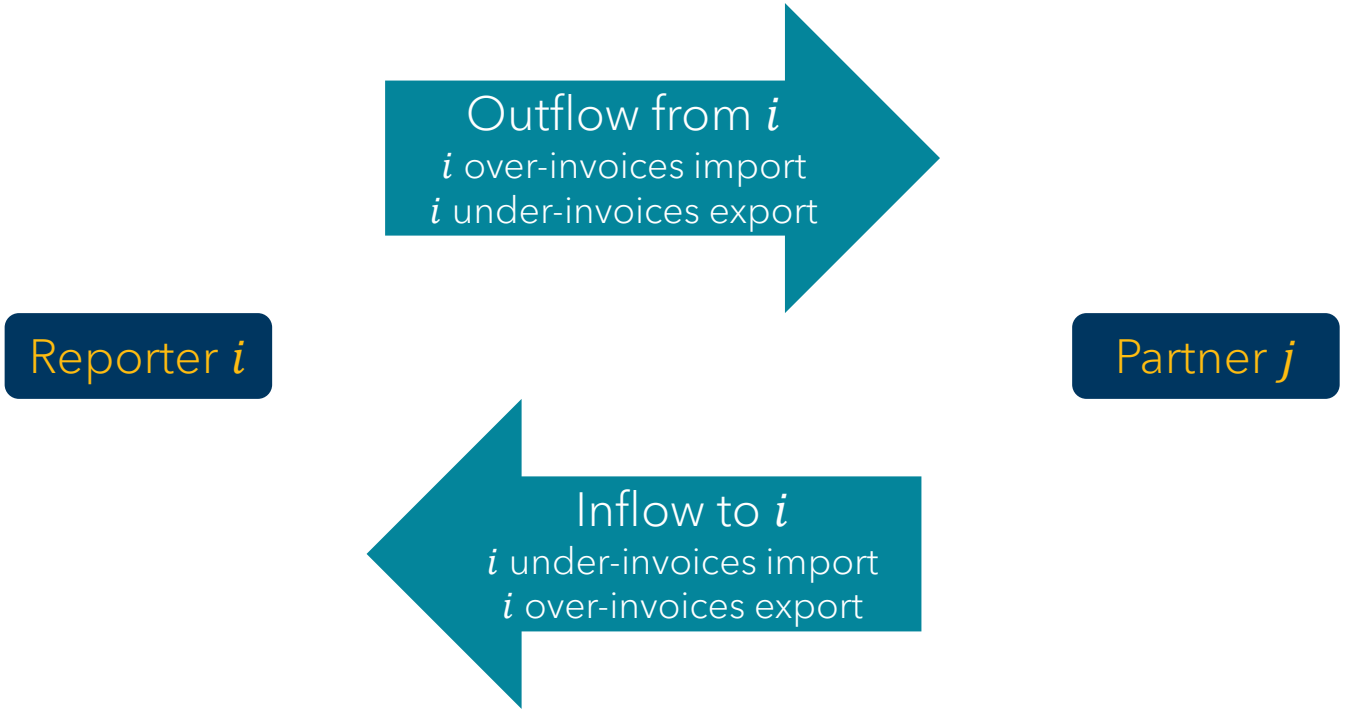
Estimator

The “atlas” method

Estimates

The “atlas” database provides bilateral estimates for 167 countries during 2000-2018, disaggregated by year and sector.

Misinvoicing from the perspective of the "atlas" country



The mirror trade statistics strategy

- Exploits the "double entry" accounting system of international trade statistics, where a transaction is recorded twice.
- Scrapes entire UN Comtrade database of bilateral trade flows for all 99 commodity sectors, n ≈ 23 million.
- Locates trade misinvoicing in the discrepancies in mirror trade statistics, e.g., difference between reporter imports and mirror partner exports (and vice versa).
- But there are legitimate reasons for why import and mirror export values will differ, such as the cost of insurance and freight.
- Imports need to be deflated by transaction costs and converted to the same basis as mirrored exports to be comparable.

Properties of a credible measure

Theoretical coherence

1. Avoid uncritically equating observed trade irregularities with misinvoicing.
2. Partition the trade transaction into licit and illicit components in order to account for persistent non-illicit reasons for discrepancies.
3. Account for the variance in countries' statistical reporting.

Practical relevance

4. Scale across countries and over time.
5. Provide enough granularity to support policy prioritization.
6. Use open government data.

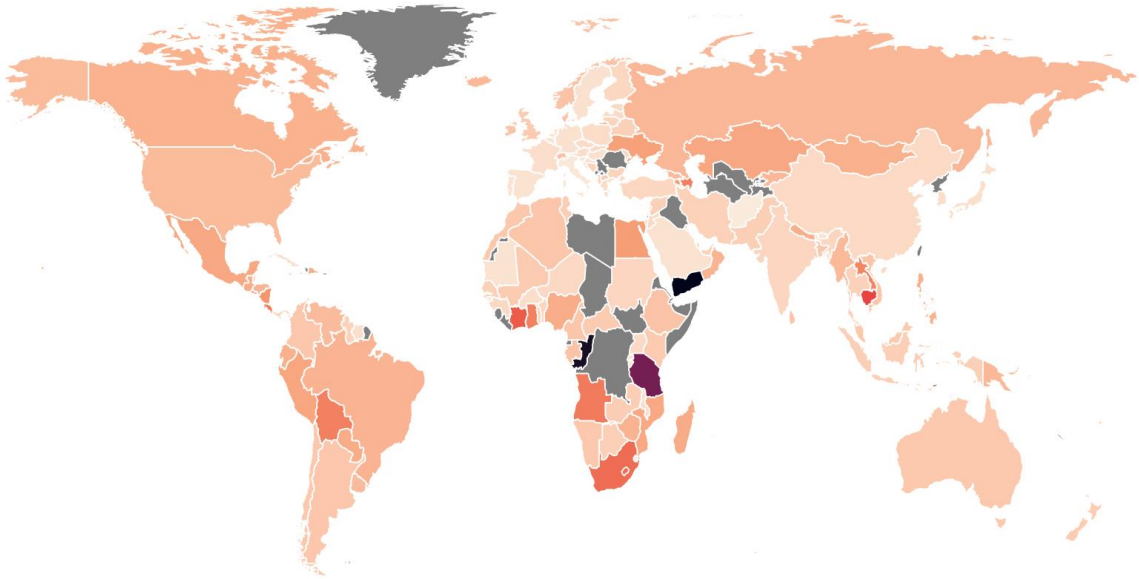
Key features of “atlas” methodology

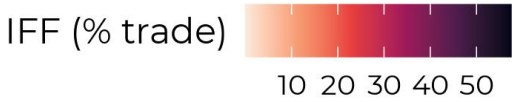
imports = mirror exports + latent factors + noise

- Distinguishes between non-illicit and illicit reasons for trade gaps.
- Econometrically estimates transport costs and adjusts for other benign reasons for discrepancies:
  - Delays in the arrival of shipments
  - Asymmetric recording of re-exports
- Harmonization approach: accounts for the quality of country declarations to generate a reconciled value, a weighted average of reporter and partner declarations.
- Residual approach: strips reported imports of non-illicit predictors of gaps and takes difference with reconciled value.
- The remainder is the misinvoiced part of the trade.

Developing countries are more affected as a % of trade and % of GDP

Average annual gross outflows during 2000-2018





Natural resources sector was the most misinvoiced in Africa

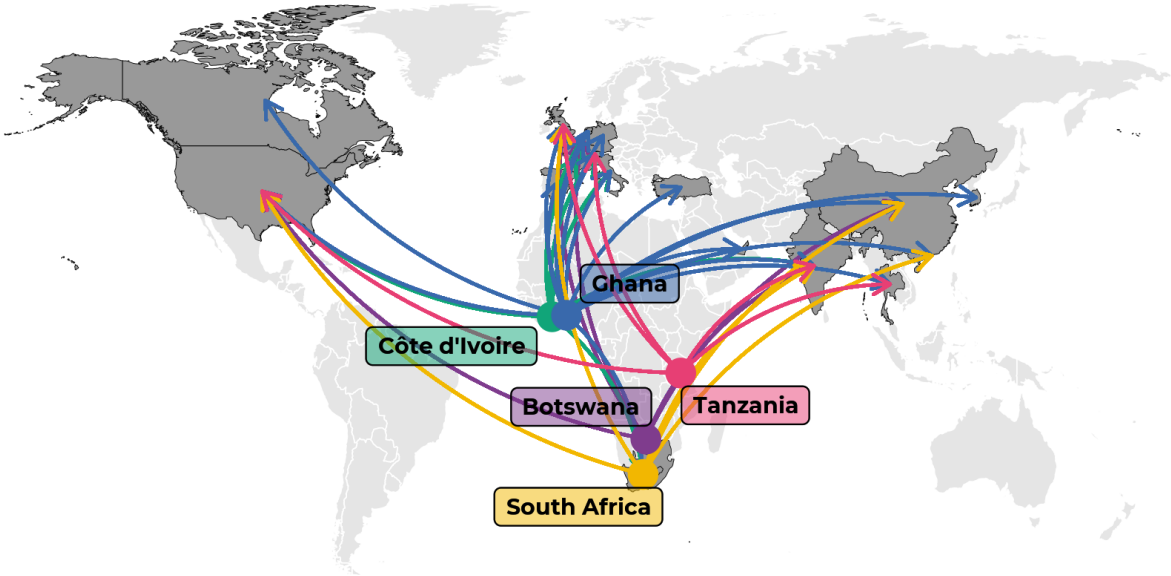
Top sectors in Africa

Average gross yearly outflow during 2000-2018

Insights on key development issues: the resource curse

Destination of illicit outflows in Pearls, Stones & Metals

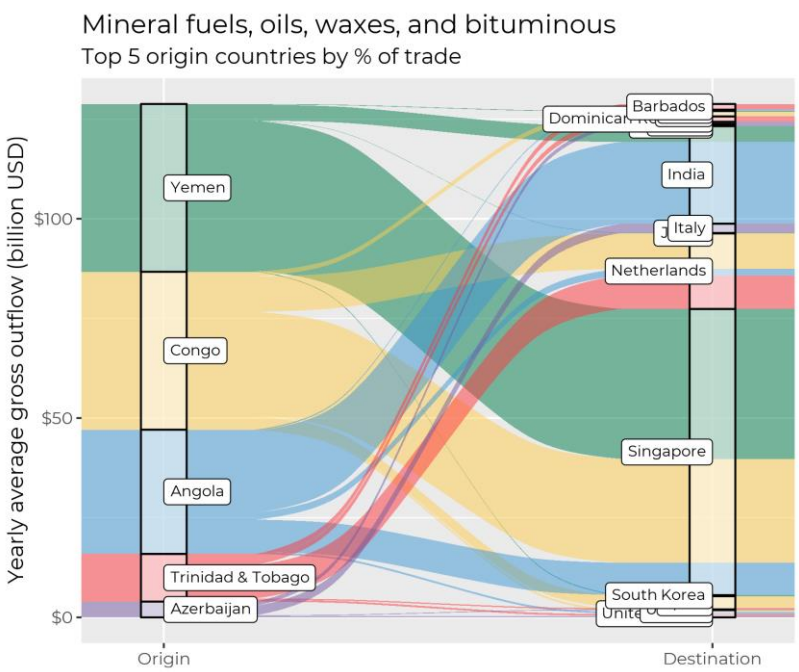
Top 5 destinations of top 5 origin countries in Africa (by % of GDP)



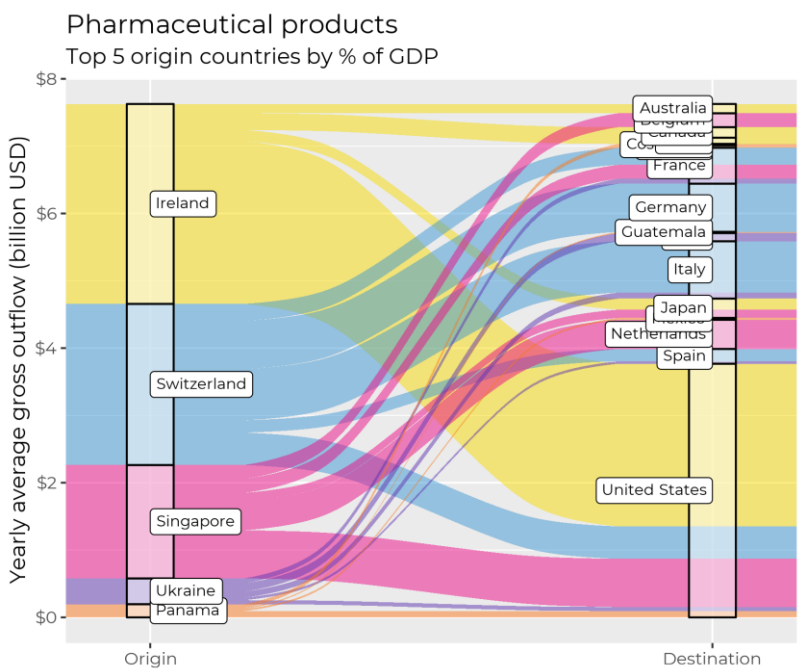
Identifies sources, sinks & sectors

The atlas provides disaggregated estimates for 99 sectors,
as $ value of misinvoiced trade, as % of trade, and as % of GDP.

Minerals: $180 bn/year



Pharma: $39 bn/year



Conclusions & policy implications

- Empirical confirmation that IFFs are pervasive in developing countries. Africa lost $86 billion a year on average during 2000-2018 from gross outflows.
- Major destinations are countries with high levels of financial secrecy.
- Trade misinvoicing depletes government coffers, erodes the tax base, undermines state institutions, and weakens governance.
- Combating IFFs is crucial to catalyzing domestic resource mobilization in poor countries and to generating finance for development.

Limitations

- The estimates are likely to be a lower bound of the extent of illicit financial flows from trade misinvoicing.
- The atlas measure will not catch cases where trade is misinvoiced at both ends of the transaction.
- The level of commodity aggregation will result in illicit inflows and outflows cancelling out within same sector.
- Not all countries report to UN Comtrade, so there will be missing data.
- Further work is needed to validate the atlas database on the ground, through triangulation with other results from, e.g., forensic audits of specific shipments.
- Future research should also focus on quantifying uncertainty and testing the robustness of the estimates to different assumptions.