### Method fact sheets

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| **Method fact sheet** | **METHODOLOGICAL GUIDELINES TO MEASURE**  **TAX AND COMMERCIAL ILLICIT FINANCIAL FLOWS**  **Methods for pilot testing** | | | | |
| **Method title** | | #1 Partner Country Method (PCM) + | | | |
| **Alternative title(s)** | | Trade asymmetries, mirror-data analysis | | | |
| **Method group** | | Trade misinvoicing by entities | | | |
| **Targeted IFFs flow type** | | F2 Trade misinvoicing | | **Tier classification** | Tier 2 |
| Open book outline**Concept** | | | | | |
| The concept of PCM is based on the trade gap, defined as discrepancy in the values of a trade transaction in goods (import, export), independently reported by both trading partners. | | | | | |
| Warning outline**Assumptions** | | | | | |
| 1. Partner’s trade statistics are sufficiently accurate and comparable to treat remaining differences (after adjustments) in mirror statistics as misinvoicing. 2. Depending on product detail, assumptions relate to product homogeneity under a particular HS code. | | | | | |
| Badge Follow outline**Strengths** | | | Badge Unfollow outline**Limitations** | | |
| 1. Accessible data. 2. Clear concept.  3. Abundant literature and cases. | | | 1. Top-down approach. 2. Mixing other reasons of trade discrepancy with IFFs, including a known methodological cause, notably partner attribution. | | |
| Clipboard outline**Data sources** | | | Questions outline**Mitigation of limitations** | | |
| 1. Bilateral trade statistics (national sources, including that of partner countries, or United Nations Comtrade, IMF DOTS). 2. UNCTAD Global Transport Costs database, OECD's ITIC or similar to address CIF-FOB discrepancies. | | | 1. Use as granular level data as possible, lowest category within product classification (i.e., HS sub-heading for international comparability). Additionally, use individual partners for at least the majority of trade (e.g., to cover more than 75% of the trade). 2. Thoroughly inspect discrepancies at lowest-category commodity using various inputs, including experts' knowledge. | | |
| Abacus outline**Calculation** | | | | | |
| 1. Observe discrepancy at lowest-level aggregation of products.  2. Calculate and apply CIF/FOB ratio by commodity, if applicable.  3. Inspect remaining discrepancy and check what underlying factors drive them.  4. Apply reliability weighting.  5. Treat remaining discrepancy at lowest-level aggregation of products as misinvoicing, hence tax and commercial IFFs' inflows and outflows. 6. Aggregate #5. | | | | | |
| Presentation with pie chart outline**Results** | | | | | |
| Results are presented for a total economy on an annual level: inward IFFs and outward IFFs. | | | | | |
| High voltage outline**Special note(s)** | | | | | |
| Close collaboration with statistical units at Customs authorities. | | | | | |
| Information outline**Case studies** | | | | | |
| 1. CIF by commodity (Schuster and Davis, 2020).  2. Country of consignment in mobile phone trade between Canada and China (UNSD, 2019).  3. Bilateral trade asymmetries joint studies (European Commission, 2009; Statistics Canada, 2019).  4. Weighting discrepancies (UNECLAC, 2016).  5. PCM for South Africa imports (WCO, 2018).  6. Trade misinvoicing in the Arab region (UNESCWA, 2016).  7. Trade misinvoicing in Asia and the Pacific (Kravchenko, 2018).  8. Mirror trade gap in Africa (Schuster and Davis, 2020). | | | | | |

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| **Method fact sheet** | **METHODOLOGICAL GUIDELINES TO MEASURE**  **TAX AND COMMERCIAL ILLICIT FINANCIAL FLOWS**  **Methods for pilot testing** | | | | |
| **Method title** | | #2 Price Filter Method (PFM) + | | | |
| **Alternative title(s)** | | Abnormal prices | | | |
| **Method group** | | Trade misinvoicing by entities | | | |
| **Targeted IFFs flow type** | | F2 Trade misinvoicing | | **Tier classification** | Tier 1 |
| Open book outline**Concept** | | | | | |
| Trade mispricing occurs when the unit price of a given transaction differs from the normal prices (arms-length transaction) assumed by a price filter, i.e., when an abnormal price of a particular transaction is identified. | | | | | |
| Warning outline**Assumptions** | | | | | |
| 1. Prices outside price filter are attributed to mispricing. | | | | | |
| Badge Follow outline**Strengths** | | | Badge Unfollow outline**Limitations** | | |
| 1. Transaction-level microdata.  2. Does not rely on the partner’s transaction data.  3. Abundant literature and cases. | | | 1. Statistical price filters will always find transactions with abnormal prices (endogeneity).  2. Heterogeneity of products even at transaction-level.  3. Inability to identify legitimate unusual prices, e.g. lower prices offered by long-term contracts.  4. Refers only to mispricing (as a subset of misinvoicing).  5. Overall weakness on recording of quantity information. | | |
| Clipboard outline**Data sources** | | | Questions outline**Mitigation of limitations** | | |
| 1. Transaction-level data from Customs authorities. Important to use data before adjustments to correct for abnormal prices for statistical purposes take place.  2. Free-market commodity prices from international sources (UNCTAD, World Bank).  3. Ranges of standard unit values by HS sub-headings (United Nations Comtrade). | | | 1. Set price filters specific for trade determinants, such as commodity, partner, periods, mode of transport.  2. Use free-market prices for the price filter.  3. Involve and consult experts, including from Customs, on detected outliers (whether or not there is an explanation). | | |
| Abacus outline**Calculation** | | | | | |
| 1. Exploratory data analysis and preparation of the data (removing outliers).  2. Include experts.  3. Define the price filter(s).  4. Calculate amount of over- and underpricing.  5. Aggregate to obtain inward, outward and total IFFs. | | | | | |
| Presentation with pie chart outline**Results** | | | | | |
| Results are presented for a total economy on an annual level: inward IFFs and outward IFFs. | | | | | |
| High voltage outline**Special note(s)** | | | | | |
| Close collaboration with statistical units at Customs authorities.  If a high reliance on triangular operations through offshore intermediary entities located in low-tax jurisdictions is present, the price filter should not be statistically estimated (downward bias). | | | | | |
| Information outline**Case studies** | | | | | |
| 1. The basic treatment of SARS data using three passes (WCO, 2018).  2. Identifying national experts to support PFM application (Ahene-Codjoe et al., 2020).  3. Calculating benchmark prices for gold (Carbonnier and Mehrotra, 2020).  4. PFM for the Soya Bean exports in Brazil (Amaral and Barcarolo, 2020).  5. Trade misinvoicing in copper products: a case study of Chile and Peru (Hanni and Podestá, 2019). | | | | | |

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| **Method fact sheet** | **METHODOLOGICAL GUIDELINES TO MEASURE**  **TAX AND COMMERCIAL ILLICIT FINANCIAL FLOWS**  **Methods for pilot testing** | | | | |
| **Method title** | | #3 Global distribution of MNEs’ profits and corporate taxes | | | |
| **Alternative title(s)** | | Semi-elasticity model | | | |
| **Method group** | | Aggressive tax avoidance or profit shifting by MNEs | | | |
| **Targeted IFFs flow type** | | F3-F5 Profit shifting | | **Tier classification** | Tier 3 |
| Open book outline**Concept** | | | | | |
| The method looks at the distribution of profits of an MNE among its units globally and relates it to the corresponding corporate (effective) tax rates and underlying economic activity of a particular unit. The method assumes that an MNE unit is likely to shift profits out of the country if another unit’s tax regime induces a lower tax rate. | | | | | |
| Warning outline**Assumptions** | | | | | |
| 1. Any systematic deviation from predicted profitability of the unit is a sign of profit shifting.  2. If domestic tax rates are higher than in partner country, profits are being shifted out of a country.  3. Marginal effect of tax rate change translates to the amount of profits shifted. | | | | | |
| Badge Follow outline**Strengths** | | | Badge Unfollow outline**Limitations** | | |
| 1. Straightforward concept.  2. Data availability.  3. Potential for enhancements. | | | 1. Underestimates the amount of profit shifting.  2. Hard to determine tax rate faced by MNE unit.  3. Tax sensitivity may vary across different tax regimes or size of an MNE.  4. Data limitations usually do not account for entire web of MNEs’ units. | | |
| Clipboard outline**Data sources** | | | Questions outline**Mitigation of limitations** | | |
| 1. OECD’s CbCR microdata or, if unavailable, aggregated at country level.  2. If CbCR unavailable, build dataset from other sources, such as OECD’s databases (ADIMA, AMNE and Tax Database), GGR, EuroGroups register or similar.  3. Supplementing with UN Data, KPMG, Orbis | | | 1. Use effective average tax rate.  2. Introduce a squared tax variable to account for uneven tax sensitivity across tax jurisdictions.  3. Supplement econometric analysis by interpretation using location, economic activity, and comparison to comparable group.  4. Given data availability and sample size, apply also size-variations in model specification (e.g., quartile regression, weighted regression). | | |
| Abacus outline**Calculation** | | | | | |
| 1. Determine profit shifting via semi-elasticity of profits on taxes.  2. Measure the amount of profits shifted.  3. Aggregate to obtain inward, outward and total IFFs. | | | | | |
| Presentation with pie chart outline**Results** | | | | | |
| Results are presented for a total economy on an annual level: inward IFFs and outward IFFs. | | | | | |
| High voltage outline**Special note(s)** | | | | | |
| Premise of the method is that profits are shifted out of a country, being studies from high-tax jurisdiction; potentially it can be used for low-tax jurisdiction, in both cases the method will most likely only provide either inward or outward IFFs. With sufficient coverage of all, domestic and foreign MNEs’ units, simultaneous results of both flows of IFFs are expected to be achieved. | | | | | |
| Information outline**Case studies** | | | | | |
| 1. Estimating profit shifting in South Africa using firm-level tax returns (Reynolds and Wier, 2016; Wier and Reynolds, 2018).  2. Profit shifting in Germany using Country-by-Country Reporting data (Fuest et al., 2021). | | | | | |

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| **Method title** | | #4 MNE vs comparable non-MNE profit shifting | | | |
| **Alternative title(s)** | |  | | | |
| **Method group** | | Aggressive tax avoidance or profit shifting by MNEs | | | |
| **Targeted IFFs flow type** | | F3-F5 Profit shifting | | **Tier classification** | Tier 1 |
| Open book outline**Concept** | | | | | |
| The method identifies tax-avoiding MNEs applying both between (MNEs to comparable non-MNEs) and within (tax-avoiding to non-tax-avoiding MNEs) comparisons and measures related amount of BEPS. | | | | | |
| Warning outline**Assumptions** | | | | | |
| 1. Identified differences between MNE and domestic entities are not driven by other factors (e.g., productivity, economies of scale).  2. Size of the entity and industry in which it operates are sufficient absolute indicators to ensure proper comparison of an MNE to control group. | | | | | |
| Badge Follow outline**Strengths** | | | Badge Unfollow outline**Limitations** | | |
| 1. Firm-level microdata.  2. It does not treat all MNEs equally in the sense that not all MNEs are tax-avoiding.  3. Clear concept. | | | 1. Does not distinguish aggressive tax avoidance from the overall profit shifting flows.  2. Problems finding a control group of domestic firms in small economies.  3. A country is defined either as inward or outward IFFs and cannot have both flows identified (nor measured). | | |
| Clipboard outline**Data sources** | | | Questions outline**Mitigation of limitations** | | |
| Firm-level microdata from:  1. Structural business statisics,  2. International trade statistics,  3. Position of national firms within MNEs (national or regional Groups register).  4. FATS.  5. LCUs. | | | Detailed and additional data (e.g., include size of assets) and interpret results in the context of the particular MNE units' role within MNE, its activity (industry) and overall country's economic environment (including effective tax rates). | | |
| Abacus outline**Calculation** | | | | | |
| 1. Phase zero of exploring country's inward or outward IFFs nature.  2. Identification phase, between comparison (apply PS).  3. Identification phase, within comparison: obtain composite indicator by factor analysis.  4. Identification phase, within comparison: Logit model using composite indicator to obtain proxy (0,1).  5. Identification phase, within comparison: threshold observation is obtained.  6. Identification phase, within comparison: classify MNEs into tax avoiding and non-tax avoiding.  7. Measurement phase: calculate adjusted value of EBIT-to-turnover ratio for each MNE.  8. Calculate IFF for each MNE.  9. Aggregate to obtain total IFFs in a country (inward or outward - see special note). | | | | | |
| Presentation with pie chart outline**Results** | | | | | |
| Results are presented for a total economy on an annual level: only either inward or outward IFFs. | | | | | |
| High voltage outline**Special note(s)** | | | | | |
| Prior analysis is required to start the model for either inward or outward IFFs. A country cannot have both flows identified or measured with this method. | | | | | |
| Information outline**Case studies** | | | | | |
| 1. Indicators of profit shifting by MNEs in Canada (Fortier-Labonté and Schaffter, 2019).  2. Profit shifting in Italy (Sallusti, 2021). | | | | | |

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| **Method title** | | #5 Flows of undeclared offshore assets indicator | | | |
| **Alternative title(s)** | |  | | | |
| **Method group** | | Transfer of wealth to evade taxes by individuals | | | |
| **Targeted IFFs flow type** | | F1 Transfer of wealth to evade taxes | | **Tier classification** | Tier 3 |
| Open book outline**Concept** | | | | | |
| The method measures the excess of the value of citizens’ assets declared by countries, over the value declared by citizens themselves for tax purposes. | | | | | |
| Warning outline**Assumptions** | | | | | |
| 1. Measured discrepancy can be attributed to IFFs alone.  2. Difference between two subsequent stock measures is considered the corresponding flow. | | | | | |
| Badge Follow outline**Strengths** | | | Badge Unfollow outline**Limitations** | | |
| 1. Relatively straightforward to calculate the offshore wealth. | | | 1. Macro approach.  2. Overlap with other categories of IFFs.  3. Requires transformation of stock to flow measure.  4. Consumption of wealth is not considered.  5. Certain asset classes (e.g., art, real estate, or cryptocurrencies) are not considered.  6. Data (un)availability.  7. Produces only outward IFFs under certain circumstances. | | |
| Clipboard outline**Data sources** | | | Questions outline**Mitigation of limitations** | | |
| 1. Bank of International Settlements (BIS), by location.  2. OECD Common Reporting Standard.  3. National tax authorities. | | | Detailed and additional data by countries, including data exchange in safe statistical environment. | | |
| Abacus outline**Calculation** | | | | | |
| 1. Calculate undeclared assets of citizens.  2. Transform to flows.  3. Determine outflows of IFFs. | | | | | |
| Presentation with pie chart outline**Results** | | | | | |
| Results are presented for a total economy on an annual level: only outward IFFs. | | | | | |
| High voltage outline**Special note(s)** | | | | | |
| Outflows are obtained only using assumptions and if circumstances are right. Determining inflows of IFFs using this method is not readily available. | | | | | |
| Information outline**Case studies** | | | | | |
| 1. Italian cross-border bank transfers (Cassetta et al., 2014). | | | | | |

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| **Method title** | | #6 Flows of offshore financial wealth by country | | | |
| **Alternative title(s)** | |  | | | |
| **Method group** | | Transfer of wealth to evade taxes by individuals | | | |
| **Targeted IFFs flow type** | | F1 Transfer of wealth to evade taxes | | **Tier classification** | Tier 3 |
| Open book outline**Concept** | | | | | |
| The method starts from global level imbalance between international portfolio liabilities and assets, assigning it to the wealth held by individuals outside their countries and unreported to the tax authorities where they are a resident. Non-compliance rate on offshore wealth is applied, followed by transformation of stock measure to flow to identify the level of illicit flows. | | | | | |
| Warning outline**Assumptions** | | | | | |
| 1. Offshore financial wealth comprised of portfolio assets and deposits only (real estate assets, artwork, life insurance, cash money, cryptocurrencies excluded).  2. Divide offshore wealth into deposits and portfolio investments with a 25% - 75% ratio.  3. Ownership shares of cross-border deposits held by individuals in IFCs as proxies.  4. A country with a large outgoing FDI stock (relative to GDP) is assumed to have a large proportion of outgoing corporate deposits.  5. Non-compliance rate is 75%.  6. The difference between the value of offshore wealth in the current year and in the previous year (corrected for assets valuation) is a measure of IFFs outflows. | | | | | |
| Badge Follow outline**Strengths** | | | Badge Unfollow outline**Limitations** | | |
| 1. Concept starting from global level imbalance between international portfolio liabilities and assets. | | | 1. Macro approach.  2. Associating deposits with their origin: various screening arrangements, e.g., shell companies, prevent direct estimation of ownership shares of undeclared offshore wealth.  3. Cannot distinguish cross-border deposits from individuals and those from corporations.  4. Relying on various assumptions.  5. Produces only outward IFFs under certain circumstances. | | |
| Clipboard outline**Data sources** | | | Questions outline**Mitigation of limitations** | | |
| 1. IMF's CPIS.  2. IMF's IIP.  3. EWN database.  4. BIS.  5. Central bank of Switzerland. | | | Detailed and additional data by countries, including data exchange in safe statistical environment. | | |
| Abacus outline**Calculation** | | | | | |
| 1. Estimate the global offshore financial wealth, as the sum of global offshore portfolio wealth and offshore deposits.  2. Global offshore financial wealth is broken down by country of ownership and by IFC.  3. Apply non-compliance rate of 75 per cent to offshore wealth held by individuals to obtain undeclared offshore wealth.  4. Estimate flows from stock measures.  5. Estimate outflows of IFFs. | | | | | |
| Presentation with pie chart outline**Results** | | | | | |
| Results are presented for a total economy on an annual level: only outward IFFs. | | | | | |
| High voltage outline**Special note(s)** | | | | | |
| Outflows are obtained only using assumptions and if circumstances are right. Determining inflows of IFFs using this method is not readily available. | | | | | |
| Information outline**Case studies** | | | | | |
| 1. Identifying hidden assets in the Balance of Payments by Bank of France (Gervais and Quang, 2018).  2. International tax evasion on original income (European Commission, 2019). | | | | | |