

GLOBAL FINANCIAL INTEGRITY

# Indonesia: Potential Revenue Losses Associated with Trade Misinvoicing



Global Financial Integrity

June 2019





GLOBAL FINANCIAL INTEGRITY

# Indonesia: Potential Revenue Losses Associated with Trade Misinvoicing

**Global Financial Integrity**

**June 2019**

*Global Financial Integrity wishes to thank the Ford Foundation for their generous support of this project.*



**FORD  
FOUNDATION**

Copyright ©2019 by Global Financial Integrity®. Some rights reserved.

The report is published under a Creative Commons Attribution License (CC BY).  
For more information on this license, visit: <http://creativecommons.org>.

Global Financial Integrity® and the Global Financial Integrity Logo are  
registered trademarks of Global Financial Integrity.





June 2019

We are pleased to present here our analysis, *Indonesia: Potential Revenue Losses Associated with Trade Misinvoicing*.

Trade misinvoicing is a reality impacting Indonesia and every other country of the world. Imports coming into a country can be over-invoiced in order to shift money abroad, or imports can be under-invoiced in order to evade customs duties or value-added tax (VAT). Similarly, exports going out of a country can be under-invoiced in order to shift money abroad. Exports are occasionally over-invoiced; for example, in order to reclaim VAT taxes. Regardless of which method is used, the results are the same: large amounts of tax revenues are not being collected.

Global Financial Integrity finds that trade misinvoicing is the most frequently utilized mechanism facilitating measurable illicit financial flows (IFFs). Misstating import and export values on invoices submitted to customs authorities has become normalized in much of commercial trade. We are dealing with a systemic problem that merits serious concerted attention. While there are many channels for IFFs in the global economy, this report is focused exclusively on the IFFs that flow through the international trading system of regular imports and exports.

Parties to trade who engage in misinvoicing do so because it is profitable to them. That is, they will incur some costs (including the potential cost of getting caught), but do so because the expected financial benefits of misinvoicing are larger than their expected costs. While those parties benefit from misinvoicing, there are social costs to nations affected by such activity. The taxes that go uncollected as a result of trade misinvoicing deprive governments of desperately needed tax revenues for funding basic government services such as health, education, transportation and long-term public investment. And while governments lose money, illicit actors gain money which can be used to finance criminal activity.

While any country may be affected by misinvoicing, the problem is particularly acute for developing countries where productive capacities and domestic tax bases may be limited. The social costs of trade misinvoicing can undermine sustainable growth in living standards in developing countries, as well as exacerbate already pronounced inequities in the distribution of income and wealth. Moreover, by depressing government revenues and exacerbating inequality, those social costs can also impede progress in the developing world on important social goals, such as commitments to achieve the internationally-agreed Sustainable Development Goals (SDGs).

In this analysis, we seek to provide an approximate measure of tax revenues lost to the Indonesian government due to trade misinvoicing. We illustrate this by using data for 2016 (the most recent year for which comprehensive data for Indonesia are available). For that year, we can reasonably identify potential revenue losses of over **US\$6.5 billion**, which is equal to about **6.0 percent of total tax revenue collections** in Indonesia in 2016.

This is a conservative figure, as it does not include many types of trade misinvoicing and other IFFs that do not show up in official trade statistics. Moreover, the detailed data available for estimating trade misinvoicing in Indonesia comprise a fraction of all of that country's trade flows.

Furthermore, we take one aspect of this problem – import under-invoicing – and subject it to an in-depth analysis utilizing detailed bilateral trade data. We find that, in 2016, Indonesian imports of essential oils (HS 33), vehicles (HS 87), and plastics (HS 39) and, more generally, imports from the Netherlands, Switzerland, and Belgium were prone to potential revenue loss for the government of Indonesia due to under-invoicing. In particular, imports of beverages (HS 22) and essential oils (HS 33) from Singapore, plastics (HS 39) from China and vehicles (HS 87) from Japan and China were highlighted as potential high-level risks for revenue losses.<sup>1</sup>

All researchers working on this issue of trade misinvoicing are constantly seeking better data and better analytical methodologies. Even as we work toward these goals, what is most important is to appreciate the order of magnitude of the problem and the potential for realizing increased trade tax revenues that could be used for development if the problem is curtailed.

To help governments reduce the degree of trade misinvoicing, Global Financial Integrity has developed a tool – [GFTrade](#) – that can be used by customs officials to compare the declared prices on invoices of imports and exports in real time (i.e. while goods are still in the port) against prices for the same product traded between the same two trading partners over the previous 12 months. The comparison enables customs agencies to flag any invoices with prices that may be overstated or understated and that could be indicative of trade misinvoicing for further investigation. This tool can greatly assist governments to reduce trade misinvoicing and realize increased trade tax revenues.

Global Financial Integrity thanks the Ford Foundation for its support of these efforts.

Tom Cardamone  
President and CEO  
June 2019

---

<sup>1</sup> This analysis of Indonesian imports for 2016 is intended to be illustrative as well. The estimates of potential revenue losses could be evaluated over more refined commodity groups such as HS-4 digit and HS-6 digit groups. GFI will provide such more highly refined estimated groupings upon request.

# Table of Contents

---

Executive Summary . . . . .	1
I. The Four Main Types of Trade Misinvoicing and Their Common Purposes . . . . .	5
II. Indonesia: An Illustration of Potential Revenue Losses Due to Trade Misinvoicing . . . . .	9
A. GFI’s Methodology for Trade Gap Analysis . . . . .	9
B. Estimates of Trade Misinvoicing and Potential Revenue Losses in Indonesia in 2016. . . . .	12
III. Estimating Trade Misinvoicing in Indonesia: Potential Revenue Losses from Under-Invoiced Imports . . . . .	15
A. Overview of Indonesian Trade Data . . . . .	15
B. Statistical Treatments of the Basic Comtrade Data . . . . .	19
C. Key Commodities and Trade Partners at High-Risk for Trade Misinvoicing. . . . .	21
IV. Conclusion . . . . .	25
References . . . . .	31
About GFI . . . . .	33

## List of Tables

Table 1. Trade Misinvoicing and Estimated Potential Revenue Losses in Indonesia in 2016 (in millions of US dollars and percent of actual collections). . . . .	13
Table 2. Indonesian Imports, 2000-2016 (in millions of US dollars, CIF basis, as reported). . . . .	17
Table 3. Indonesian Exports, 2000-2016 (in millions of US dollars, as reported) . . . . .	18

## List of Figures

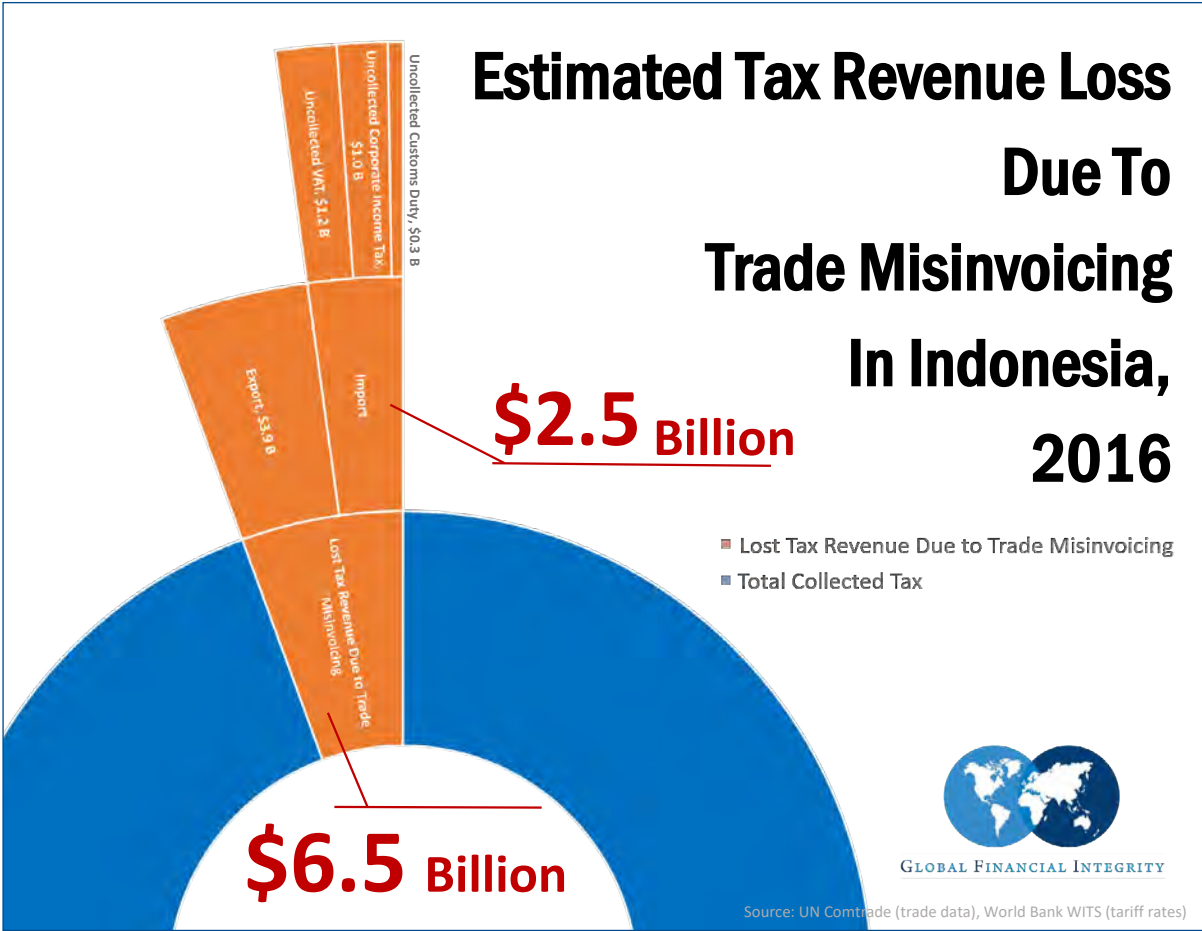
Figure 1. The 4 Main Types of Trade Misinvoicing and Their Common Purposes. . . . .	5
Figure 2. Estimated Revenue Loss in Indonesia Due to Import Under-invoicing by Commodities, as a Percent of Value of Total Imports of Each Commodity Group, in 2016 (in millions of US dollars) . . . . .	22
Figure 3. Estimated Revenue Loss in Indonesia Due to Import Under-invoicing by Partner Country, as a Percent of Value of Total Imports of Each Partner Country, in 2016 (in millions of US dollars). . . . .	23
Figure 4. Estimated Revenue Loss in Indonesia Due to Import Under-invoicing by both Commodity Group and Partner Country, as a Percent of Value of Total Imports of Each Partner Country, in 2016 (in millions of US dollars) . . . . .	25



# Executive Summary

This report analyzes Indonesia's bilateral trade statistics for 2016 (the most recent year for which sufficient data are available), as published by the United Nations (Comtrade). The detailed breakdown of bilateral Indonesian trade flows in Comtrade allowed for the computation of trade value gaps that are the basis for misinvoicing estimates. Import gaps represent the difference between the value of goods Indonesia reports having imported from its partner countries and the corresponding export reports by Indonesia's trade partners. Export gaps represent the difference in value between what Indonesia reports as having exported and what its partners report as imported.

In addition to identifying the trade gaps in Indonesia's 2016 imports and exports with its partners, the report also estimated the potential loss of tax revenue associated with the gaps. The analysis shows that the estimated potential loss of revenue to the Indonesian government is **US\$6.5 billion** for 2016. To put this figure in context, this amount represents **6.0 percent of the value of Indonesia's total government revenue collections in 2016**. Put still another way, the estimated value gap of all misinvoiced imports and exports was US\$38.5 billion, which is equivalent to 13.7 percent of the country's total trade of US\$280.2 billion in 2016.



The total estimated potential lost revenue of US\$6.5 billion is comprised of misinvoiced imports and exports. The portion of government revenue potentially lost due to import misinvoicing in 2016 was approximately US\$2.5 billion. This amount can be further divided into its component parts: uncollected value-added tax (VAT) (US\$1.2 billion), customs duties (US\$302 million) and corporate income tax (US\$1.1 billion). The potentially lost revenue due to misinvoiced exports in 2016 was approximately US\$3.9 billion. This amount can be further divided into its component parts: uncollected corporate income tax (US\$1.8 billion) and uncollected tax from royalty payments (US\$2.1 billion) (See Table 1).

Trade misinvoicing occurs in four ways: under-invoicing of imports or exports, and over-invoicing of imports or exports. In the case of import under-invoicing, fewer VAT taxes and customs duties are collected due to the lower valuation of goods on the invoices. When import over-invoicing occurs (i.e. when companies pay more than would normally be expected for a product), corporate revenues are lower, making taxable income levels lower and consequently less income tax is paid. In cases of export under-invoicing, the exporting company collects less revenue than would be anticipated and therefore reports lower taxable income, subsequently paying less income tax.

Total misinvoicing gaps related to imports in 2016 can be broken down by import under-invoicing (US\$11.8 billion) and import over-invoicing (US\$6.1 billion). These figures represent the estimated value of the gap between what was reported by Indonesia and its trading partners. The estimated loss in government revenue is a subset of these amounts and is based on VAT tax rates in 2016 (10.0 percent), customs duties in 2016 (calculated by WITS tariff data on line by line basis) and corporate income taxes on profit in 2016 (17.2 percent), which are then applied to the value gap. Export misinvoicing gaps were US\$10.6 billion for export under-invoicing and US\$10.0 billion for export over-invoicing. Lost corporate income taxes and royalties in 2016 (20.0 percent) are then applied to export under-invoicing amounts to calculate lost government revenue (See Table 1).

The study also includes a more in-depth exploration of the approximately US\$3.2 billion in tax revenues that Indonesia is estimated to have lost due to import under-invoicing in 2016 by examining imports according to major commodity groups as listed among the United Nations Harmonized System (HS) product codes at the two-digit level.<sup>2</sup> We examined Indonesia's imports to identify particular products that appeared to be at especially high risk for trade misinvoicing in 2016 (See Figure 2).

---

<sup>2</sup> This analysis of Indonesian imports for 2016 is intended to be illustrative. The estimates of potential revenue losses could be evaluated over more refined commodity groups such as HS-4 digit and HS-6 digit groups. GFI will provide such more highly refined estimated groupings upon request.

We also examined Indonesia's imports in 2016 to identify particular trading partners that appeared to be at high risk for trade misinvoicing both in terms of their percentage total imports to Indonesia, as well as in terms of their dollar values of estimated lost customs revenues. The partner countries associated with largest potential dollar values of losses included the Netherlands (US\$8.4 million), Switzerland (US\$7.5 million) and Belgium (US\$3.2 million). While under-invoiced imports from these three trading partners reflected relatively minor potential revenue losses as a percent of total imports from these countries, their combined potential revenue losses by dollar values totaled US\$19.1 million (see Figure 3). When looking at under-invoiced imports by both commodities and trading partners at the same time, Figure 4 shows that the revenue risks on under-invoiced imports of beverages (HS 22) from Singapore appears to have been particularly acute in 2016. Under-invoicing associated with imports of essential oils (HS 33) from Singapore, plastics (HS 39) from China and vehicles (HS 87) from Japan and China were also highlighted as a potential risk for revenue losses (See Figure 4).

We conclude by listing a series of steps that Indonesia can take at the national and international level to address the problem of trade misinvoicing in particular and the problem of illicit financial flows (IFFs) more generally. At the national level, GFI recommends that Indonesia takes steps to streamline procedures and improve oversight, transparency and accountability mechanisms in its customs administration. This could include scaling up the resources needed to strengthen regulatory enforcement, invoice audits and reviews. GFI also recommends that Indonesia consider adopting its online tool – [GFTrade](#) – designed by GFI to build the capacity of customs authorities to better detect misinvoicing as transactions are occurring and take corrective steps in real time. In terms of tackling the problem of IFFs more broadly, GFI commends Indonesia for having adopted legislation that addresses beneficial ownership (requiring the true beneficial owners of companies be identified), which the Financial Action Task Force (FATF) views quite positively; for implementing country-by-country reporting (CbCR); for adopting automatic exchange of tax information (AEOI) with partner countries; and for signing on to support the Addis Tax Initiative.

At the international level, GFI recommends that Indonesia use its diplomatic clout in the international arena to support a number of policy initiatives that require international cooperation to curtail IFFs. Of particular importance are international efforts to increase transparency in the global financial system, measures related to reducing the secrecy of tax havens and anonymous companies and efforts to curtail money laundering techniques. Specifically, GFI recommends that Indonesia and other world leaders take pro-active steps to support ongoing international efforts on these issues.



# I. The Four Main Types of Trade Misinvoicing and Their Common Purposes

GFI undertakes an analysis of a country’s recent trade with its partners in order to identify four types of trade misinvoicing that are common sources of tax evasion. Trade misinvoicing is a method for moving money illicitly across borders, which involves the deliberate falsification of the value, volume or quality of an international commercial transaction of goods or services by at least one party to the transaction. This typically happens when exporters and importers submit false information about shipments on invoices to customs authorities when shipping exports or receiving imports. It should be noted, however, that such activities take place alongside legitimate trade, which provides a good cover for illicit financial flows (IFFs).

**Figure 1. The 4 Main Types of Trade Misinvoicing and Their Common Purposes**

IFF Outflows	Import Over-Invoicing	<ul style="list-style-type: none"> <li>– to shift money abroad (evade capital controls, shift wealth into a hard currency, etc.);</li> <li>– overstating the cost of imported inputs to reduce income tax liability;</li> <li>– to avoid anti-dumping duties</li> </ul>
	Export Under-Invoicing	<ul style="list-style-type: none"> <li>– to shift money abroad (evade capital controls, shift wealth into a hard currency, etc.);</li> <li>– to evade income taxes (lowering taxable income levels);</li> <li>– to evade export taxes</li> </ul>
IFF Inflows	Import Under-Invoicing	<ul style="list-style-type: none"> <li>– to evade customs duties or VAT taxes;</li> <li>– to avoid regulatory requirements for imports over a certain value</li> </ul>
	Export Over-Invoicing	<ul style="list-style-type: none"> <li>– to exploit subsidies for exports;</li> <li>– to exploit drawbacks (rebates) on exports</li> </ul>

Figure 1 describes the four standard types of trade misinvoicing. These include two ways of illicitly sending funds *into* other countries (IFF inflows) and two ways of illicitly sending funds *out* of a country (IFF outflows). In each case, either method could be used by manipulating invoices for either imports or exports. Each of these four pathways is described below:

**Import over-invoicing** is done for the purpose of shifting money abroad. For example, instead of paying US\$100 per unit for an import, you can arrange for the invoice to read US\$120 per unit and upon payment put the extra US\$20 into a foreign bank account. Therefore, although you are actually paying US\$100 per unit for the goods, the falsified invoice enables you to pay US\$120, with US\$100 going to the actual producer and US\$20 going someplace else, often into an offshore account. Import over-invoicing is a common method of illegally moving money out of developing countries

and results in *illicit outflows* of funds from a country. There are many reasons why people seek to move money out of developing countries. GFI believes the most common reasons include efforts to shift wealth from countries with weak currencies (whose value often fluctuates and depreciates on world markets) into hard currencies like US dollars, British pounds or EU euros (whose value is more steadily retained). Simple tax evasion is also a major reason.

Similarly, ***export under-invoicing*** can also be used for shifting money abroad. Other purposes include evading the payment of export taxes and lowering the levels of a company's taxable income. In this method, the invoice is falsified to show that the price of goods being exported is lower than the actual price being paid by an importer abroad. This second type of trade misinvoicing is done by exporters who are attempting to pay a lower tax on exports and/or is used by companies as an accounting maneuver to officially lower apparent profits and thus, to pay a lower corporate income tax rate. This practice often plagues high-value natural resource exports from African countries. The High Level Panel on Illicit Financial Flows from Africa found that IFFs are most evident in Africa's resource-exporting countries. Therefore, the use of export under-invoicing also results in *illicit outflows* of money from developing countries, while also denying export and income taxes owed to the government.

Trade misinvoicing is also used to bring illicit funds *into* countries. A key method of *illicit inflows* includes ***import under-invoicing***. This third type of trade misinvoicing is often used for the purpose of evading the payment of customs duties and value-added taxes (VAT) paid on imports. For example, instead of paying US\$100 per unit, you can arrange for the invoice to read US\$50 per unit and save on the duties and VAT that would have been payable at the higher unit price. Upon paying the invoice at US\$50, you still owe the remaining US\$50 to the original producer abroad and therefore must also have a separate means of shifting money abroad in order to complete the transaction. In other words, import under-invoicing is sometimes done with an additional mechanism for shifting un-taxed money out of the country to meet the actual balance due. Import under-invoicing is also common method for evading capital controls (legal limits on how much money can be brought into or out of a country). Since more wealth is being imported into a country than is actually being declared, import under-invoicing results in *illicit inflows* of funds into a country.

Lastly, ***export over-invoicing*** is also used to bring illicit funds *into* countries. In this fourth major type of trade misinvoicing, the prices listed on export invoices are falsified to show that exports are priced at higher levels than what importers abroad have invoiced. While this may result in exporters paying higher amounts of export taxes than are actually due, such tactics are used to benefit companies that are seeking to abuse various government export incentives programs, such as customs duty and VAT tax drawbacks (rebates). In many countries, there are special government

programs designed to encourage exports by offering rebates on the duty and VAT for the costs of any imported materials used in the local production of goods before they are exported. Export prices can also be inflated to receive larger export subsidies from the government. While intended to promote exports, these government programs can create incentives for companies to falsify the price of their exports in order to maximize the benefits of rebates or take advantage of export subsidies. In such cases, companies can earn more through receiving such government rebates and subsidies than they pay in additional (inflated) export taxes. Because this results in more money coming into an economy than is supposed to (if exports have been priced accurately), export over-invoicing also results in *illicit inflows* of funds into a country.

In summary, there are four standard types of trade misinvoicing: under-invoicing and over-invoicing of both exports and imports. Two of these types of trade misinvoicing result in *illicit outflows* of money out of an economy and two result in *illicit inflows* of money into an economy. Common reasons for illicit outflows are to evade taxes and shift wealth from weak currencies into hard currencies, while common reasons for illicit inflows are for evading taxes and laundering the proceeds from and/or financing of the illegal activities of transnational criminal organizations. While much attention is often given to the problem of illicit outflows from developing countries, the problem of illicit inflows is often just as big of a problem. In both cases, the result is that taxes are not being paid to governments, resulting in less revenue available for public health, public education and other essential government services.

While a great deal of attention has been placed on the issue of profit shifting/abusive transfer pricing by multinational corporations, GFI believes that trade misinvoicing is a major component of IFFs and is likely equivalent to the revenue losses attributed to tax evasion and profit shifting by multinational corporations. For example, the International Monetary Fund (IMF) estimates the revenue losses to developing country governments from tax evasion and profit shifting at US\$200 billion per year.<sup>3</sup> This is about the same as GFI's 20 percent estimate of tax and revenue losses due to the US\$1 trillion in trade misinvoicing per year in developing countries. Despite this similar scale of revenue losses, the problem of trade misinvoicing has not received the same degree of attention as tax evasion and profit shifting.

---

<sup>3</sup> International Monetary Fund, "Corporate Taxation in The Global Economy," March 2019, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/03/08/Corporate-Taxation-in-the-Global-Economy-46650>.



## II. Indonesia: An Illustration of Potential Revenue Losses Due to Trade Misinvoicing

---

This section describes the trade gap analysis undertaken by GFI of Indonesia's trade with its partners in 2016 and estimates the potential revenue losses by the Government of Indonesia due to trade misinvoicing during that year.

### A. GFI's methodology for trade gap analysis

To undertake a trade gap analysis, GFI uses data provided by the United Nations Comtrade (Comtrade) database, which each year collects reported data from most countries about their annual imports and exports.<sup>4</sup> For this analysis, GFI used the Comtrade data for Indonesia in 2016 to cross reference Indonesia's reports on its exports and imports against the corresponding reports submitted by all of Indonesia's trade partners around the world for 2016. In these data sets, we looked for gaps in export and import statistics that are suggestive of trade misinvoicing.

Indonesia reported to UN Comtrade a total value of nearly US\$135.7 billion in imports and nearly US\$144.5 billion in exports for a total value of trade of US\$280.1 billion in 2016. After compiling Indonesia's trade data and that of its trade partners for 2016, we then eliminated three different sets of trade data from consideration. We first eliminated all cases of "orphaned" imports – meaning those records in the database for which Indonesia reported a value for imports of a commodity or good from a particular country while that country reported no exports of that good to Indonesia in that year. Next, we eliminated all cases of "lost" exports – meaning records of exports reported by Indonesia's trade partners as goods shipped to Indonesia in a particular year, but which were not reported as imported by Indonesia in that year.

After eliminating all cases of "orphaned" and "lost" records from the Comtrade data for Indonesia in 2016, we then focused our analysis on the remaining "matched values" trade data sets, i.e., trades for which both Indonesia and its trading partners reported values for that year. However, in order to be kept for consideration in the trade gap analysis, these "matched values" sets of trade flows must have three features to be considered useful for our analysis: 1) non-zero values for the trade must be reported by both the reporting country and its partner; 2) non-zero volumes (quantities) for the trade must be reported by both the reporting country and its partner; and 3) the volumes must be reported in the same physical units of measurement by both the reporting country and its partner. Any of the sets of matched values that did not comply with all three criteria were also eliminated as

---

<sup>4</sup> In earlier reports, GFI used data from the Direction of Trade Statistics (DOTS) database produced by the International Monetary Fund (IMF). In its January 2019 multi-country report, "Illicit Financial Flows to and from 148 Developing Countries: 2006-2015," GFI drew from both the IMF DOTS database as well as the UN Comtrade database. While both databases have strengths and limitations, GFI decided to draw from the UN Comtrade database for this and future reports, primarily because of the scale and depth of the detailed data it provides.

“others”. Eliminating the “others” therefore reduces the number of remaining “matched” trades with which to use our trade gap analysis.

After eliminating all cases of “orphaned”, “lost” and “others” records from the Comtrade data for Indonesia in 2016 and applying other treatments to the data (see below), we were left with the remaining sets of “matched” trades with which we used to conduct our trade gap analysis. In our trade gap analysis, we identified any gaps found in the reporting data when the reported values by both partners did not match. For example, if Indonesia reported paying US\$5 million for alarm clocks imported from China in 2016, but China only reported exporting US\$3 million in alarm clocks to Indonesia in 2016, this would represent a trade gap of US\$2 million. With Indonesia as our focus, this would reflect a case of import over-invoicing by Indonesia.

### **Limitations of GFI’s trade gap analysis methodology**

GFI regards this illustrative estimate of potential revenue loss from trade misinvoicing in Indonesia as very conservative. This means the actual amount of lost tax revenues could be much higher, however, we are limited by the constraints inherent in the international trade data reported by countries to Comtrade.

This section describes several limitations to the methodology used for our trade gap analysis. Firstly, even after eliminating all cases of “orphaned”, “lost” and “others” records, there are a number of reasons why trade gaps may appear in the Comtrade data for the sets of matched values we use in our analysis. These include: human error; countries that report on the same goods but use somewhat different 6-digit HS product codes than those used in the Comtrade system; delays in reporting (shipments exported late in one year may not be reported as imports by the partner country until early in the next year); and the problem of re-exports and transit-trade, in which international cargo may temporarily be unloaded from one ship and reloaded onto another ship in one or more countries during the journey from the original exporter country to the final import destination country, where consequently goods are mistakenly listed as imports to, or exports from, incorrect locations. All of these factors can result in measurement errors and partner misattribution that can undermine the reliability of trade gaps as a proxy for misinvoicing.

GFI attempts to mitigate some of these potential distortions in the Comtrade data by applying certain treatments. For example, GFI applies new updated data from Switzerland, which prior to 2012 did not report flows of gold and other precious metals in Comtrade data; GFI applies new data from Hong Kong (a major re-export and transit-trade port) that attempts to clarify the original exporters and final destination importers that transit through Hong Kong as re-exports; and GFI attempts to lessen the distortionary impact of reporting errors in the volumes reported for each matched trade by applying a system of weighted measures to the raw trade data that are intended to improve the reliability of the trade misinvoicing estimates. These quality control adjustments work to *lower* the estimated degree of misinvoicing.

Additionally, another factor is that exporters and importers report a different price for the same goods, because importers report the actual cost of the good, as well as additional costs for shipping and related transport insurance, known as the cost, insurance and freight (CIF) price, whereas the exporter reports a lower freight-on-board (FOB) price. Therefore, some countries report import values to Comtrade on a CIF basis only, while others report on an FOB basis. Consequently, GFI addresses these price differences by applying a statistical regression that converts all CIF prices to FOB prices for any two countries trading any particular good that can be used for the entire Comtrade database over the 1997-2016 period; and then the statistical model was applied to all Indonesian import transactions in 2016, adjusting them to an FOB basis.

Secondly, GFI makes an assumption that where trade gaps are found between developing and industrialized countries, the trade misinvoicing is occurring on the part of the developing country. This assumption is based on the fact that checks, controls and oversight are qualitatively better in customs authorities in industrialized countries and because GFI believes one of the overriding incentives for trade misinvoicing is to transfer wealth from weak currency countries to hard currency countries. Because many developing countries suffer from exchange rate volatility and higher inflation rates than industrialized economies, their weak currencies do not store value as well as hard currencies, such as US dollars, British pounds, EU euros, Japanese yen, Swiss francs, etc.

However, while these various limitations and methodological measurement problems associated with GFI's trade gap analyses can explain some portion of the identified trade gaps, the remaining outstanding gaps are still so considerable in size and scale that GFI concludes that trade misinvoicing continues to be a massive problem. Because many of the aspects of trade misinvoicing are by their nature hidden and therefore inherently difficult to measure with precision, GFI remains focused on orders of magnitude. For example, the large scale of the problem was underscored in our January 2019 report, *Illicit Financial Flows to and from 148 Developing Countries: 2006-2015*, which found that the estimated potential illicit flows in and out of the developing world between 2006 to 2015 amounted to magnitudes within 20 percent of total developing country trade with advanced economies, on average, over the ten-year period.<sup>5</sup>

Since these estimates are based only on the trade misinvoicing that is able to be detected by its trade gap analysis methodology, GFI believes such estimates are very conservative and that the actual scale of illicit financial flows (IFFs) is much larger. This is because there are other aspects of trade misinvoicing that cannot be captured by our trade gap analysis and there are a range of other types of IFFs that fall well outside the realm of trade misinvoicing. These other aspects include the following:

---

<sup>5</sup> This refers to the analysis undertaken by GFI using UN Comtrade data (See Table II-1 on p.8 of the GFI 2019 report. In the other analysis, which was based on the IMF's DOTS data, the estimated magnitudes were between 20 and 30 percent of total developing country trade, on average, over the ten years (See Table I-1 on p.2 the GFI 2019 report).

**Same invoice faking:** Our trade gap analysis cannot capture incidences of “same invoice faking”, in which both the importer and the exporter have colluded in advance to agree on the prices they will each declare on their respective falsified import and export invoices. In such cases, no gap appears between the export and import documents. This approach is widely used by both multinational corporations and long-term trading partners and is difficult to detect. However – [GFTrade](#) – a global trade pricing database tool developed by GFI, enables “same invoice faking” to be detected;

**Services and intangibles:** Comtrade and other types of available trade pricing data cover only merchandise goods. Very few trade in services data in developing countries are reported to Comtrade. Therefore, even as trade in services as a percent of total world trade has been increasing, a range of misinvoicing in trade in services cannot be detected in our trade gap analysis. Such trade misinvoicing in services includes falsified invoices for management fees, interest payments, licenses, etc., which have become commonly used avenues for overcharges as a way to shift money out of emerging market and developing countries. An additional factor is that the pricing of services is far more subjective than the pricing of commodities, which have generally clear input costs, etc.;

**Cash transactions:** Sometimes used in commerce and often used in criminal transactions, cash transactions and bulk cash smuggling do not show up in the trade data and subsequently cannot be captured in our trade gap analyses;

**Informal value transfer systems:** Our trade gap analyses cannot detect transactions that utilize mechanisms which avoid the immediate movement of payment, such as hawala and flying money transactions. These techniques are being increasingly leveraged as commerce becomes more internationalized.

Because these other forms of trade misinvoicing and IFFs are less able to be measured and analyzed, GFI believes its estimates of the trade gaps and potential lost revenue are likely to be conservative and that the scale of the problem is in fact much greater than can be detected through trade gap analyses. While the precise value of IFFs may not be known, the associated lost tax revenues represent a major leakage of public resources that could have otherwise been used for development purposes. Such losses of tax revenues undermine efforts by countries to mobilize more domestic resources in accordance with their commitments under the internationally-agreed Sustainable Development Goals (SDGs), particularly Goal 16.4.1., which call for countries to “significantly reduce value of inward and outward illicit financial flows.”<sup>6</sup>

## **B. Estimates of trade misinvoicing and potential revenue losses in Indonesia in 2016**

Within Indonesia’s US\$135.7 billion in imports reported in 2016, we identified sets of matched value trades with its partners valued at US\$90.7 billion for use in our trade gap analysis. Within these sets of matched trades

---

<sup>6</sup> United Nations, “Sustainable Development Goals,” <https://sustainabledevelopment.un.org/?menu=1300>.

for Indonesia's imports, we identified trade gaps valued at US\$17.9 billion. This included cases of import under-invoicing (US\$11.8 billion) and import over-invoicing (US\$6.1 billion). Again, these figures represent the estimated value of the gap between what was reported to Comtrade by Indonesia and its trading partners for 2016.

To then make an estimate of the amount of tax revenue that Indonesia has lost from such misinvoicing, we applied the following:

- VAT taxes on imports applied at 10.0 percent for 2016;
- Customs duties on imports, calculated using WITS tariff data on a line by line basis;
- Company income taxes applied at 17.2 percent for 2016

Similarly, within Indonesia's US\$144.5 billion in exports reported in 2016, we identified sets of matched trades with its partners valued at US\$122.2 billion for use in our analysis. Within these sets of matched values for Indonesia's exports, we identified trade gaps valued at US\$20.6 billion. This included gaps valued at US\$10.6 billion for export under-invoicing and US\$10.0 billion for export over-invoicing.

**Table 1. Trade Misinvoicing and Estimated Potential Revenue Losses in Indonesia in 2016** (in millions of US dollars and percent of actual collections)

	US\$Millions	% Collections
<b>Import Value Analyzed</b>	<b>90,650</b>	<b>-</b>
Import Under-Invoicing	11,775	-
VAT %, lost revenue	1,178 <sup>7</sup>	3.2%
Customs duty %, lost revenue	302 <sup>8</sup>	12.4%
Import Over-Invoicing	6,103	-
Company income tax %, lost revenue	1,050 <sup>9</sup>	4.9%
<b>Export Value Analyzed</b>	<b>122,175</b>	<b>-</b>
Export Under-Invoicing	10,575	-
Company income tax %, lost revenue	1,819 <sup>10</sup>	8.5%
Royalties, lost revenue	2,115 <sup>11</sup>	-
Export Over-Invoicing	10,023	-
	0 <sup>12</sup>	-
<b>Total Potential Revenue Losses</b>	<b>7,092</b>	

<sup>7</sup> The VAT rate on imports in Indonesia in 2016 was 10.0%. Source: PricewaterhouseCoopers, "Indonesian Pocket Tax Book 2016," pp. 44-56, <https://www.pwc.com/id/en/pocket-tax-book/english/pocket-tax-book-2016.pdf>.

<sup>8</sup> GFI used WITS tariff data to calculate the specific tariff rate on a line-by-line basis for each country partner and each commodity at the 6-digit HS code in order to derive this total amount of lost customs duties in US Dollars.

<sup>9</sup> The income tax on corporate profits in Indonesia in 2016 was 17.2%. Source: PricewaterhouseCoopers and World Bank, "Paying Taxes 2016: The Global Picture" p. 115, <https://www.pwc.com/gx/en/paying-taxes-2016/paying-taxes-2016.pdf>.

<sup>10</sup> The income tax on corporate profits in Indonesia in 2016 was 17.2%. Source: PricewaterhouseCoopers and World Bank, "Paying Taxes 2016: The Global Picture" p. 115, <https://www.pwc.com/gx/en/paying-taxes-2016/paying-taxes-2016.pdf>.

<sup>11</sup> The royalties rate on exports in Indonesia in 2016 was 20%. Source: Deloitte, "Taxation and Investment in Indonesia in 2017" <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-indonesiaguide-2017.pdf>.

<sup>12</sup> We do not provide revenue loss associated with cases of export over-invoicing because it is difficult to discern the level of tax rebates taken by companies. Export over-invoicing is often used to take advantage of tax rebates and other government incentive programs designed to facilitate exports, and can often lower exporters' taxable income by overstating the value of exports.

To the estimate of US\$10.6 billion in export under-invoicing, we applied the company income tax rate of 17.2 per cent. (For export over-invoicing, there are no associated revenue losses at the customs authorities. However, because export over-invoicing is often used to take advantage of tax rebates, export subsidies and other government incentive programs designed to facilitate exports, governments do end up losing tax revenue on these secondary effects by overpayment of rebates and subsidies, although the precise amounts of such losses are difficult to calculate). The results of this analysis are presented in Table 1.

Based on this analysis of trade misinvoicing in Indonesia in 2016, we found that the potential loss of tax revenue to the Indonesian government was approximately US\$6.5 billion for that year. To put this figure in context, this amount represents 6.0 percent of the total government revenue collected in 2016.<sup>13</sup> Put still another way, the estimated value gap of all misinvoiced imports and exports was US\$38.5 billion, or equal to 13.7 percent of the value of the country's total trade of US\$280.1 billion in 2016.

Table 1 shows the results of the trade gap analysis and estimates of lost tax revenues for Indonesia in 2016. The total estimated potential lost revenue of approximately US\$6.5 billion is comprised of misinvoiced imports and exports. The portion of government revenue potentially lost due to import misinvoicing in 2016 was approximately US\$2.5 billion. This amount can be further divided into its component parts: uncollected VAT tax (US\$1.2 billion), customs duties (US\$302 million) and corporate income tax (US\$1.1 billion). The potentially lost revenue due to misinvoiced exports in 2016 was approximately US\$3.9 billion. This amount can be further divided into its component parts: uncollected corporate income tax (US\$1.8 billion) and uncollected tax from royalty payments (US\$2.1 billion) (See Table 1).

It is notable that, when looking at corporate tax evasion, an estimated US\$2.9 billion was lost through import over-invoicing and export under-invoicing combined, more than twice the US\$1.2 billion lost in VAT import taxes.

---

<sup>13</sup> Source: OECD Stat, "Details of Tax Revenue – Indonesia" (See the row, "Total Tax Revenue," and the last column on the right for year 2016), <https://stats.oecd.org/Index.aspx?DataSetCode=REVIDN>.

### III. Estimating Trade Misinvoicing in Indonesia: Potential Revenue Losses from Under-Invoiced Imports

---

The central objective of the analysis is to identify commodity-trade partner combinations that appear to be more likely than others to present a potential risk of revenue loss due to trade misinvoicing. Such information should help customs authorities to increase scrutiny of invoices for imports and exports of particular goods and partner countries that are at high-risk for trade misinvoicing.

Toward this end, this section presents a more detailed presentation of potential revenue impacts of import under-invoicing for Indonesia using data for 2016.

The first two subsections to follow reflect on all the misinvoicing estimates. In subsection A, the bilateral trade data used to estimate misinvoicing are summarized and are compared with other leading aggregate trade series for Indonesia. That comparison is intended to shed light on the kinds of information the bilateral trade analysis can provide. Next, subsection B provides an overview of the various statistical treatments of the basic data that were undertaken to enable robust measurements of trade gaps. Finally, in subsection C, details of the potential revenue losses (in import duties) stemming from under-invoiced imports in Indonesia are presented.

#### A. Overview of Indonesian trade data

For its analysis of trade misinvoicing in Indonesia, GFI used detailed bilateral trade statistics published by the UN Comtrade database as its primary source. Comtrade provides the most comprehensive public source of trade information currently available for Indonesia. The detailed breakdown of bilateral Indonesian trade flows in Comtrade allowed for the computation of trade gaps that are the basis for the misinvoicing estimates. As described in Section II, this database can be used to conduct a trade gap analysis based on first eliminating all cases of “orphaned”, “lost” and “others” records from the Comtrade data for Indonesia in 2016 and then using the remaining sets of “matched” trades for the analysis to identify cases of under-invoicing and over-invoicing of both exports and imports. In this section, an in-depth examination of misinvoicing within Indonesia’s imports for 2016 is presented.

Again, import gaps represent the difference between the dollar value of goods Indonesia reported having imported from its partner countries and the corresponding exports reported by Indonesia’s trade partners. Similarly, export gaps represent the difference in dollar value between what Indonesia reported as having exported to its partners and what its partners reported as having imported from Indonesia.

Table 2 summarizes our analysis of Indonesia’s imports from 2000-2016, based on data from Indonesia’s reporting to both the International Monetary Fund (IMF) and Comtrade databases. The first column of the table shows the aggregate value of Indonesian goods imports as published by

the IMF based on Indonesia's reporting of its balance of payments (BoP) data. The second column shows the value of Indonesia's total imports reported to the Comtrade database.

The next four columns show the results of our trade gap analysis. The third column shows the sum of the "matched" sets used in the trade gap analysis, which correspond to those records in the Comtrade database for which both Indonesia and its partner country on a particular trade reported values. The matched sets are determined after both the "orphaned" (fourth column) and "others" (fifth column) records have been eliminated from consideration. Again, the "orphaned" imports correspond to those records in the database for which Indonesia reported a value for imports of a commodity from a particular country while that country reported no exports of that good to Indonesia in that year. The "others" correspond to those records for which one or both parties to the trade did not report non-zero values, non-zero volumes (quantities), or did not report the volumes in the same physical units of measurement. Finally, the sixth column on the far right shows the "lost" import records, which correspond to exports reported by Indonesia's trade partners as shipped to Indonesia in a particular year, but which are not recorded as imports by Indonesia in that year.

The upper panel of the table compares the data sources by year, from 2000-2016. The BoP data for countries is often different from trade data reported to Comtrade for a number of reasons, primarily because Comtrade data only covers trade in goods and is compiled on a customs basis, whereas the IMF data covers trade in both goods and services data and is compiled on a balance of payments basis. But such discrepancies between BoP and Comtrade data are not unique to the case of Indonesia. For our purposes, we used the trade data reported to Comtrade, particularly because it is frequently amended and updated and allows for the elimination of "orphaned", "others" and "lost" records for a more precise subset of matched sets of data to use to identify trade misinvoicing. During the 2000-2016 period, observations with matched values comprised nearly two-thirds (69 percent) of the total value of all imports reported by Indonesia to the Comtrade database.

The two bottom panels of Table 2 present the commodity and partner country dimensions of Indonesian imports in the Comtrade database. The top ten commodities Indonesia imported comprised 70 percent of the value of total imports reported by Indonesia over the period and the top ten partner countries which exported to Indonesia comprised 48 percent of the value of total imports reported by Indonesia over the period.

Table 3 presents an analogous summary of the Comtrade data for Indonesia's exports during 2000-2016. During the period, observations with matched values comprised nearly three-quarters (83 percent) of the total value of all exports reported by Indonesia to the Comtrade database. The top ten commodities Indonesia exported comprised 71 percent of the value of total exports reported by Indonesia over the period and the top ten partner countries which imported from Indonesia comprised 64 percent of the value of total exports reported by Indonesia over the period.

**Table 2. Indonesian Imports, 2000-2016** (in millions of US dollars, CIF basis, as reported)

	IMF Balance of Payments (BoP)	COMTRADE				
		Total Reported by Indonesia <sup>14</sup>	Matched Values	Orphaned	Others	Lost
<b>By Year</b>						
2000	40,365	\$34,175	\$21,836	\$10,156	\$2,183	\$11,594
2001	34,669	\$31,521	\$20,272	\$8,727	\$2,521	\$10,471
2002	35,652	\$31,729	\$19,871	\$9,053	\$2,805	\$12,868
2003	39,546	\$33,100	\$22,522	\$7,901	\$2,677	\$8,422
2004	46,616	\$47,149	\$32,237	\$12,537	\$2,374	\$9,364
2005	64,072	\$58,460	\$36,104	\$19,612	\$2,745	\$11,310
2006	66,053	\$61,879	\$38,500	\$20,399	\$2,980	\$16,063
2007	76,776	\$75,466	\$41,679	\$25,541	\$8,246	\$22,712
2008	107,667	\$130,091	\$71,183	\$44,483	\$14,425	\$26,054
2009	80,979	\$97,639	\$55,663	\$30,768	\$11,208	\$22,711
2010	118,963	\$134,910	\$100,841	\$16,211	\$17,858	\$14,146
2011	157,284	\$176,563	\$136,317	\$18,995	\$21,251	\$17,102
2012	178,667	\$190,280	\$136,727	\$25,378	\$28,175	\$13,316
2013	176,256	\$185,807	\$141,118	\$20,688	\$24,000	\$9,389
2014	168,310	\$177,741	\$137,211	\$19,069	\$21,460	\$10,904
2015	135,076	\$143,024	\$107,874	\$14,484	\$20,666	\$9,130
2016	129,152	\$134,417	\$90,651	\$13,261	\$30,505	\$7,552
<i>Percent of total UN reported</i>		100%	69%	18%	12%	13%
<b>By Commodity (ranking)</b>		<b>Percent of column total (2000-2016)</b>				
(1) Mineral fuels	22%	54%	44%	2%	14%	
(2) Machinery	15%	53%	6%	41%	6%	
(3) Electrical machinery	10%	59%	10%	31%	12%	
(4) Iron and steel	5%	87%	12%	1%	4%	
(5) Vehicles	4%	85%	5%	10%	6%	
(6) Organic chemicals	4%	85%	14%	1%	5%	
(7) Plastics	4%	94%	4%	2%	4%	
(8) Iron and steel articles	2%	91%	8%	1%	12%	
(9) Cereals	2%	96%	3%	1%	0%	
(10) Cotton	2%	87%	12%	1%	9%	
<i>TOTAL (top 10)</i>	70%					
<b>By Partner Country (ranking)</b>		<b>Percent of column total (2000-2016)</b>				
(1) China	14%	75%	6%	19%	6%	
(2) Japan	10%	77%	4%	19%	15%	
(3) Malaysia	6%	79%	13%	8%	7%	
(4) Rep. of Korea	6%	79%	13%	9%	7%	
(5) Australia	3%	84%	13%	4%	13%	
(6) China, Hong Kong SAR	3%	76%	9%	15%	16%	
(7) Germany	2%	59%	15%	26%	6%	
(8) Other Asia	2%	70%	8%	22%	7%	
(9) Brazil	1%	83%	14%	3%	6%	
(10) Kuwait	1%	17%	83%	0%	4%	
<i>TOTAL (top 10)</i>	48%					

<sup>14</sup> As reported to UN Comtrade as of January 2018.

**Table 3. Indonesian Exports, 2000-2016** (in millions of US dollars, as reported)

	IMF Balance of Payments (BoP)	COMTRADE				
		Total Reported by Indonesia <sup>15</sup>	Matched Values	Orphaned	Others	Lost
<b>By Year</b>						
2000	65,407	\$62,115	\$47,449	\$11,594	\$3,072	\$10,156
2001	57,365	\$56,308	\$42,569	\$10,471	\$3,269	\$8,727
2002	59,165	\$57,137	\$41,236	\$12,868	\$3,033	\$9,053
2003	64,109	\$61,027	\$48,942	\$8,422	\$3,663	\$7,901
2004	66,084	\$71,578	\$58,405	\$9,364	\$3,809	\$12,537
2005	81,682	\$85,658	\$70,769	\$11,310	\$3,580	\$19,612
2006	98,251	\$100,798	\$80,821	\$16,063	\$3,915	\$20,399
2007	111,301	\$114,101	\$84,786	\$22,712	\$6,603	\$25,541
2008	132,210	\$137,020	\$103,383	\$26,054	\$7,583	\$44,483
2009	113,266	\$116,510	\$86,958	\$22,711	\$6,841	\$30,768
2010	149,966	\$157,775	\$132,729	\$14,146	\$10,899	\$16,211
2011	191,109	\$203,496	\$174,208	\$17,102	\$12,185	\$18,995
2012	187,347	\$190,030	\$162,034	\$13,316	\$14,680	\$25,378
2013	182,089	\$182,551	\$162,247	\$9,389	\$10,916	\$20,688
2014	175,293	\$176,036	\$154,524	\$10,904	\$10,607	\$19,069
2015	149,125	\$150,342	\$130,436	\$9,130	\$10,776	\$14,484
2016	144,470	\$142,856	\$122,174	\$7,552	\$13,130	\$13,261
<i>Percent of total UN reported</i>		107%	82%	11%	6%	15%
<b>By Commodity (ranking)</b>		<b>Percent of column total (2000-2016)</b>				
(1) Mineral fuels	30%	90%	9%	1%	29%	
(2) Precious stones & metals	10%	93%	7%	0%	0%	
(3) Machinery	7%	54%	14%	31%	11%	
(4) Organic chemicals	5%	96%	4%	1%	3%	
(5) Vehicles	4%	46%	18%	36%	18%	
(6) Non-knitted apparel	4%	99%	1%	0%	4%	
(7) Electrical machinery	3%	87%	8%	5%	0%	
(8) Pharmaceuticals	3%	62%	16%	21%	1%	
(9) Iron and steel	3%	60%	38%	1%	6%	
(10) Cotton	2%	83%	10%	7%	8%	
<b>TOTAL</b>	<b>71%</b>					
<b>By Partner Country (ranking)</b>		<b>Percent of column total (2000-2016)</b>				
(1) Japan	17%	88%	8%	4%	2%	
(2) China	10%	90%	8%	2%	7%	
(3) Singapore	9%	62%	20%	17%	31%	
(4) Rep. of Korea	7%	93%	5%	2%	9%	
(5) India	6%	91%	8%	1%	4%	
(6) Malaysia	5%	90%	7%	3%	13%	
(7) Other Asia, nes	3%	84%	5%	11%	5%	
(8) Australia	3%	80%	15%	5%	13%	
(9) Netherlands	2%	84%	9%	7%	4%	
(10) Philippines	2%	86%	11%	3%	6%	
<b>TOTAL (top 10)</b>	<b>64%</b>					

<sup>15</sup> As reported to UN Comtrade as of January 2018.

## **B. Statistical treatments of the basic Comtrade data**

As mentioned above, gaps can arise in bilateral trade data for a variety of reasons, many of them reflecting legitimate factors. GFI has attempted to address as many such factors as possible, given the limitations of available data. In this section, these adjustments and treatments to the data are summarized.

### **Swiss gold trade**

Asymmetries in the types of trade that countries report can give rise to trade gaps that are unduly large, not because of trade misinvoicing, but because one country may be reporting trade in goods that its partner country does not report. Such was the case with Switzerland's policy to not report its exports and imports of gold on a bilateral basis dating back to the early 1980s. As a result, it would be the case that some countries (such as Indonesia) would report imports of gold from Switzerland, even as Switzerland reported no gold exports to those other countries (in effect, Swiss gold would be an "orphaned" import for those countries). However, because Switzerland resumed reporting its gold trade on a bilateral basis beginning in 2012, the newer Comtrade data no longer reflect the distortions. For prior years, however, they remain. To mitigate the remaining distortions, GFI adjusted the bilateral trade data in Comtrade using gold trade data published by Switzerland in recent years.

### **Hong Kong re-exports**

Over time, trading hubs for in-transit trade and re-exports have become increasingly important in international trade, displacing the older direct point-to-point arrangements between trade partners. This is because it is more cost efficient for shipping lines to unload and reload goods onto different ships during different legs of a journey than it is to use the same ship for the entire route. As the volume and efficiency of trade worldwide has increased in recent decades, transshipments through trading hubs increasingly complicate the measurement of misinvoicing when using the country-partner trade methodology used by GFI. In general, there are insufficient data to correctly disentangle the original exporters and ultimate destination countries from the interim trade flows through such hubs. However, in the case of Hong Kong (a major trade hub with nearly all of the country's exports consisting of re-exports, with much of that from mainland China), data are available. GFI purchased re-export data from the Hong Kong Census Office and implemented these adjustments at the 6-digit level of commodity detail for the period from 2000 through 2016.

### **Transport margins**

As mentioned above, most countries report the value of their imports on a "cost, insurance, and freight" (CIF) basis whereas they report the value of their exports using the "free on board" (FOB) valuation. To enable direct comparisons of import and export values, all import values must first be converted to an FOB basis. GFI implemented these adjustments in two steps: 1) A statistical model linking CIF/FOB

margins for any two countries trading any particular good was developed by the trades analyzed by GFI in the Comtrade database over the 2001-2016 period; and 2) The statistical model was then applied to all Indonesian import transactions, adjusting them to an FOB basis.

There has been an enormous amount of research into the nature of transport costs in trade in recent decades and the statistical work performed by GFI, in particular, builds upon the research reported in recent years by the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) and the Organization for Economic Co-operation and Development (OECD).<sup>16</sup> GFI's model for converting CIF values into FOB values extends the determinants of transport margins developed by CEPII (namely, the role of such factors as distance between trade partners, contiguity, the degree to which a country is land-locked, and "world" prices for individual commodities) and includes factors such as the presence of trade agreements between partners (which should lower the costs of trade) and categorical factors as to whether either or both trade partners are developing countries (proxies for the quality of a country's infrastructure), among others. This is a less extensive list of factors than that used by the OECD, but using more elaborate infrastructure indexes and per capita income in the country pairs (as included in the OECD's work) would reduce the number of countries for which transport costs could be estimated. GFI's work follows the OECD's decision to restrict the Comtrade data included to only "reliable" observations, a step not included in the CEPII work.<sup>17</sup> GFI's estimated equation qualitatively supported the findings of both the CEPII and OECD research.<sup>18</sup>

### **Shrinkage adjustments to enhance robustness and reliability**

In order to reduce the distortionary effects of statistical outliers in the data, GFI applies a weighted formula. The use of weighted measures (rather than the raw trade gaps) in the Comtrade estimates is intended to improve the reliability of the trade misinvoicing estimates.<sup>19</sup> It should be noted that a different weight will apply to every matched record in Comtrade; for a given developing country, the weights will vary over time, by commodity traded and by trading partner.

This weighting scheme, frequently used in the literature, effectively shrinks the arithmetic value of the dollar-denominated trade gap by a factor that increases as the associated volume gap rises.

---

<sup>16</sup> Miao, G. and Fortanier, F., "Estimating CIF-FOB Margins on International Merchandise Trade Flows," Working Paper, Statistics Directorate, Committee on Statistics and Statistical Policy, Organization for Cooperation and Development, Paris, March 2016; See also Gaulier, G. and Zignago, S. "BACI: International Trade Database at the Product-Level. The 1994-2007 Version," CEPII Working Paper Number 2010-23, Centre for Prospective Studies and International Information (CEPII), October 2010, [http://www.cepii.fr/PDF\\_PUB/wp/2010/wp2010-23.pdf](http://www.cepii.fr/PDF_PUB/wp/2010/wp2010-23.pdf).

<sup>17</sup> Specifically, GFI followed the OECD in including in the statistical model only those matched trades for which: (a) the associated trade volumes differ by less than 5 percent, and (b) the ratio of the import price per unit (CIF) to the corresponding export price was not less than 1 and not greater than 2. The OECD argues persuasively that CEPII's inclusion of all matched transactions (including those for which import prices were below the associate export prices) biased downward CEPII's estimated CIF/FOB margins.

<sup>18</sup> GFI's research on transport margins is work still in progress. A more detailed presentation of GFI's estimated model of transport margins used here is available upon request.

<sup>19</sup> The weighting scheme is described in formal terms as follows: Let QD and QA denote, respectively, the reported volume of trade (of a particular good in a particular year) between a developing country reporter (D) and its advanced-country trade partner (A). The weight applied to the trade gap in value terms was specified as the following:  $\{1 - |QD - QA|/\max(QD,QA)\}$ .

That is, the dollar value of a dollar-denominated trade gap is assigned a higher value the closer the associated matched volume reports are; conversely, a larger volume discrepancy means a lower weight was placed on the dollar-denominated trade gap. Generally, this might be interpreted as a reliability weight for set of matched values in the Comtrade data; in effect, this also serves to privilege trade gaps that appear more likely to be due to misinvoicing. Other interpretations of this weighting scheme are possible.<sup>20</sup> Additionally, other specifications for such weighting are possible; see, for example, Ten Cate (2007)<sup>21</sup> and Gaulier & Zignano (2010).<sup>22</sup>

### C. Key commodities and trade partners at high-risk for trade misinvoicing

After applying the various treatments mentioned above, this section specifically examines cases of import under-invoicing in Indonesia in 2016. As indicated in Table 1 earlier, import under-invoicing in Indonesia totaled US\$11.8 billion in 2016, or approximately 13 percent of total imports analyzed for that year. By adding up the product of detailed tariff rates and import under-invoicing by commodity, GFI estimated the potential loss of import duties due to import under-invoicing to be US\$302 million in 2016, or about 12.4 percent of total customs duties collected.<sup>23</sup> In this section, we break down that total in an effort to identify the particular commodities and trade partner countries that appear to be the highest risk in terms of their susceptibility to revenue loss. Figure 2 below represents the top 50 revenue losses due to under-invoiced Indonesian imports by commodity groups according to their 2-digit HS product codes. Figure 3 represents the top 50 revenue losses from under-invoiced Indonesian imports, according to partner country traders. Finally, Figure 4 offers a combined look at both sets of data at the same time.

In Figure 2, the estimated revenue losses due to under-invoiced Indonesian imports in 2016 are represented in two ways: the length of the bar represents the revenue losses as a percent of total value for the Indonesian imports for each commodity group and the color of the bar shows the severity of the potential revenue losses by US\$ millions, with lighter shades reflecting less severe losses and darker shades reflecting greater losses. Figure 2 shows that in relative terms, some of the largest potential revenue losses as a percent of total imports in their product groups included beverages (HS 22) at 20.3 percent of its product group, leather articles (HS 42) at 8.2 percent of its product group, and live trees and plants (HS 6) at 4.8 percent of its product group.

---

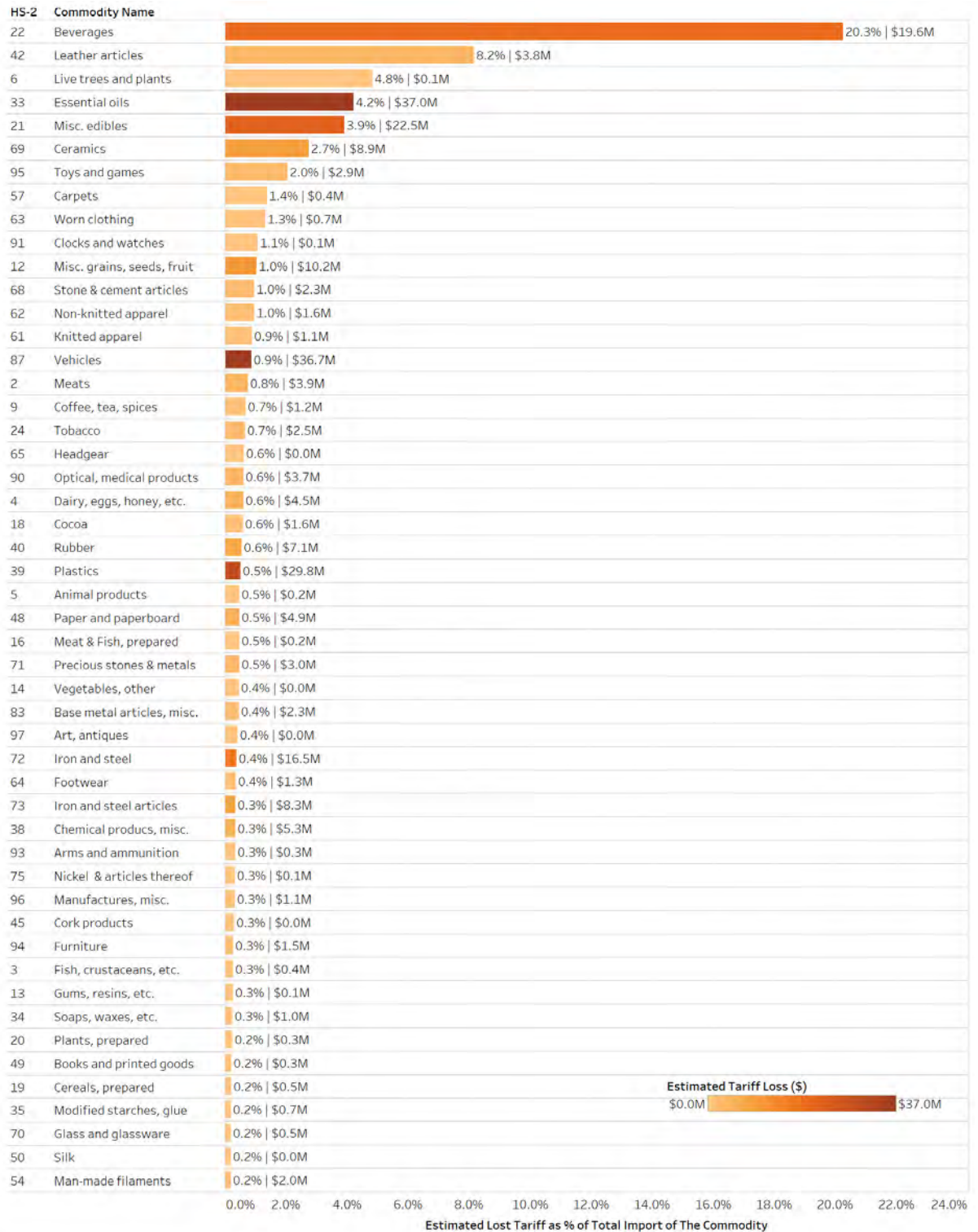
<sup>20</sup> United Nations Economic Commission for Latin America and the Caribbean, “Economic Survey of Latin America and the Caribbean: The 2030 Agenda for Sustainable Development and the challenges of financing for development,” 2016, p. 124, <https://www.yumpu.com/en/document/view/56699132/economic-survey-of-latin-america-and-the-caribbean-2016>.

<sup>21</sup> Arie ten Cate, “Modelling the reporting discrepancies in bilateral data,” CPB Memorandum 179, CPB Netherlands Bureau for Economic Policy Analysis, April 2007, <https://ideas.repec.org/p/cpb/memodm/179.html>.

<sup>22</sup> Guillaume Gaulier and Soledad Zignago, “BACI: International Trade Database at the Product-Level. The 1994-2007 Version,” CEPII Working Paper Number 2010-23, Centre for Prospective Studies and International Information (CEPII), October 2010, [http://www.cepii.fr/PDF\\_PUB/wp/2010/wp2010-23.pdf](http://www.cepii.fr/PDF_PUB/wp/2010/wp2010-23.pdf).

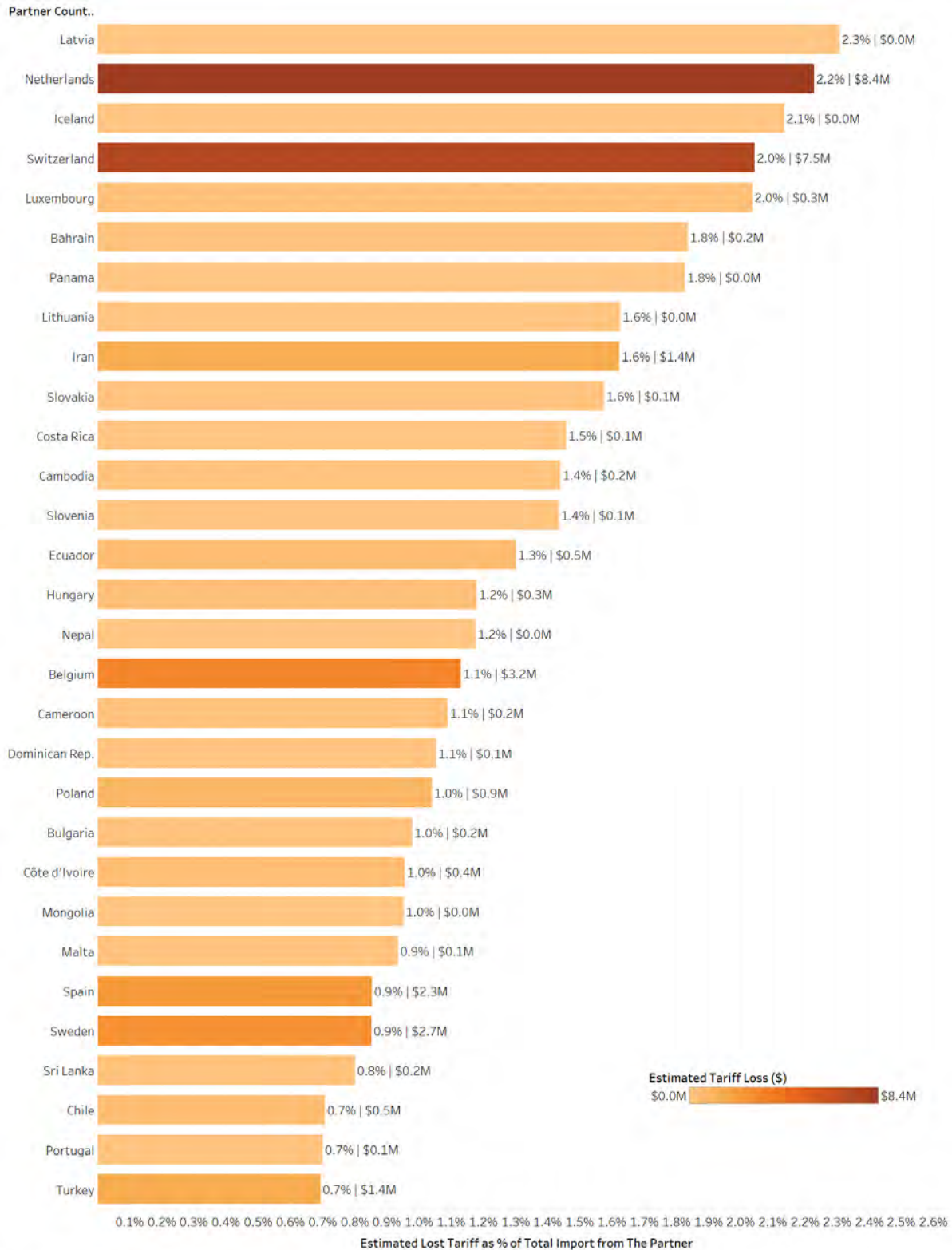
<sup>23</sup> This estimate corresponds only to estimated losses on import duties; it does not include potential losses on domestic VAT revenues as applied to imports (see Table 1). For estimated potential losses on VAT revenue from imports, GFI estimated such losses at nearly US\$3.4 billion for 2016 (See Table 1).

**Figure 2. Estimated Revenue Loss in Indonesia Due to Import Under-invoicing by Commodities, as a Percent of Value of Total Imports of Each Commodity Group, in 2016 (in millions of US dollars)**



Source: UN Comtrade (trade data), World Bank WITS (tariff rate)

**Figure 3. Estimated Revenue Loss in Indonesia Due to Import Under-invoicing by Partner Country, as a Percent of Value of Total Imports of Each Partner Country, in 2016 (in millions of US dollars)**



Source: UN Comtrade (trade data), World Bank WITS (tariff rate)



Christin Hume on Unsplash



Carlo D'Agnolo on Unsplash



Jonathan Chng on Unsplash

By contrast, categories showing larger potential revenue losses by dollar values included essential oils (HS 33) at US\$37.0 million, vehicles (HS 87) at US\$36.7 million and plastics (HS 39) at US\$29.8 million. These imports appear to be more modest relative to the percentage of total imports for their product groups.

However, it is difficult to make strong conclusions about the revenue risks based on misinvoicing estimates by commodities alone. A similar difficulty arises when we consider revenue risks stemming from under-invoiced imports by Indonesia's trade partners (see Figure 3). The data presented in Figure 3 shows that under-invoiced imports from Latvia, the Netherlands and Iceland were among the highest estimated revenue losses as a percentage of their total imports by Indonesia, and that these percentages were quite small at between 2.1 and 2.3 percent of total imports. By contrast, partner countries associated with the largest potential dollar values of losses included the Netherlands (US\$8.4 million), Switzerland (US\$7.5 million), and Belgium (US\$3.2 million). While under-invoiced imports from these four trading partners reflected relatively minor potential revenue losses as a percent of total imports from these countries, their combined potential revenue losses by dollar values totaled US\$19.1 million.

Again, it is difficult to make strong conclusions about the revenue risks based on import under-invoicing estimates by only considering the source of Indonesian imports. A more promising approach toward identifying such risks may be to compare potential revenue losses by commodity-country pairs in a way that allows comparisons in terms of dollar magnitude and relative terms at the same time. This is depicted in Figure 4.

Each row in Figure 4 corresponds to a different HS 2-digit commodity and each column corresponds to a different country exporting to Indonesia. The boxes

depicted for each commodity-country combination convey both the dollar magnitude of the potential revenue losses (the size of the box) and the magnitude of the potential losses relative to total imports of the given commodity (row) from a given country (column). The number of boxes in each row indicates the degree to which revenue losses from under-invoicing of that particular commodity are distributed across many countries (risks associated with particular countries). Similarly, the number of boxes in each column indicate country-specific revenue risks to Indonesia. Figure 4 shows that the revenue risks on under-invoiced imports of beverages (HS 22) from Singapore appears to have been particularly acute in 2016. Under-invoicing associated with imports of essential oils (HS 33) from Singapore, plastics (HS 39) from China and vehicles (HS 87) from Japan and China were also highlighted as a potential risk for revenue losses.<sup>24</sup>

**Figure 4. Estimated Revenue Loss in Indonesia Due to Import Under-invoicing by both Commodity Group and Partner Country, as a Percent of Value of Total Imports of Each Partner Country, in 2016 (in millions of US dollars)**



<sup>24</sup> This analysis of Indonesian imports for 2016 is intended to be illustrative as well. The estimates of potential revenue losses could be evaluated over more refined commodity groups such as HS-4 digit and HS-6 digit groups. GFI will provide such more highly refined estimated groupings upon request.



## IV. Conclusion

---

The estimates presented in this report – that Indonesia potentially lost approximately **US\$6.5 billion** in tax revenues due to trade misinvoicing in 2016 – are intended to illustrate the magnitude of the problem. The estimates also reflect the massive social costs of such revenue losses, given the huge need for increased public investment in health, education, agriculture and transportation in Indonesia. While imprecise, the estimates highlight the need for policymakers to take steps to curtail such losses and reduce social costs. Because trade misinvoicing is a major type of illicit financial flow, any steps Indonesia takes to curtail trade misinvoicing can support its national efforts to mobilize more domestic resources for achieving the Sustainable Development Goals (SDGs).

### Steps Indonesia can take at the national level to address trade misinvoicing

GFI recommends the following steps that Indonesia can take to curtail revenues losses due to trade misinvoicing:

The relevant legislation in Indonesia is the Customs Law No: 10/1995 and its amendment, No: 17/2006 and the Excise Law No:11/1995 and its amendment, No: 39/2007. Additionally, there are several implementing regulations that exist by various government ministries on the prohibition of goods that can be imported and exported. Failure to keep proper records is subject to a fine of Rp 25 million (US\$1,765) and failure to keep any records is subject to a fine of Rp 50 million (US\$3,530). Underpayment of customs duty due to a discrepancy in value, quantity and/or type of good is subject to an administrative penalty calculated as a percentage of the underpaid duty amount, ranging from 25 percent to 1,000 percent.

Indonesia's Directorate General of Customs and Excise within the Ministry of Finance is the responsible nodal authority for investigating customs fraud. The 2018 Mutual Evaluation of Indonesia report by the Financial Action Task Force (FATF) states that the customs department has a mixed and less complete understanding of the money laundering risks associated with the sector. This could in turn affect the agency's understanding of how trade misinvoicing could be used for money laundering and trade-based money laundering (TBML). Prior to 2016, Indonesian law was unclear on how to target legal persons (including corporations) for money laundering and the focus of investigations was primarily on natural persons.

According to the World Economic Forum's Global Enabling Trade Report from 2016, one of the issues that continues to plague Indonesia's ability to adequately capture trade misinvoicing includes systemic corruption at the borders.<sup>25</sup> This corruption adds complexity and inefficiencies to custom's procedures relating to the import and export of goods. Irregular payment procedures and payments

---

<sup>25</sup> The World Economic Forum and the Global Alliance for Trade Facilitation, "The Global Enabling Trade Report 2016," <http://reports.weforum.org/global-enabling-trade-report-2016/>.

of bribes further affect Indonesia's ability to adequately identify and target trade misinvoicing. In an enterprise survey conducted by the World Bank in 2015, nearly half the companies were expected to provide gifts before obtaining an import license.<sup>26</sup> In this context, GFI recommends that Indonesia takes steps to streamline procedures and improve oversight, transparency and accountability mechanisms in its customs administration. This could include scaling up the resources needed to strengthen regulatory enforcement, invoice audits and reviews.

GFI also recommends that Indonesia consider adopting its online tool – **GFTTrade** – designed by GFI to build the capacity of customs authorities to better detect misinvoicing as transactions are occurring and take corrective steps in real time.<sup>27</sup> By drawing upon the most up to date price data for traded goods as reported by over 30 major economies including China, the United States, EU 28 and Japan, the GFTTrade tool enables customs officials to quickly and easily use real-time price comparisons to determine if the prices for goods listed on invoices submitted by local importers or exporters are priced outside the typical ranges for comparable products as declared by their trade partner within the last year. Using the tool, customs officials can identify invoices with unusually higher or lower prices and flag such invoices for further investigation when warranted. GFTTrade is an essential tool to assist governments in maximizing domestic resource mobilization and tackling the problem of trade misinvoicing.

### Steps Indonesia can take at the international level to tackle IFFs

In terms of tackling the problem of illicit financial flows (IFFs) more broadly, GFI recommends that Indonesia use its diplomatic clout in the international arena to support a number of policy initiatives that require international cooperation to curtail IFFs. Of particular importance are international efforts to increase transparency in the global financial system, measures related to reducing the secrecy of tax havens and anonymous companies, and efforts to curtail money laundering techniques. Specifically, GFI recommends that Indonesia and other world leaders take pro-active steps to support ongoing international efforts on the following issues:

**Beneficial Ownership:** Indonesia has legislation that addresses beneficial ownership (requiring the true owners of companies be identified), which the Financial Action Task Force (FATF) views quite positively. GFI recommends that Indonesia consider making its beneficial ownership legislation part of its customs law. GFI also recommends that Indonesia should to take steps to encourage all governments to establish public registries of beneficial ownership information on all legal entities and that all gatekeepers to the financial system should know the true beneficial owner(s) of any account or client relationship they open;

---

<sup>26</sup> World Bank, "Enterprise Surveys: Indonesia 2015," <https://www.enterprisesurveys.org/data/exploreeconomies/2015/indonesia#corruption>.

<sup>27</sup> For more information about GFI's tool designed to help customs officials detect fraudulent trade invoices, see Annex 1.

**Anti-Money Laundering:** Indonesia should encourage all governments to adopt and fully implement all of the FATF anti-money laundering recommendations; laws already in place should be strongly enforced;

**Country-by-Country Reporting:** Indonesia implemented country-by-country reporting (CBCR) in December 2017. Reporting requirements were established by Indonesia's Director General of Taxation in DGT Regulation No. 29/PJ/2017 (PER-29), which provides the implementing regulations on Indonesian CBCR.<sup>28</sup> Indonesia should encourage all governments to require multinational companies to publicly disclose their revenues, profits, losses, sales, taxes paid, subsidiaries and staff levels on a country-by-country basis;

**Tax Information Exchange:** Indonesia adopted automatic exchange of information (AEOI) for tax information with partner countries in September 2018. Indonesia should encourage all governments to actively participate in the worldwide movement towards the automatic exchange of tax information as endorsed by the OECD and the G20;

**Addis Tax Initiative:** Indonesia has officially signed on to support the Addis Tax Initiative.<sup>29</sup> Indonesia should encourage all governments to do so as well, in order to further support efforts to curb IFFs as a key component of the development agenda. IFFs must be curtailed if domestic resource mobilization initiatives are to stand any chance of succeeding.

---

<sup>28</sup> EY, "Indonesia releases implementing regulations on Country-by-Country Reporting," Global Tax Alert (News from Transfer Pricing), January 24, 2018, <https://www.ey.com/gl/en/services/tax/international-tax/alert-indonesia-releases-implementing-regulations-on-country-by-country-reporting>.

<sup>29</sup> See current signatories to the Addis Tax Initiative: <https://www.addistaxinitiative.net/#slider-4>



## References

---

- Deloitte, “Taxation and Investment in Indonesia in 2017” <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-indonesiaguide-2017.pdf>.
- EY, “Indonesia releases implementing regulations on Country-by-Country Reporting,” Global Tax Alert (News from Transfer Pricing), January 24, 2018, <https://www.ey.com/gl/en/services/tax/international-tax/alert--indonesia-releases-implementing-regulations-on-country-by-country-reporting>.
- Gaulier, G. and Zignago, S. “BACI: International Trade Database at the Product-Level. The 1994-2007 Version,” CEPII Working Paper Number 2010-23, Centre for Prospective Studies and International Information (CEPII), October 2010, [http://www.cepii.fr/PDF\\_PUB/wp/2010/wp2010-23.pdf](http://www.cepii.fr/PDF_PUB/wp/2010/wp2010-23.pdf).
- GFI (2019) “Illicit Financial Flows to and from 148 Developing Countries: 2006-2015,” Global Financial Integrity, Washington DC, January, <https://gfintegrity.org/report/2019-iff-update/>.
- International Monetary Fund, “Corporate Taxation in The Global Economy,” March 2019, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/03/08/Corporate-Taxation-in-the-Global-Economy-46650>.
- KPMG International Cooperative, “Indirect tax rates table,” <https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/indirect-tax-rates-table.html>
- Miao, G. and Fortanier, F., “Estimating CIF-FOB Margins on International Merchandise Trade Flows,” Working Paper, Statistics Directorate, Committee on Statistics and Statistical Policy, Organization for Cooperation and Development, Paris, March 2016, [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPTGS\(2016\)8&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPTGS(2016)8&docLanguage=En).
- OECD Stat, “Details of Tax Revenue – Indonesia” (See the row, “Total Tax Revenue,” and the last column on the right for year 2016), <https://stats.oecd.org/Index.aspx?DataSetCode=REVIDN>.
- Ten Cate, Arie, “Modelling the reporting discrepancies in bilateral data,” CPB Memorandum 179, CPB Netherlands Bureau for Economic Policy Analysis, April 2007, <https://ideas.repec.org/p/cpb/memodm/179.html>.
- United Nations, “Sustainable Development Goals,” <https://sustainabledevelopment.un.org/?menu=1300>.
- PricewaterhouseCoopers (PwC) and World Bank, “Paying Taxes 2016: The Global Picture,” p. 115, <https://www.pwc.com/gx/en/paying-taxes-2016/paying-taxes-2016.pdf>.
- PricewaterhouseCoopers (PwC), “Indonesian Pocket Tax Book 2016,” pp. 44-56, <https://www.pwc.com/id/en/pocket-tax-book/english/pocket-tax-book-2016.pdf>.
- World Economic Forum and the Global Alliance for Trade Facilitation, “The Global Enabling Trade Report 2016,” <http://reports.weforum.org/global-enabling-trade-report-2016/>.
- World Bank, “Enterprise Surveys: Indonesia 2015,” <https://www.enterprisesurveys.org/data/exploreconomies/2015/indonesia#corruption>



## About GFI

---

Global Financial Integrity (GFI) is a Washington, DC-based think tank, producing high-caliber analyses of **illicit financial flows**, advising developing country governments on effective policy solutions and promoting pragmatic transparency measures in the international financial system as a means to global development and security.

Every year, roughly US\$1 trillion flows illegally out of developing and emerging economies due to crime, corruption, and tax evasion – more than these countries receive in foreign direct investment and foreign aid combined. Many developing countries have failed to grow past the point where foreign aid is no longer necessary. For years, development economists were puzzled by the lack of growth in developing economies despite large inflows of aid. By drawing attention to the problem of illicit financial flows, GFI has contributed to solving this puzzle. Today, GFI is committed to constructively engaging with policymakers worldwide to develop effective, pragmatic policy solutions to address illicit financial flows.



---

GLOBAL FINANCIAL INTEGRITY

---

1100 17th Street, NW, Suite 505 | Washington, DC | 20036 | USA  
Tel. +1 (202) 293-0740 | Fax. +1 (202) 293-1720 | [www.gfintegrity.org](http://www.gfintegrity.org)

**President & CEO:** Tom Cardamone    **Founding President:** Raymond Baker

**Board:** Lord Daniel Brennan (Chair), Dr. Rafael Espada (Vice Chair),  
Dr. Huguette Labelle (Secretary-Treasurer), Segun Apata, Leonard McCarthy,  
John Cassara, Raymond Baker