



GLOBAL FINANCIAL INTEGRITY

Trade-Related Illicit Financial Flows in 135 Developing Countries: 2008-2017



Global Financial Integrity
March 2020





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Executive Summary

This report examines the latest official government trade data reported to the United Nations to estimate the magnitude of trade misinvoicing – one of the largest components of measurable illicit financial flows (IFFs) between and among 135 developing countries and 36 advanced economies. Trade misinvoicing occurs when importers and exporters deliberately falsify the stated prices on the invoices for goods they are importing or exporting as a way to illicitly transfer value across international borders, evade tax and/or customs duties, launder the proceeds of criminal activity, circumvent currency controls, and hide profits offshore.

It is important to note that while the term “illicit financial flows” (IFFs) tends to include many types of activities, such as trade misinvoicing, smuggling, tax evasion, etc., this report only focuses on trade misinvoicing, or the trade-related aspects of illicit financial flows. It does not address all forms of IFFs.

The countries included in this report are based on the International Monetary Fund classification system, which is comprised of 148 developing countries and 36 advanced economies. However, 13 of the developing countries did not report sufficient trade data to the United Nations to be included in this analysis.

In order to identify a country’s imports/exports that may have been misinvoiced, Global Financial Integrity (GFI) conducts a value gap analysis by examining data submitted by governments each year to the United Nations Comtrade database and applying a series of filters to ensure unmatched trades are omitted. GFI then uses a partner-country analysis to compare and contrast the differences between any set of two countries in order to identify value gaps, or mismatches, in the reported data. For example, if Ecuador reported exporting US\$20 million in bananas to the United States in 2016, but the US reported having imported only US\$15 million in bananas from Ecuador that year, this would reflect a mismatch, or value gap, of US\$5 million in the reported trade of this product between the two partners for that year. While the available data is not perfect and country figures are not exact, the resulting value gap estimates are the result of rigorous analysis and provide an order of magnitude view of each country’s trade misinvoicing challenge, reflecting the degrees of trade misinvoicing happening between any two countries.

Key findings include:

US\$8.8 trillion: The sum of the value gaps identified in trade between 135 developing countries and 36 advanced economies over the ten-year period 2008-2017;

US\$817.6 billion: The sum of the value gaps identified in trade between 135 developing countries and 36 advanced economies¹ in 2017, the most recent year for which comprehensive data are available. This analysis adds to what GFI has provided in previous annual reports. (See Table A in the Annex);

Developing countries with the largest annual average value gaps (in US dollars) in their bilateral trade with 36 advanced economies over the ten-year period 2008-2017 (See Table B in the Annex):

China – US\$323.8 billion
Mexico – US\$62.9 billion
Russia – US\$56.8 billion
Poland – US\$40.9 billion
Malaysia – US\$36.7 billion

Developing countries with the largest value gaps as a percent of their total bilateral trade with the 36 advanced economies over the ten-year period (See Table C in the Annex):

The Gambia – 37.3 percent
Togo – 30.2 percent
The Maldives – 27.4 percent
Malawi – 26.8 percent
Bahamas - 26.6 percent

By contrast, China ranked 80th out of the 135 developing countries analyzed, with an average value gap of 18.8 percent of its total bilateral trade with the 36 advanced economies over the same period.

Developing countries with the largest average value gaps as a percent of total trade between the 135 developing countries and all trading partners over 2008-2017 (See Table F in the Annex):

The Gambia – 46.8 percent
Seychelles – 38.3 percent
Paraguay – 27.1 percent
Ghana – 26.5 percent
The Bahamas – 25.9 percent

¹ The set of 36 advanced economies is based on a list established by the International Monetary Fund according to a set of its criteria. See Table H in the Annex.

The three largest value gaps (in US dollars) by harmonized system (HS) chapter between the 135 developing countries and 36 advanced economies over 2008-2017 (See Table D in the Annex):

Electrical Machinery (HS 85) – US\$153.7 billion
Mineral Fuels (HS 27) – US\$113.2 billion
Machinery (HS 84) – US\$111.7 billion

The average sizes of the value gaps by dollar amount between the developing country regions and the 36 advanced economies over the ten-year period of 2008-2017 (See Table 9 on page 27):

Asia – US\$476.3 billion
Developing Europe – US\$167.9 billion
Western Hemisphere – US\$131.5 billion
Middle East/North Africa – US\$70.6 billion
Sub-Saharan Africa – US\$27.2 billion

US\$63 billion: The largest value gap identified when examining trade misinvoicing between developing country regions over the ten-year period was between Developing Asia and the Middle East/North Africa in 2014 (See Table 11 on page 29);

US\$1 billion: The lowest value gaps identified when examining trade misinvoicing between the developing country regions over the ten-year period were between Sub-Saharan Africa's trade with Developing Europe, Middle East/North Africa and the Western Hemisphere in several of the years (See Table 11 on page 29);

20 percent: The average sizes of the value gaps as a percentage of total trade within South-South trade and within North-South trade, which suggests that trade misinvoicing is *proportionately* a similar problem in trade among developing countries as it is in trade between developing countries and advanced economies. (See Table 13 on page 31).

Overall, the analysis shows **trade misinvoicing is a persistent problem across developing countries**, resulting in potentially massive revenue losses – at a time when most countries are struggling to mobilize domestic resources to achieve the internationally-agreed UN 2030 Sustainable Development Goals (SDGs).

The analysis is intended to help identify the countries most likely at risk for trade misinvoicing (and therefore, significant government revenue losses), and to recommend policy measures to combat trade misinvoicing to customs authorities in-country and those of their major trading partners.

In the final section of this report, GFI provides a list of policy recommendations for governments to consider adopting in order to more effectively address the problem of trade misinvoicing in particular, and the broader problems of IFFs in general.



Section I. Introduction – The Global Problem of Illicit Financial Flows

This report examines the latest official international trade data from the United Nations Comtrade database in order to estimate the magnitude of trade misinvoicing – one of the largest components of measurable illicit financial flows.

What are illicit financial flows?

Illicit financial flows (IFFs) are illegal movements of money or capital from one country to another. GFI classifies illicit flows as funds which are illegally earned, transferred, and/or utilized across an international border. The primary sources of illicit flows include grand corruption, commercial tax evasion, and transnational crime.

Some examples of IFFs might include:

- A drug cartel using **trade-based money laundering** techniques to use the illegal proceeds of narcotics sales to purchase used cars, which will be exported to the drug source country and sold;
- An importer using **trade misinvoicing** to evade customs duties, value-added tax (VAT), or income taxes;
- A corrupt public official using an **anonymous shell company** to transfer stolen state assets into a bank account in the United States;
- A wealthy individual or multinational corporation hiding taxable income or wealth from national tax authorities in offshore centers or tax havens – often referred to as “**secrecy jurisdictions**”;
- A human trafficker **smuggling cash** across the border; or
- An individual wiring money to **finance terrorist activities** in another part of the world.

Not only do IFFs sustain illegal activities and international criminal networks, they also result in a massive loss of what are often desperately needed financial resources to fund public initiatives or critical investments in developing countries. Collectively, for developing countries, this often represents hundreds of millions of dollars in lost or foregone tax revenues that could have otherwise been collected and used for supporting sustainable economic development, job creation, reduction of inequality, alleviating poverty and combatting climate change, among other things. With billions of dollars estimated to be illicitly leaving developing countries every year, this drain of public resources undermines the efforts of countries to mobilize more domestic resources in order to meet the internationally-agreed UN Sustainable Development Goals (SDGs) by the target date of 2030 (See in particular SDG 16.4.1 on curtailing IFFs).

Logically, every dollar that leaves one country must end up in another. Very often, this means that illicit financial outflows from developing countries ultimately end up in banks in developed countries like the United States and United Kingdom, as well as tax havens like Switzerland, the British Virgin Islands, or Singapore. This does not happen by accident. Many countries and their institutions actively facilitate – and reap enormous profits from – the inflow of massive amounts of money from developing countries.

GFI believes developed countries have a responsibility alongside developing countries to curtail the flow of illicit money.

**“
Trade misinvoicing
is a well-established
method of hiding
illicit financial
flows within the
international
commercial trade
system”**

What is trade misinvoicing?

Trade misinvoicing is the act of the deliberate manipulation of the value of a trade transaction by falsifying, among others, the price, quantity, quality, and/or country of origin of a good or service by at least one party to the transaction. Trade misinvoicing is a well-established method of hiding illicit financial flows within the international commercial trade system, as well as evading and/or exploiting customs regimes. For example, value can be illicitly moved out of countries by either over-invoicing imports, or under-invoicing exports. Conversely, value can be illicitly moved into countries by either over-invoicing exports, or under-invoicing imports.

Although the World Trade Organization (WTO) estimated the value of global merchandise trade at nearly US\$18 trillion in 2017, less than two percent of all shipping containers are searched each year to verify the veracity of customs invoices, providing an easily accessible channel for illicit activity. This also indicates that as the volume of global trade has increased in recent decades, the opportunities for trade misinvoicing have increased as well.²

There are many reasons for engaging in trade misinvoicing, including evading tax and/or customs duties, laundering the proceeds of criminal activity, circumventing currency controls and hiding profits offshore, among others. Table 1 offers a breakdown of the four major types of trade misinvoicing activities, two of which constitute illicit financial *outflows* from countries and two which result in illicit financial *inflows* to countries.

² Anton Moiseienko, Alexandria Reid and Isabella Chase, “Have Your Cake and Trade It: Is it Possible to Promote Legitimate Commerce While Reducing Illicit Trade?” Royal United Services Institute (RUSI) Commentary, October 1, 2019. <https://rusi.org/commentary/have-your-cake-and-trade-it-it-possible-promote-legitimate-commerce-while-reducing>.

Table 1. The Four Main Types and Common Purposes of Trade Misinvoicing

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

Each of these four pathways is described below:

Import over-invoicing is typically done for the purpose of shifting money abroad. For example, instead of paying US\$100 per unit for goods, an importer can falsify the invoice to show a value of US\$120 per unit. Upon payment, the recipient transfers the extra US\$20 per unit into a foreign bank account for the importer. Although the importer actually pays US\$100 per unit for the goods, the falsified invoice enables him to shift US\$20 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, including shifting wealth from countries with weak currencies (whose value often fluctuates and depreciates on world markets) into hard currencies like US dollars, British pounds or European Union euros (where value is more stable). Tax evasion, that is the illegal shifting of taxable income from one jurisdiction to another, likely with low to no tax, is also a popular motivation for import over-invoicing.

Similarly, **export under-invoicing** can also be used for shifting money abroad. 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, pay a lower corporate income tax rate. This practice often plagues high-value natural resource exports from African countries. Indeed, the High-Level Panel on Illicit Financial Flows from Africa found that IFFs are most evident in Africa's

resource-exporting countries.³ The act of export under-invoicing also results in illicit *outflows* of money, while also denying export and income taxes owed to governments.

Trade misinvoicing allows actors to bring illicit funds into countries, as well. 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 duties and taxes on a good valued at US\$100 per unit, an importer can falsify 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, the remaining US\$50 is still owed to the original producer abroad and therefore, the importer must also have a separate means of shifting money abroad (usually held in an offshore account) 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.

Lastly, **export over-invoicing** is also used to bring illicit funds into countries. In this fourth type of trade misinvoicing, the value listed on export invoices are falsified to show that exports are priced at higher levels than what importers abroad have invoiced. 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. 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) income taxes. As this results in more money coming into an economy than is supposed to (if exports had been priced accurately), export over-invoicing also results in illicit *inflows* of funds into a country.

In summary, illicit financial flows are a major global problem, particularly for developing countries that are struggling to raise domestic tax revenue to finance national development goals. Trade misinvoicing is one of the major channels for facilitating illicit financial flows out of developing countries. This report is the latest in a series of annual reports by GFI designed to measure and monitor the scope and scale of the global problem of trade misinvoicing, and to provide governments with policy recommendations to effectively address the problem.

³ "Illicit Financial Flow: Report of the High Level Panel on Illicit Financial Flows from Africa," Commissioned by the AU/ECA Conference of Ministers of Finance, Planning and Economic Development, African Union Commissioned, *Addis Abbaba*, 2016. https://www.uneca.org/sites/default/files/PublicationFiles/iff_main_report_26feb_en.pdf.

The rest of the report includes the following sections:

- Section II provides a description of the **methodology** used to analyze trade misinvoicing and its limitations;
- Section III examines the degree of misinvoicing identified in the trade between **135 developing countries and 36 advanced economies** over the ten-year period of 2008-2017;
- Section IV examines the degree of misinvoicing identified in trade between the 135 developing countries and **all of their global trading partners** over the ten-year period of 2008-2017;
- Section V examines the degree of trade misinvoicing identified in trade between the **main developing country regions**, for example, between the Africa and Asia regions, over the ten-year period of 2008-2017;
- Section VI discusses the **findings and their implications** for understanding the global challenge of trade misinvoicing.
- Section VII provides a list of GFI's **policy recommendations** for countries to address the problem of trade misinvoicing in particular, and the broader problems of IFFs more generally.
- Section VIII concludes the report.



Andrea Leopardi, Buenos Aires, Argentina, Unsplash



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GFI's estimates of the orders of magnitude of the value of trade misinvoicing underscore it is a major global challenge that must inform policy responses at the national and international levels.”

Section II. GFI Methodology for Analyzing Trade Misinvoicing

The countries included in this report are based on the International Monetary Fund classification system, which is comprised of 148 developing countries and 36 advanced economies. However, 13 of the developing countries did not have sufficient data reported to United Nations Comtrade to be included in this analysis.

In order to estimate the potential amount of trade between two countries that may have been misinvoiced, GFI conducts a value gap analysis of multiple sets of bilateral trade data. GFI uses the United Nations Comtrade database (UN Comtrade), which each year collects data reported by the majority of countries on their annual imports and exports.⁴ GFI uses such official data to undertake a “partner-country” analysis, meaning a comparison of what any set of two countries reported trading with each other, and examines value gaps, or mismatches between reports. For example, if Egypt 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 Egypt in 2016, this would represent a “value gap” of US\$2 million in the bilateral trade between these two trading partners for this particular product in 2016.

If analyzing the value gap from Egypt’s perspective, this would reflect a case of import over-invoicing by Egypt. If analyzing the gap from China’s perspective, this would reflect a case of export under-invoicing by China. As it is often difficult to know which trading partner might have engaged in how much of the trade misinvoicing in any given value gap identified, **this report focuses primarily on the scale of the value gaps** that can be empirically identified in the UN Comtrade data.

Because working with international trade data presents several problems and challenges, GFI’s program takes the following steps to refine the UN Comtrade data:

Eliminating “orphaned,” “lost” and “others” records

When analyzing the bilateral trade data for each country, GFI eliminates nearly a third of all UN Comtrade records that fall into any of three types of categories. First, GFI eliminates all transactions it classifies as being “orphaned”, or those records in the database for which Country A reported a value for imports of a good from Country B, while Country B reported no exports of that good to Country A in that year. Using the example mentioned above, GFI would eliminate the record for Egypt if it had reported a value for imported clock radios from China in 2016, if China had reported no exports of clock radios to Egypt in 2016.

⁴ It is important to note that countries are constantly updating and amending their trade reports sent to the United Nations, and so the data is always being corrected and improved on a rolling basis. This may account for why the data on value gaps for some countries and some years in the tables in this report appear somewhat different than in previous GFI reports published in earlier years. The data in this report reflects the UN Comtrade data as downloaded in November 2019.

Likewise, GFI also eliminates all transactions it classifies as “lost”, or those records which correspond to shipments reported as exports by Country A to Country B in a given year, but for which they were not recorded as imports by Country B the same year. For example, GFI would eliminate a record of China reporting a value for exported clock radios to Egypt in 2016, if Egypt did not report a value for any imports of clock radios from China that year.

Furthermore, GFI also eliminates all records it classifies as “others”, or those transactions for which one or both parties to the trade report zero values, zero volumes (quantities), or did not report the volumes in the same physical units of measurement. Once again drawing upon the example above, GFI would eliminate the record if either Egypt or China listed zero for the value, listed zero for the volume or listed zero for the quantity. Once these three filters are applied all remaining sets of records are called “matched values,” and form the basis of the data upon which value gaps are then identified.

It is important to note that even after eliminating all cases of “orphaned”, “lost” and “others” records, there are a number of reasons why value gaps may still appear in the UN Comtrade data. These include: human error; countries that report on the same goods, but use somewhat different 6-digit HS product codes for the same products in the UN Comtrade system; and the problem of re-exports and transit-trade, in which international cargo may be temporarily 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 can be 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 value gaps as a proxy for misinvoicing. GFI works to mitigate some of these potential distortions in the UN Comtrade data by applying certain treatments as described below:

Swiss gold trade

Prior to 2012, Switzerland did not include imports or exports of gold and other precious metals in its reports to UN Comtrade as a matter of policy dating back to the early 1980s. As a result, some countries would report imports of gold from Switzerland, even as Switzerland reported no gold exports to those 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 UN 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 UN 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. It is frequently more cost efficient for shipping lines to unload and reload goods onto different ships throughout the length of a journey than it is to use the same ship for an 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 completely 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. To help address this problem, GFI purchases re-export data from the Hong Kong Census Office and implements these adjustments at the six-digit level of commodity detail for the ten year period examined in this report (2008-2017). This helps to clarify the original exporters and final destination importers that transit through Hong Kong as re-exports and offers a level of detail that is not often captured in UN Comtrade data. This supplementary data enables GFI to more accurately identify value gaps between trading partners.

Transport margins: Converting CIF prices to FOB prices

Most countries report the value of their imports on a “cost, insurance and freight” (CIF) basis, whereas the value of their exports is reported using the “free on board” (FOB) valuation.⁵ To enable direct comparisons of import and export values, all import values must first be converted to an FOB basis. GFI implements these adjustments in two steps: 1) a statistical model linking CIF/FOB margins for any two countries trading any particular good was developed by GFI for treating the UN Comtrade data for the period examined in this report; and 2) the statistical model was then applied to all countries' 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 by the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) and the Organization for Economic Co-operation and Development (OECD). 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.⁶ 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.⁷

GFI's work follows the OECD's decision to restrict the included UN Comtrade data to only “reliable” observations, a step not included in the CEPII work. Specifically, GFI followed the OECD by including

⁵ The CIF price equals the value of the good plus insurance costs, plus the cost to ship the good, whereas the FOB price is just the value of the good.

⁶ 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.

⁷ Guannan Miao and Fabienne Fortanier, “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 21-24, 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).

in the statistical model only those matched trades for which: (a) the associated trade volumes differ by less than five percent, and (b) the ratio of the import (CIF) price per unit to the corresponding export (FOB) price was not less than one and not greater than two. The OECD argues persuasively that CEPII's inclusion of all matched transactions (including those for which import prices were below the associated export prices) biased downward CEPII's estimated CIF/FOB margins. GFI's estimated equation qualitatively supported the findings of both the CEPII and OECD research. 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.

Shrinkage adjustments to enhance robustness and reliability

GFI applies a weighted formula to reduce the distortionary effects of statistical outliers in the data. The use of weighted measures (rather than the raw value gaps) in the estimates based on UN Comtrade data is intended to improve the reliability of the trade misinvoicing estimates. 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:

$$\{1 - |QD - QA|/\max(QD,QA)\}$$

It should be noted that a different weight will apply to every matched record in UN 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. That is, the dollar value of a dollar-denominated value 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 a set of matched values in the UN Comtrade data; in effect, highlighting trade gaps that appear more likely to be due to misinvoicing. Other interpretations of this weighting scheme are possible, as are other specifications for weighting.⁸

Limitations of the methodology

It should be underscored that there are some important limitations of GFI's methodology for identifying value gaps in bilateral trade. Firstly, GFI's estimates only cover misinvoicing of goods trade – they do not include estimates of misinvoicing involving services trade due to the lack of bilateral UN Comtrade data on services, which has been a growing component of world trade.

Therefore, even as trade in services as a percent of total world trade has grown, trade in services cannot be detected in our value gap analysis. Such trade misinvoicing in services includes falsified invoices for

⁸ See for example Guillaume Gaulier and Soledad Zignago, "BACI: International Trade Database at the Product-Level. The 1994-2007 Version," and A. 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>.

management fees, interest payments, licenses, payments for copyrights and patents and other intellectual property rights (IPRs), etc. Such payments have become commonly used avenues for overcharges as a way to shift money out of one country and into another. 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.

Furthermore, there are many forms of illicit financial flows (IFFs) that cannot be picked up using available economic data and methods. For example, cash and *hawala* transactions and “same-invoice faking” are simply not registered in available economic data.

Regarding cash transactions, which are sometimes used in commerce and often used in criminal transactions and bulk cash smuggling, these do not show up in official trade data and subsequently cannot be captured in our value gap analyses. Our methodology also cannot detect transactions that utilize mechanisms such as *hawala* and “flying money” transactions. These techniques are increasingly leveraged as the volume of trade increases, as they are less expensive than formal value transfer services (e.g. banks, money-service businesses, etc.) and are more accessible to under-served and/or unbanked communities.

Concerning “same-invoice faking,” GFI’s value gap analysis cannot capture incidences 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 documents. In such cases, no gap appears between the export and import values and therefore, cannot be detected in our analysis. This approach is difficult to detect and is widely used by both multinational corporations and long-term trading partners. However, **GFTrade**, a global trade risk-assessment database tool developed by GFI, can detect “same invoice faking” by contrasting stated prices on invoices against recent average trading prices for the same goods as reported by 43 of the world’s largest trading nations.⁹

For these reasons, GFI believes its estimated value gaps are likely to be under-, rather than over-stated.

GFI underscores its numerical estimates are intended to illustrate the magnitude of the trade misinvoicing problem – not to provide exactitude. By their nature, IFFs are typically intended to be hidden, meaning that even the types of illicit flows that can be measured must be measured indirectly and are, therefore, an imprecise estimate of this activity. This is a common problem faced by law enforcement agencies and financial crime units around the world. Nevertheless, GFI’s estimates fill a critical gap in the literature and the extent to which such estimates are large only serves to demonstrate the scale of the trade-related IFFs problem. GFI’s estimates of the orders of magnitude of the value of trade misinvoicing underscore it is a major global challenge that must inform policy responses at the national and international levels.

⁹ For more information on GFI’s GFTrade database tool for detecting trade misinvoicing, see: <https://gfintegrity.org/gftrade/>.



Section III. Analysis of 135 Developing Countries' Trade with the 36 Advanced Economies

GFI examined 4,860 bilateral trade relationships (135 developing countries' bilateral trade with 36 advanced economies) for each year over the ten-year period of 2008-2017. In each of the bilateral trade relationships analyzed for each year, we identified the mismatches, or value gaps, based on the data in the official trade reports submitted by each country to the United Nations. We present the sums of all value gaps identified for each country and each year over the period in both US dollars and as a percent of total trade between each developing country and the set of 36 advanced economies. The set of developing countries includes 135 countries for which the most complete data for 2017 was available. The set of 36 advanced economies is based on a list established by the International Monetary Fund according to a set of its criteria. Table 2 shows the sums of the value gaps identified for each year over the period, and indicates that **the size of the sums of the value gaps increased from US\$841 billion in 2008, to over US\$1 trillion in 2011-2013, before declining somewhat to US\$817.6 billion in 2017.**

Table 2. The Sums of all Value Gaps Identified in Trade Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, in USD Millions

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sum of All Value Gaps	841,406	643,598	843,902	1,019,361	1,013,650	1,040,943	973,007	804,777	847,105	817,609

The results for the sums of all value gaps identified between each of the 135 developing countries and the set of 36 advanced economies in US dollars are presented in Table A in the Annex. For example, Row 6 in Table A shows the data for Argentina, and in the column for the year 2008 is the figure of US\$6,105 million. What this figure represents is the **sum** of all of the value gaps identified in each of 36 bilateral trade relationships between Argentina and the 36 advanced economies in 2008. In the far right column, Table A also provides an average US dollar amount for the sums of value gaps identified for each developing country's bilateral trade over the ten-year period of 2008-2017.

Drawing from this data, Table 3 shows **the countries with the top ten largest value gaps identified among the 135 developing countries' trade with the 36 advanced economies over the ten-year period**, ranked by size in USD millions for both 2017 and the average amount over the ten-year period.¹⁰ It shows that, for 2017, the countries with the largest identified value gaps in US

¹⁰ The list of developing countries in Table 3, which is drawn from the data in Table A in the Annex, only includes those countries for which data was available for at least 7 of the 10 years in the period being examined (2008-2017).

dollars were China, at US\$296 billion, followed by Mexico (US\$64.5 billion); Poland (US\$52.0 billion); Russia (US\$42.9 billion); and Malaysia (US\$41.0 billion).

In terms of largest average value gaps over the ten-year period, the countries with the five largest identified value gaps were the same as those leading in 2017: China (US\$323.8 billion); Mexico (US\$62.9 billion); Russia (US\$56.8 billion); Poland (US\$40.9 billion); and Malaysia (US\$36.7 billion). It is notable that China was the country with the largest value gap, by far, for each year over the entire ten-year period; while Mexico and Russia repeatedly ranked second and third throughout the period. Other countries, such as Poland, Malaysia, India, Thailand, Brazil, Turkey and Indonesia, also registered as having been among the top ten largest average value gaps in terms of US dollars over the period.

Table 3. The Top Ten Value Gaps Identified Among the 135 Developing Countries' Trade with the 36 Advanced Economies, in 2017 and as Averages over 2008-2017, in USD Billions

	2017		Average	
1.	China	296.0	China	323.8
2.	Mexico	64.5	Mexico	62.9
3.	Poland	52.0	Russia	56.8
4.	Russia	42.9	Poland	40.9
5.	Malaysia	41.0	Malaysia	36.7
6.	India	40.9	India	36.1
7.	Vietnam	27.8	Thailand	28.1
8.	Turkey	24.8	Brazil	26.3
9.	Hungary	21.6	Turkey	22.1
10.	Brazil	20.8	Indonesia	22.0

GFI also examined the value gaps identified in the bilateral trade between 135 developing countries and 36 advanced economies over the ten years of 2008-2017 **as a percent of total trade**. In other words, while Tables 2 and 3 look at the identified value gaps in terms of US dollars, Table 4 shows the top ten largest value gaps as percentages of each country's total trade with the 36 advanced economies as a group.¹¹ The full data set for all 135 developing countries' trade with the 36 advanced economies as a percent of total trade is presented in Table C in the Annex. Therefore, for example, Row 9 in Table C shows the data for Azerbaijan, and the column for 2008 shows the number 21.91 percent. This number means that, after taking the US dollar amount of the identified value gap for Azerbaijan's trade with the 36 advanced economies, as presented in Table A in the Annex, this amount (US\$3.2 billion) was equal to 21.9 percent of the value of Azerbaijan's total trade with the set of 36 advanced economies in 2008. The far right column of Table C provides the

¹¹ The list of developing countries in Table 4, which is drawn from the data in Table A in the Annex, only includes those countries for which data was available for at least 7 of the 10 years in the period being examined (2008-2017).

average sizes of the value gaps as a percentage of total trade for over the ten year period of 2008-2017 for each of the 135 developing countries.

When looking at the value gaps as a percent of total trade, it is notable that China drops out of the number one spot and even out of the top ten for largest identified value gaps.

Table 4 below shows that, for 2017, the country with the largest value gap measured as a percent of its total trade was The Gambia, at 39.7 percent of its total trade with the 36 advanced economies. The country with the second largest value gap as a percent of its total trade was Malawi at 31.7 percent, followed by Suriname (30.6 percent), Ghana (29.3 percent) and Kyrgyzstan (28.2 percent). In contrast, China's value gap in 2017 was ranked 60th at only 17.71 percent of its total trade with the advanced economies.

Table 4 also shows the top ten countries with the largest average value gaps as a percent of their total trade with advanced economies over the ten-year period of 2008-2017. In this case, The Gambia again ranked at the top, registering the highest average value gap at 37.3 percent of the value of its total trade with the 36 advanced economies over the period. It was followed by Togo with 30.2 percent over the period, the Maldives (27.4 percent), Malawi (26.8 percent) and the Bahamas (26.6 percent).

Table 4. The Top Ten Largest Value Gaps Identified Among the 135 Developing Countries' Trade with the 36 Advanced Economies, in 2017 and as Averages over 2008-2017, as a Percent of Total Trade

	2017		Average	
1.	Gambia	39.7	Gambia	37.3
2.	Malawi	31.7	Togo	30.2
3.	Suriname	30.6	Maldives	27.4
4.	Ghana	29.3	Malawi	26.8
5.	Kyrgyzstan	28.2	Bahamas	26.6
6.	Cameroon	24.6	Philippines	25.4
7.	Antigua and Barbuda	24.2	Qatar	25.4
8.	Bolivia	23.8	Burundi	24.5
9.	Azerbaijan	23.3	Cameroon	24.2
10.	Malaysia	23.0	Sao Tome and Principe	23.7

“These analyses can possibly help identify the developing countries most likely at risk for trade misinvoicing, and therefore, government revenue losses.”

By contrast, China ranked 80th out of the 135 developing countries analyzed, with an average value gap of 18.8 percent of its total trade with the advanced economies over the period.

This suggests that while China may have had the largest value gap in its bilateral trade with the 36 advanced economies in terms of US dollars, its value gaps in trade with advanced economies as a percent of its total trade is less significant relative to the 135 developing countries examined. Meanwhile, other relatively small economies seem to have registered much more sizeable value gaps in their bilateral trade with the 36 advanced economies as a percent of total trade over the ten-year period.

These analyses can possibly help identify those developing countries most likely at risk for trade misinvoicing (and therefore, government revenue losses) and suggests their customs authorities and those of their major trading partners could adopt greater scrutiny (see Section VII: Policy Recommendations).

Additionally, GFI examined the value gaps identified in the bilateral trade of specific commodities between each of the 135 developing countries and 36 advanced economies over the ten years of 2008-2017. Table 5 shows the top ten largest average value gaps identified for commodities, by US dollars, over the ten-year period. It shows that, when examining 97 key commodities at the two-digit international Harmonized System (HS) of product codes, some of the largest value gaps in terms of US dollars were identified in the trade of electrical machinery (HS 85) at an average gap size of US\$153.7 billion over the ten years of 2008-2017; mineral fuels (HS 27) at an average gap size of US\$113.2 billion and machinery (HS 84) at an average gap size of US\$111.7 billion over the period. The full data set for the average sizes of the value gaps of all 97 key commodities over the ten-year period is presented in Table D in the Annex.

Table 5. The Top Ten Largest Average Value Gaps Identified in Commodities Trade Between 135 Developing Countries and 36 Advanced Economies over the 2008-2017 Period, in USD Billions

	HS Chapter	Average Value Gap
1.	85 - Electrical Machinery	153.7
2.	27 - Mineral Fuels	113.2
3.	84 - Machinery	111.7
4.	87 - Vehicles	66.4
5.	71 - Precious Stones & Metals	31.8
6.	39 - Plastics	31.7
7.	30 - Pharmaceuticals	22.0
8.	90 - Optical, Medical Products	20.2
9.	73 - Iron and Steel Articles	19.6
10.	61 - Knitted Apparel	18.9

GFI also examined these same value gaps in commodities trade between the 135 developing countries and 36 advanced economies over the period of 2008-2017 as a percent of their total trade. This means that, after the US dollar amounts of the value gaps were identified, as presented in Table D in the Annex, these amounts were then calculated as percentages of the total value of bilateral trade in that commodity between the two sets of countries over the ten-year period. According to this measure, Table 6 below shows the three largest average value gaps identified over the period were in the trade of art and antiques (HS 97) at an average gap size of 37.8 percent of total bilateral trade between the two sets of countries over the ten year period; fur and artificial fur (HS 43) at an average gap size of 33.7 percent of total trade and prepared feathers (HS 67) at an average gap size of 33.1 percent of total trade over the period. Table 6 shows the top ten largest average value gaps for commodities as a percent of total trade over the ten-year period (See Table D in the Annex for the complete table of the average size of the value gaps of all 97 key commodities over the ten-year period, both in terms of US dollars and as a percent of total trade between the two sets of countries). These studies can provide developing countries some indication of the commodities most likely at risk for trade misinvoicing (and therefore, government revenue losses) and suggests they could be afforded greater scrutiny by customs authorities.

Table 6. The Top Ten Largest Average Value Gaps Identified in Commodities Trade Between 135 Developing Countries and 36 Advanced Economies over the 2008-2017 Period, as a Percent of Total Trade

	HS Chapter	Average Percent of Total Trade
1.	97 - Art, Antiques	37.8
2.	43 - Fur & Artificial Fur	33.7
3.	67 - Prepared Feathers	33.1
4.	89 - Ships and Boats	29.7
5.	42 - Leather Articles	27.7
6.	46 - Straw, Wicker Products	26.8
7.	30 - Pharmaceuticals	25.8
8.	49 - Books and Printed Goods	25.4
9.	95 - Toys and Games	25.4
10.	25 - Salt, Stone, Cement	24.0



Section IV. Analysis of 135 Developing Countries' Trade with all Other Global Trading Partners

Going beyond the subset of the 36 advanced economies, we also examined the value gaps identified in bilateral trade between each of the 135 developing countries and all of their global trading partners over the ten-year period of 2008-2017 in US dollars.

In this case, GFI examined data for 22,950 bilateral trade relationships (135 developing countries' bilateral trade with 170 economies) for each year over the ten-year period of 2008-2017. In each of the bilateral trade relationships analyzed for each year, we identified the mismatches, or value gaps, based on the data in the official trade reports submitted by each country to UN Comtrade. The sums of all value gaps identified for each country and each year over the period are presented in both US dollars and as a percent of total trade between each developing country and all of their global trading partners.

The results for the sums of all value gaps identified in US dollars are presented in Table E in the Annex. For example, Row 12 in Table E shows the data for Bangladesh, and in the column for the year 2008 is the figure of US\$5,285 million. This figure represents the **sum** of all of the value gaps identified in each of 170 bilateral trade relationships between Bangladesh and all of its global trading partners in 2008. In the far right column, Table E also provides an average US dollar amount for the sums of value gaps identified for each developing country's bilateral trade over the ten-year period of 2008-2017.

Table 7 below shows the top ten largest sums of value gaps identified among the 135 developing countries' bilateral trade with all global trading partners over the ten-year period, ranked by amounts in USD millions.¹² For 2017, it shows that the five countries with the largest identified value gaps in terms of US

“It is notable that in over half of the cases examined, the value gaps – as a percent of total trade – were larger in trade between developing countries and advanced economies than in developing countries’ trade with all of their global trading partners.”

¹² The list of developing countries in Table 7, which is drawn from the data in Table E in the Annex, only includes those countries for which data was available for at least 7 of the 10 years in the period being examined (2008-2017).

dollars were China, at US\$457.7 billion, followed by Mexico (US\$85.3 billion); India (US\$83.5 billion); Russia (US\$74.8 billion); and Poland (US\$66.3 billion).

In terms of averages over the ten-year period, the countries with the largest identified value gaps were nearly the same as those leading in 2017: China (US\$482.4 billion); Russia (US\$92.6 billion); Mexico (US\$81.5 billion); India (US\$78.0 billion); and Malaysia (US\$64.1 billion). It is notable that China was the country with the largest value gap, by far, for each year over the ten-year period; Russia, Mexico and India repeatedly ranked among the second or third largest average value gaps throughout the period, and others such as Malaysia, Brazil, Poland, Thailand, Turkey and Indonesia also consistently ranked within the top ten largest average value gaps in terms of US dollars over the period.

Table 7. The Top Ten Largest Value Gaps Identified in Developing Countries' Trade with all Global Trade Partners, in 2017 and as Averages over 2008-2017, Ranked by size in USD Billions

	2017		Average	
1.	China	457.7	China	482.4
2.	Mexico	85.3	Russia	92.6
3.	India	83.5	Mexico	81.5
4.	Russia	74.8	India	78.0
5.	Poland	66.3	Malaysia	64.1
6.	Malaysia	64.7	Poland	53.9
7.	UAE	50.0	Brazil	53.2
8.	Vietnam	49.3	Thailand	49.6
9.	Turkey	45.0	UAE	45.2
10.	Brazil	44.9	Indonesia	43.4

GFI also examined the value gaps identified in the bilateral trade between 135 developing countries and **all of their global trading partners over the ten years of 2008-2017 as a percent of their total trade**. In other words, while Table 7 (and Table E in the Annex) show the identified value gaps in terms of US dollars, Table 8 (and Table F in the Annex) provide the value gaps as percentages of each country's total trade with all of their global trading partners over the ten-year period of 2008-2017. When examined in this way, the results were similar to developing countries' trade with the 36 advanced economies in that the larger developing country economies ranked far lower and some of the relatively smaller economies ranked among those with the largest value gaps as a percent of total trade.

Table 8 shows that in 2017, the country with the largest value gap measured as a percent of its total trade with all trading partners was The Gambia at 53.0 percent of its total trade with all global trading partners.¹³ The country with the second largest value gap as a percent of its total trade was

¹³ The list of developing countries in Table 8, which is drawn from the data in Table F in the Annex, only includes those countries for which data was available for at least 7 of the 10 years in the period being examined (2008-2017).

Ghana at 28.0 percent, followed by Kyrgyzstan (27.5 percent), Suriname (27.2 percent) and Malawi (24.5 percent). In contrast, China's value gap in 2017 was ranked 76th at 18.7 percent of its total global trade.

Table 8 also shows the top ten countries with the largest average value gaps as a percent of their total trade with all trading partners over the ten-year period. The Gambia registered as having the largest, with an average value gap at 46.8 percent of the value of its total trade with all trading partners over the period. It was followed by the Seychelles with an average value gap of 38.3 percent over the period, Paraguay (27.1 percent), Ghana (26.5 percent) and the Bahamas (25.9 percent). By contrast, China ranked 63rd out of the 135 developing countries analyzed, with an average value gap of 19.6 percent of its total global trade over the period.

Table 8. The Top Ten Largest Value Gaps Identified in Developing Countries' Trade with all Global Trade Partners, in 2017 and as Averages over 2008-2017, as a Percent of Total Trade

	2017		Average	
1.	Gambia	53.0	Gambia	46.8
2.	Ghana	28.0	Seychelles	38.3
3.	Kyrgyzstan	27.5	Paraguay	27.1
4.	Suriname	27.2	Ghana	26.5
5.	Malawi	24.5	Bahamas	25.9
6.	Zambia	24.0	Nepal	25.5
7.	Philippines	23.8	Thailand	25.3
8.	Senegal	23.1	UAE	25.2
9.	Antigua and Barbuda	23.0	Madagascar	24.9
10.	Mauritania	22.8	Maldives	24.5

For the full set, see Table F in the Annex, which lists the average value gaps identified between each of the 135 developing countries' trade with all of their global trading partners over the ten-year period, as a percent of total trade. Table G in the Annex shows the top ten countries with the largest value gaps as a percent of total trade over the entire ten-year period.

It is notable that when comparing the two different data sets – one from the 135 developing countries' trade with the 36 advanced economies and the other their trade with all global trading partners – in over half of the cases the identified value gaps, as a percent of total trade, were larger in their trade with the advanced economies. For example, of the 135 developing countries examined, 76 countries (or 56.3 percent) had value gaps that were larger in their trade with the 36 advanced economies, as a percent of total trade, than those value gaps identified in their trade with all global trade partners.



“Trade misinvoicing is proportionately a similar problem in trade between developing country regions as it is in trade between developing countries and advanced economies.”

Section V. Regional Comparative Analyses

GFI also examined value gaps identified in the trade between the 135 developing countries and the 36 advanced economies **by geographic regions** over the ten-year period of 2008-2017 in US dollars (See Table H in the Annex for a complete breakdown of countries by region, using International Monetary Fund classifications).

In this case, GFI grouped developing countries into five geographic regions (as per IMF classification) and examined each region's bilateral trade relations with the set of 36 advanced economies for each year over the ten-year period of 2008-2017. In each of the regional bilateral trade relationships analyzed for each year, the mismatches, or value gaps, were identified based on the data in the official trade reports submitted by each country to UN Comtrade.

The results for the sums of all value gaps identified in US dollars are presented in Table 9 below. For example, Row 1 in Table 9 shows the data for the Developing Asia region, and in the column for the year 2008 is the figure of US\$399.0 billion. This figure represents the sum of all the value gaps identified in each of 900 bilateral trade relationships between the 25 countries of the Developing Asia region and the set of 36 advanced economies in 2008. In the far right column, Table 9 also provides an average US dollar amount for the sums of value gaps identified for each developing country region's bilateral trade with the 36 advanced economies over the ten-year period of 2008-2017.

Table 9. Total Value Gaps Identified in 135 Developing Countries' Trade with 36 Advanced Economies, 2008-2017 by Developing Country Region, in USD Billions

Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
Developing Asia	399.0	346.5	453.8	537.9	512.7	564.3	512.7	493.6	503.2	439.4	476.3
Developing Europe	189.0	122.2	155.3	194.3	188.2	199.4	198.3	111.0	149.5	171.4	167.9
Middle East & North Africa	83.9	45.5	62.7	72.9	58.9	95.9	98.6	62.6	64.2	61.1	70.6
Sub-Saharan Africa	29.9	25.9	26.6	36.4	31.3	30.5	32.1	15.1	20.0	24.3	27.2
Western Hemisphere	139.6	103.4	126.4	152.6	153.2	150.7	131.3	122.4	113.5	121.4	131.5

Table 9 shows that in 2017, the countries of the Developing Asia region had the largest combined value gap in terms of US dollars, at US\$439.4 billion, in its trade with the 36 advanced economies. This ranking reflects the outsized role played by China within this region of developing countries. It was followed by Developing Europe with an identified value gap of US\$171.4 billion; the developing countries of the Western Hemisphere region with a value gap of US\$121.4 billion; the Middle East/North Africa region (US\$61.1 billion) and the Sub-Saharan Africa region (US\$24.3 billion). This same order of ranking held consistently throughout the ten-year period with the exception of 2015 (See Table 9).

The average value gaps identified between each region and the 36 advanced economies over the ten-year period show the Developing Asia region had the largest value gap at US\$476.3 billion, followed by the Developing Europe region (US\$167.9 billion); Western Hemisphere (US\$131.5 billion); Middle East/North Africa (US\$70.6 billion); and Sub-Saharan Africa (US\$27.2 billion).

The identified value gaps were also examined as a percent of total trade. Table 10 shows the sums of the value gaps identified in trade between the five developing country regions **as a percent of each region's total trade with the 36 advanced economies** over the ten-year period. When viewed through this measure, the table demonstrates that in 2017, the region with the largest value gap as a percent of total trade was the Middle East/North Africa region at 20.6 percent, followed by the Developing Europe region (18.5 percent); Developing Asia (18.0 percent); Sub-Saharan Africa (17.9 percent) and the Western Hemisphere (14.3 percent).

In terms of averages over the ten-year period, Middle East/North Africa registered the largest average value gap over the period as a percent of its trade with the 36 advanced economies at 20.0 percent, followed by the Developing Europe (19.4 percent); Developing Asia (18.8 percent); Sub-Saharan Africa (17.8 percent); and the Western Hemisphere (15.2 percent).

Table 10. The Sums of Value Gaps Identified in 135 Developing Countries' Trade with 36 Advanced Economies, 2008-2017 by Developing Country Region, as a Percent of Total Trade

Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
Developing Asia	19.7	18.9	19.3	18.8	18.7	20.0	17.8	18.5	18.4	18.0	18.8
Developing Europe	20.3	19.5	19.9	19.4	19.5	19.3	19.3	19.1	19.0	18.5	19.4
Middle East & North Africa	20.9	19.4	20.0	21.3	18.2	19.8	21.1	19.8	19.8	20.6	20.0
Sub-Saharan Africa	21.9	17.4	14.7	16.8	16.5	16.5	19.5	18.2	18.6	17.9	17.8
Western Hemisphere	16.6	16.5	15.9	15.5	15.5	15.0	14.0	14.3	14.2	14.3	15.2

In addition to looking at each developing country region's trade with the 36 advanced economies, GFI also analyzed trade **among and between the five main developing country regions** and identified the value gaps found each year over the ten-year period of 2008-2017. The results are presented in Table 11, which shows that in 2017, the sums of the value gaps in terms of US dollars were by far the largest between the Developing Asia region and its trade with all of the other developing country regions. Once again, this may likely reflect the outsized role played by China within this region of developing countries. For example, the average value gap between the Developing Asia region and

Developing Europe over the ten-years was US\$36 billion and the average gap between the Developing Asia region and the Middle East/North Africa region over the ten-years was US\$40 billion, compared to much smaller average amounts for the value gaps in trade between the other developing country regions.

When comparing all five of the major developing country regions' trade with one another over the ten-year period, Table 11 shows the largest value gap identified over the period was in the trade between Developing Asia and the Middle East/North Africa at US\$63 billion in 2014. The smallest value gaps identified in terms of US dollars were found in Sub-Saharan Africa's trade with Developing Europe, Middle East/North Africa and the Western Hemisphere, often registering as little as US\$1 billion.

Table 11. The Sums of the Value Gaps Identified in 135 Developing Countries, 2008-2017 between Regions, Rounded in USD Billions

Pairs of Regions			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1.	DASIA	DEUR	31	23	31	42	43	45	44	35	35	35	36
2.	DASIA	MENA	31	16	28	34	37	58	63	44	42	43	40
3.	DASIA	SSA	12	15	14	19	21	25	22	14	16	20	18
4.	DASIA	WHEM	34	25	37	47	54	54	53	54	52	47	46
5.	DEUR	DASIA	31	23	31	42	43	45	44	35	35	35	36
6.	DEUR	MENA	7	5	7	7	8	10	10	7	9	10	8
7.	DEUR	SSA	1	1	1	1	2	2	2	1	1	2	1
8.	DEUR	WHEM	5	3	4	6	5	5	5	4	4	4	5
9.	MENA	DASIA	31	16	28	34	37	58	63	44	42	43	40
10.	MENA	DEUR	7	5	7	7	8	10	10	7	9	10	8
11.	MENA	SSA	2	1	1	2	3	4	4	3	3	3	3
12.	MENA	WHEM	3	2	4	3	3	3	4	3	3	3	3
13.	SSA	DASIA	12	15	14	19	21	25	22	14	16	20	18
14.	SSA	DEUR	1	1	1	1	2	2	2	1	1	2	1
15.	SSA	MENA	2	1	1	2	3	4	4	3	3	3	3
16.	SSA	WHEM	1	1	2	3	2	1	3	1	1	1	2
17.	WHEM	DASIA	34	25	37	47	54	54	53	54	52	47	46
18.	WHEM	DEUR	5	3	4	6	5	5	5	4	4	4	5
19.	WHEM	MENA	3	2	4	3	3	3	4	3	3	3	3
20.	WHEM	SSA	1	1	2	3	2	1	3	1	1	1	2

The sizes of these value gaps in terms of US dollars in Table 11 likely reflects the relative value of each region's total global trade over the period. Therefore, Table 12 looks at the same value gaps in trade between the developing country regions, **but in terms of a percentage of their total trade with one**

another. Viewed through this measure, a somewhat different picture emerges. The data in Table 12 indicate that, in the bilateral trade among the five developing country regions, the sizes of the identified value gaps ranged from about eight percent to 29 percent of the value of total bilateral trade.

For example, Table 12 shows that the largest value gap as a percent of each region's total trade with the others was found in the Middle East/North Africa's trade with Sub-Saharan Africa in 2014 at 28.6 percent of their total bilateral trade (see Row 11). In contrast, the smallest value gap identified over the period was found in Sub-Saharan Africa's trade with the Western Hemisphere in 2013 at 8.1 percent of their total bilateral trade (see Row 16).

In terms of the average size of the value gaps identified over the ten-year period of 2008-2017, the largest average value gap was in the trade between Sub-Saharan Africa and the Middle East/North Africa regions at 23.4 percent of their total bilateral trade, while the smallest average value gap over the period was found in trade between Western Hemisphere and the Middle East/North Africa regions at 14.3 percent.

Table 12. Total Value Gaps Identified in 135 Developing Countries, 2008-2017 by Regions, as a Percent of each Region's Total Trade with the Other

Pairs of Regions			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1.	DASIA	DEUR	22.3	21.6	21.5	21.3	21.4	20.8	20.9	21.0	21.2	18.9	21.1
2.	DASIA	MENA	20.7	19.4	22.5	21.5	21.4	23.1	21.2	21.0	19.5	20.7	21.1
3.	DASIA	SSA	23.8	20.4	15.1	16.9	16.0	17.3	15.8	17.9	20.8	21.6	18.6
4.	DASIA	WHEM	23.5	18.9	19.2	18.5	20.5	19.0	18.4	20.6	20.8	19.0	19.8
5.	DEUR	DASIA	22.3	21.6	21.5	21.3	21.4	20.8	20.9	21.0	21.2	18.9	21.1
6.	DEUR	MENA	18.8	20.2	21.0	19.4	17.6	18.3	18.9	18.2	20.1	18.1	19.1
7.	DEUR	SSA	23.4	23.2	25.8	21.5	22.9	24.7	21.9	21.1	22.2	23.1	23.0
8.	DEUR	WHEM	20.9	20.9	19.0	19.9	19.8	17.9	18.5	18.4	18.0	17.6	19.1
9.	MENA	DASIA	20.7	19.4	22.5	21.5	21.4	23.1	21.2	21.0	19.5	20.7	21.1
10.	MENA	DEUR	18.8	20.2	21.0	19.4	17.6	18.3	18.9	18.2	20.1	18.1	19.1
11.	MENA	SSA	21.2	23.2	21.5	26.9	19.4	21.0	28.6	25.7	27.9	18.4	23.4
12.	MENA	WHEM	16.6	14.9	19.3	13.5	11.7	12.1	13.1	14.0	14.1	13.8	14.3
13.	SSA	DASIA	23.8	20.4	15.1	16.9	16.0	17.3	15.8	17.9	20.8	21.6	18.6
14.	SSA	DEUR	23.4	23.2	25.8	21.5	22.9	24.7	21.9	21.1	22.2	23.1	23.0
15.	SSA	MENA	21.2	23.2	21.5	26.9	19.4	21.0	28.7	25.7	27.9	18.4	23.4
16.	SSA	WHEM	21.7	12.8	15.1	16.6	10.1	8.1	14.4	16.8	18.5	16.1	15.0
17.	WHEM	DASIA	23.5	18.9	19.2	18.5	20.5	19.0	18.4	20.6	20.8	19.0	19.8
18.	WHEM	DEUR	20.9	20.9	19.0	19.9	19.8	17.9	18.5	18.4	18.0	17.6	19.1
19.	WHEM	MENA	16.6	14.9	19.3	13.5	11.7	12.1	13.1	14.0	14.1	13.8	14.3
20.	WHEM	SSA	21.7	12.8	15.1	16.6	10.1	8.1	14.4	16.8	18.5	16.1	15.0

The value gaps identified in the bilateral trade among the developing country regions were examined with those found in the trade between the developing country regions and the 36 advanced economies in terms of percentage of total trade. Therefore, drawing on data from Tables 10 and 12, Table 13 below shows that **the sizes of the value gaps as a percent of total bilateral trade among the developing country regions were broadly similar to those between the developing country regions and the 36 advanced economies.** For example, the average value gaps between the Developing Asia region and other developing country regions over the ten-year period was about 20.1 percent of bilateral trade, while the average value gap between Developing Asia and the 36 advanced economies over the period was similar at 18.8 percent of bilateral trade. Likewise, the average value gaps between the Sub-Saharan Africa region and other developing country regions over the ten-year period was about 20 percent, while the average value gap between Sub-Saharan Africa and the 36 advanced economies over the period was similar at nearly 18 percent.

This suggests that trade misinvoicing is proportionately a similar problem in trade between developing country regions as it is in trade between developing countries and advanced economies.

Table 13. Comparing Value Gaps Identified in Trade Between 135 Developing Countries and 36 Advanced Economies, 2008-2017 by Regions, as a Percent of each Region's Total Trade with the Other

Pairs of Regions		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
DASIA	DEUR	22.3	21.6	21.5	21.3	21.4	20.8	20.9	21.0	21.2	18.9	21.1
DASIA	MENA	20.7	19.4	22.5	21.5	21.4	23.1	21.2	21.0	19.5	20.7	21.1
DASIA	SSA	23.8	20.4	15.1	16.9	16.0	17.3	15.8	17.9	20.8	21.6	18.6
DASIA	WHEM	23.5	18.9	19.2	18.5	20.5	19.0	18.4	20.6	20.8	19.0	19.8
DASIA with 36 AEs		19.7	18.9	19.3	18.8	18.7	20.0	17.8	18.5	18.4	18.0	18.8
DEUR	DASIA	22.3	21.6	21.5	21.3	21.4	20.8	20.9	21.0	21.2	18.9	21.1
DEUR	MENA	18.8	20.2	21.0	19.4	17.6	18.3	18.9	18.2	20.1	18.1	19.1
DEUR	SSA	23.4	23.2	25.8	21.5	22.9	24.7	21.9	21.1	22.2	23.1	23.0
DEUR	WHEM	20.9	20.9	19.0	19.9	19.8	17.9	18.5	18.4	18.0	17.6	19.1
DEUR with 36 AEs		20.3	19.5	19.9	19.4	19.5	19.3	19.3	19.1	19.0	18.5	19.4
MENA	DASIA	20.7	19.4	22.5	21.5	21.4	23.1	21.2	21.0	19.5	20.7	21.1
MENA	DEUR	18.8	20.2	21.0	19.4	17.6	18.3	18.9	18.2	20.1	18.1	19.1
MENA	SSA	21.2	23.2	21.5	26.9	19.4	21.0	28.6	25.7	27.9	18.4	23.4
MENA	WHEM	16.6	14.9	19.3	13.5	11.7	12.1	13.1	14.0	14.1	13.8	14.3
MENA with 36 AEs		20.9	19.4	20.0	21.3	18.2	19.8	21.1	19.8	19.8	20.6	20.0
SSA	DASIA	23.8	20.4	15.1	16.9	16.0	17.3	15.8	17.9	20.8	21.6	18.6
SSA	DEUR	23.4	23.2	25.8	21.5	22.9	24.7	21.9	21.1	22.2	23.1	23.0
SSA	MENA	21.2	23.2	21.5	26.9	19.4	21.0	28.7	25.7	27.9	18.4	23.4
SSA	WHEM	21.7	12.8	15.1	16.6	10.1	8.1	14.4	16.8	18.5	16.1	15.0
SSA with 36 AEs		21.9	17.4	14.7	16.8	16.5	16.5	19.5	18.2	18.6	17.9	17.8
WHEM	DASIA	23.5	18.9	19.2	18.5	20.5	19.0	18.4	20.6	20.8	19.0	19.8
WHEM	DEUR	20.9	20.9	19.0	19.9	19.8	17.9	18.5	18.4	18.0	17.6	19.1
WHEM	MENA	16.6	14.9	19.3	13.5	11.7	12.1	13.1	14.0	14.1	13.8	14.3
WHEM	SSA	21.7	12.8	15.1	16.6	10.1	8.1	14.4	16.8	18.5	16.1	15.0
WHEM with 36 AEs		16.6	16.5	15.9	15.5	15.5	15.0	14.0	14.3	14.2	14.3	15.2



Section VI. Discussion

This analysis shows that trade misinvoicing remains a major global challenge. While each value gap identified in the official trade data can be partially explained by certain measurement errors described above, GFI believes the vast majority of the value gaps identified are a proxy for, or are indicative of, trade misinvoicing.

When a value gap is identified in the bilateral trade data between two countries, the total gap is comprised of thousands of smaller gaps found in individual transactions between various importers and exporters in both countries. Although it is possible to deduce that some degree of falsification of prices on import and export invoices occurred on the part of importers and exporters in both countries, it is difficult to know which trading partners might have engaged in how much of the trade misinvoicing within any given value gap identified in the trade data at the macroeconomic level. This is due to the fact that while the declared prices on some invoices may be false, it is nearly impossible to know the true price that was actually paid for various goods being imported and exported among the thousands of individual transactions involved.

Despite this problem, and the evidence of trade misinvoicing occurring among advanced economies, there are many indications that have led GFI to believe that much of the trade misinvoicing activity occurs in developing countries for the primary purposes of capital flight and tax evasion. Based on extensive discussions with businesses and government officials in developing countries over the years, GFI believes the imperative to move wealth out of weak currencies in developing countries and into hard currencies (US dollars, British pounds, EU euros, Japanese yen, etc.) in the advanced economies is the overriding “push factor” driving much of the world’s trade misinvoicing activity. This is because weak currencies are subject to volatility on global exchange markets and high rates of inflation, both of which tend to erode their value over time, whereas the hard currencies in advanced economies tend to store the value of wealth more effectively over time. Additionally, developing countries can tend to be politically less stable, where control over assets, wealth and property rights are relatively more vulnerable to politically motivated confiscations and political upheavals as compared to the greater degrees of security and stability in advanced economies. GFI also believes that tax evasion and hiding illicit wealth from national tax authorities is another major impetus driving companies and wealthy individuals to engage in trade misinvoicing as a way of illicitly moving value out of developing countries. Therefore, GFI believes the greater ability to store wealth, secure assets and hide illicit finances offered by the advanced economies and “secrecy jurisdictions,” such as tax havens and offshore centers, are the overriding “pull factors” driving much of the world’s trade misinvoicing activity.

Additionally, developing countries generally exhibit characteristics that make them particularly susceptible to trade-related illicit financial flows (IFFs). Many developing countries are at

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This analysis suggests trade misinvoicing continues to be a major global problem, particularly for developing countries that are struggling to raise domestic tax revenue to finance national development goals.”

early stages of industrialization with underdeveloped manufacturing sectors both in terms of scale and price competitiveness, leaving them with relatively small tradable sectors composed mostly of mineral resources, or agricultural commodities. This situation, in which countries are highly dependent on the import of manufactured goods, creates strong incentives for trade misreporting and smuggling in which traders can make significant profits from under-invoicing imports (often the most common form of trade misinvoicing) if they can bypass import tariffs and other barriers designed to protect nascent manufacturing industries. In addition to the fact that customs authorities in developing countries often lack the capabilities and resources to effectively address trade-related IFFs, in some cases there are political dynamics involved as well. For example, the large profits generated from IFFs are often recycled through complex patron-client networks related to the particular features of the domestic political economy of a country, in which various groups develop a vested interest in perpetuating trade misinvoicing.¹⁴

Among the examples of the anecdotal evidence that has led GFI to believe the incidence of trade misinvoicing in developing countries is quite high are the candid comments expressed to GFI over the past several years by four Commissioner’s General (CG) of customs authorities in four different developing countries. Each of the four CGs from different economies stated independently of each other that they estimate 80 percent of all import invoices submitted by importers in their countries are misinvoiced. If correct, this magnitude of misinvoicing is well beyond any estimate made by GFI.

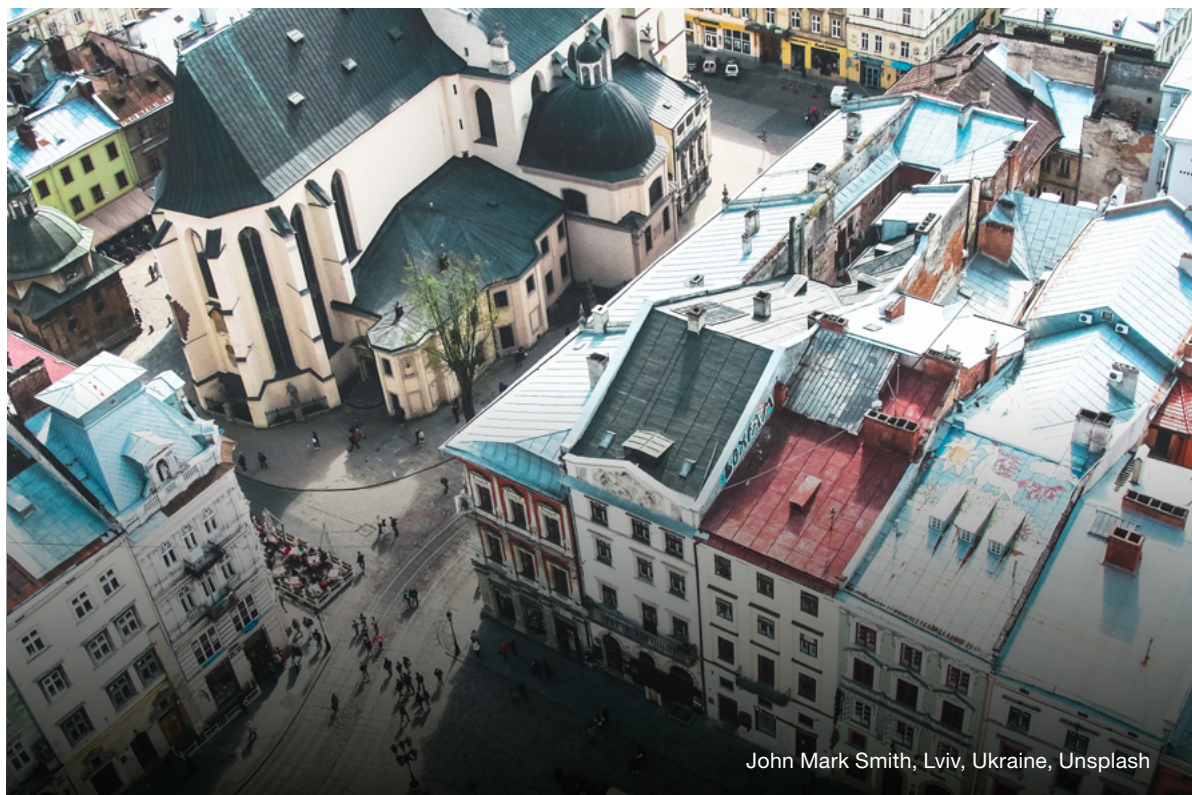
Furthermore, GFI has recently obtained real-world data from developing country governments that have implemented our GFTTrade risk assessment tool in their customs departments that underscores the prevalence of misinvoicing in developing nations. This tool, based on the transaction-level “price-filter” method of identifying probable trade misinvoicing, enables customs officials to check the prices declared on invoices against average prices for similar imports and exports over the previous 12 months, based on data drawn from 43 major trading economies. If a

¹⁴ Andreoni, A. and Tasciotti, L., “All Roads Lead to Rome: Multi-level analysis of sugar and rice smuggling in the East African Community, with a focus on Tanzania,” ACE Working paper, Anti-Corruption Evidence, SOAS Consortium, forthcoming 2020.

declared price is significantly inconsistent with recently prevailing average prices, the invoice and cargo can be flagged for further investigation.

For example, in ‘Developing Country A,’ during a 12-week period in 2018, more than \$100 million in under-invoiced imports was detected by customs department valuation officials using the GFTrade risk assessment tool. The undervaluation amount was calculated by comparing the value of the import invoices for goods shipments against official government trade data obtained from the exporting nations. In the case of ‘Developing Country B’ in 2019 (which is a much smaller economy than Developing Country A), use of the GFTrade tool enabled the customs department to flag over 600 import invoices that were under-valued by more than US\$38 million, as compared to the average price for the same goods as reported by the exporting nations. It should be noted that in both country cases only some import invoices were entered into the GFTrade database for value comparison, which suggests that the actual scale of under-invoicing is likely to be much higher than that detected.

In summary, this analysis suggests trade misinvoicing continues to be a major global problem, particularly for developing countries that are struggling to raise domestic tax revenue to finance national development goals. Indeed, trade misinvoicing is one of the major channels for facilitating IFFs out of developing countries. Critically, there are a number of policy prescriptions governments can take to curb trade misinvoicing, which are addressed in the following section.



John Mark Smith, Lviv, Ukraine, Unsplash



Section VII. GFI's Policy Recommendations for Addressing Trade Misinvoicing and Illicit Financial Flows

Key challenges: customs enforcement

Customs authorities are responsible for the collection of duties and a number of other trade-related taxes from importers and exporters. Often, these taxes are a critical source of government revenues, particularly for least-developed countries (LDCs) – even as import tariff rates have been cut around the world. For example, a 2014 survey of 34 LDCs by the World Customs Organization (WCO) found that duties and other taxes collected at borders accounted for 45 percent of government tax revenue.¹⁵

While the task of combatting illicit financial flows (IFFs) is most often placed on tax authorities, law enforcement and financial regulatory agencies, the task of combatting trade misinvoicing is placed with customs. Yet, the general priority for customs authorities is revenue collection, not law enforcement. Where customs agencies do engage in combatting IFFs, the focus tends to fall on efforts to detect cash or gold smuggling, not trade misinvoicing.

Furthermore, when customs authorities audit the value of traded goods, they often focus primarily on under-invoiced imports, in line with their traditional mandate to maximize customs duties. For example, the World Trade Organization's (WTO) Valuation Agreement sets customs valuation standards for imported goods only, not for exported goods. As a consequence, the three other types of trade misinvoicing (over-invoiced imports, under-invoiced exports, and over-invoiced exports) have not been the main focus of customs authorities.¹⁶ As noted by the African Union Commission, in order to effectively combat trade misinvoicing, monitor invoices and detect irregularities in both export and import declarations, customs authorities require both a sufficient legal mandate and adequate resources to match.¹⁷

The problem of insufficient detection of trade misinvoicing by customs authorities is further compounded by the opacity of **free trade zones** (FTZs). Frequently, national customs authorities exercise very limited control or oversight over cargo moving in and out of FTZs, which were originally designed to facilitate the movement of trade. A 2018 study by the WCO found customs procedures and controls were so limited inside FTZs, along with insufficient integration and utilization of information technology, that the resulting

¹⁵ World Trade Organization, "World Trade Report 2015: Speeding Up Trade – Benefits and Challenges of Implementing the WTO Trade Facilitation Agreement," Geneva, 2015. https://www.wto-ilibrary.org/trade-facilitation-and-customs-valuation/world-trade-report-2015_1cee73f9-en.

¹⁶ Kunio Mikuriya, "Capital flight in trade payment," The Global Governance Project, November 22, 2018. <http://www.globalgovernanceproject.org/2018/11/22/capital-flight-in-trade-payment/>.

¹⁷ African Union Commission, "Domestic Resource Mobilization: Fighting Against Corruption and Illicit Financial Flows," Addis Ababa, September 5, 2019. <https://au.int/en/documents/20190905/domestic-resource-mobilization-fighting-against-corruption-and-illicit-financial>.

lack of the requisite data concerning cargoes inside the zones rendered customs agencies' risk-management controls “**virtually useless**”.¹⁸

**“
Developing and
advanced economy
governments
alike both have
a responsibility
to curtail trade
misinvoicing.”**

There is also a tension between the WTO's Trade Facilitation Agreement (TFA), which seeks to speed up the movement of goods across borders, and the WCO's protocols which advocate for countries to adopt a comprehensive and effective valuation control program involving controls being carried out at three stages: pre-clearance, at the time of customs clearance and post-clearance. While there is a tension between the mandates of the WTO and WCO, the WTO's TFA does in fact provide specific provisions for countries aimed at avoiding or recovering revenue loss. These include provisions in Article 3.9(b), which address the pre-clearance stage, when customs agencies have the opportunity to provide advance rulings on cargo valuation, as well as provisions in Article 7.5, which addresses post-clearance audits. Most importantly, the TFA includes provisions in Articles 12.2–12.12 for the exchange of information between importing and exporting countries and procedures for verification of shipment valuations. Much more

support is needed for this process of information exchange between countries (see recommendation regarding blockchain technology below).

GFI's recommendations for governments to improve customs enforcement and combat trade misinvoicing

At the national level, governments can do the following:

Make trade misinvoicing illegal

Among the many constraints customs agencies face, the largest may be the fact that in many countries falsifying trade invoices is not criminalized. Therefore, one of the most important steps countries can take is to adopt legislation clearly criminalizing trade misinvoicing and ensuring adequate associated penalties. For example, South Korea revised its customs act in 2013 to criminalize the manipulation of invoices (values), irrespective of the impact on customs revenue. This revision encouraged customs officers to examine misinvoicing more comprehensively.

¹⁸ Kenji Omi, “‘Extraterritoriality’ of Free Zones: The Necessity for Enhanced Customs Involvement,” World Customs Organization Research Paper No. 47, September 2019. http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/research/research-paper-series/47_free_zones_customs_involvement_omi_en.pdf?la=en See also Isabella Chase, Anton Moiseienko and Alexandria Reid, “Free Trade Zones and Financial Crime – A Faustian Bargain?” Royal United Services Institute (RUSI) Commentary, November 5, 2019. <https://rusi.org/commentary/free-trade-zones-and-financial-crime-faustian-bargain>.

Strengthen law enforcement capacities of customs authorities

A second step that can be taken by governments is to establish specialized asset forfeiture and recovery units at the national level and/or advocate for the creation of a special office of asset recovery within regional organizations such as the African Union. This is because, as noted above, typically customs agencies have prioritized revenue collections, not law enforcement, and therefore the enforcement abilities of agencies must be strengthened with adequate capacities and resources.

Strengthen customs oversight of free trade zones

Governments should consider adopting the WCO's voluntary SAFE Framework of Standards to Secure and Facilitate Global Trade in FTZs, which includes a set of global recommendations designed to strengthen the effectiveness of customs controls.¹⁹ As of November 2019, 171 states had signaled their intention to apply the SAFE Framework, but the degree of actual implementation remains unclear.²⁰

Establish National Trade Facilitation Committees

The WTO's TFA is supposed to set up National Trade Facilitation Committees (NTFCs) in each country, however, sufficient financing for such national bodies is lacking. A 2014 study by United Nations Conference on Trade and Development (UNCTAD) found adequate financing for NTFCs was available in only 18 percent of developed countries, 36 percent of developing countries and 21 percent of LDCs.²¹ This suggests that for governments to fulfil their TFA commitments related to efforts to combat trade misinvoicing such as Article 3.9(b) for pre-clearance, Article 7.5 for post-clearance audits and Articles 12.2–12.12 for information exchange between countries, much more financing is needed. Where countries cannot afford to adequately finance their NTFCs, additional donor aid must be forthcoming.

Establish multi-agency teams to address customs fraud, tax evasion and other financial crimes

The OECD²², World Bank and other institutions have advocated that governments take a collaborative approach to fighting financial crimes. This would require eliminating silos between relevant agencies (ex. customs, financial intelligence units, revenue authority, and law enforcement

¹⁹ World Customs Organization, "SAFE Framework of Standards 2018 edition," Brussels, June 2018. <http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/safe-framework-of-standards.pdf?la=en>.

²⁰ World Customs Organization, "Members who have expressed their intention to implement the WCO Framework of Standards to Secure and Facilitate Global Trade," Brussels, November 1, 2019. <http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/safe-package/wco-table-intention-to-implement-the-fos.pdf?la=en>.

²¹ United Nations Conference on Trade and Development, "National Trade Facilitation Bodies in the World," New York and Geneva, 2014. https://unctad.org/en/PublicationsLibrary/dtltlb2014d1_en.pdf.

²² OECD, "Effective Inter-Agency Co-operation in Fighting Tax Crimes and Other Financial Crimes - Third Edition," OECD Publishing, Paris, 2017. <https://www.oecd.org/tax/crime/effective-inter-agency-co-operation-in-fighting-tax-crimes-and-other-financial-crimes-third-edition.pdf>.

among others). Enhanced cooperation, information sharing, and interdiction strategies are among the steps needed to foster an effective centralized approach to curtail fraud, tax evasion, grand corruption, and transnational crime.

Implement trade misinvoicing risk assessment tools

Governments should consider adopting tools that help identify potential trade misinvoicing in international trade. One such tool is **GFTrade, a proprietary risk assessment application developed by GFI**, which enables customs officials to determine if goods are priced outside typical ranges for comparable products. The system provides officials with real-time price comparisons for goods while they are critically still in the port, with price ranges for the product based on official government trade data. If the declared price on an invoice is significantly different from the comparable average prices prevailing over the previous 12 months on world markets, the cargo could be flagged for further investigation. The GFTrade system uses the most recent official trade data from 43 of the world's largest trading countries including China, the United States, EU28 and Japan and provides the ability to search for goods values based on thousands of Harmonized System (HS) codes. Tools like GFTrade are essential in assisting governments to maximize domestic resource mobilization and tackle trade misinvoicing.

Additionally, the World Customs Organization (WCO) recommends that its members:

1. Ensure customs authorities have sufficient mandate to tackle not only under-invoiced imports, but all four channels of trade misinvoicing;
2. Allow customs agencies to access foreign exchange transactions databases, and equip customs agencies with a mandate to examine whether 'financial transactions' between traders correspond to the 'value of traded goods';
3. Provide capacity building including financial and human resources for customs authorities to combat IFFs/trade misinvoicing;
4. Promote a shared sense of responsibility and effective information exchange between the private sector and customs administrations to tackle IFFs/trade misinvoicing;
5. Expand information sharing among customs, tax, financial investigation units (FIUs) and other government agencies and develop joint risk management, joint investigation teams, joint audit programs, joint intelligence centers, etc.;

6. Exchange information on the beneficial ownership of traders with tax authorities;
7. Exchange customs records on the trade and financial records for all imports and exports.

GFI recommends governments use diplomatic clout to support a number of policy initiatives that require international cooperation to curtail trade misinvoicing in particular, and IFFs generally. Of particular importance are international efforts to increase transparency in the global financial system, measures related to reducing the secrecy of tax havens, offshore centers, the degree of anonymity given to shell companies and support for cooperative efforts to curtail money laundering.

Specifically, GFI recommends governments take pro-active steps to support ongoing international efforts on the following issues:

Expand information-sharing between importing and exporting countries

The WCO and the United Nations Office on Drugs and Crime (UNODC) have established a joint Container Control Programme, which establishes inter-agency units within countries for exchanging information with their counterparts in other countries, allowing customs agencies and port authorities to share information about high-risk containers and verify their identification numbers, etc. However, as of 2018, only 54 countries have adopted this system. The WCO also recommends countries establish a legal basis and/or develop administrative arrangements for the exchange of information between and among customs administrations in partner countries for purposes of compliance and enforcement using WCO instruments and tools, such as the revised Model Bilateral Agreement, the Guide to the Exchange of Customs Valuation Information, etc. More countries should move to adopt the WCO and UNODC system.

Explore efficacy of distributed ledger technology to identify trade misinvoicing

Additionally, a pilot project being led by the World Economic Forum and the InterAmerican Development Bank is underway to test the feasibility of using distributed ledger technology, such as blockchain, in facilitating trade transactions. One of many so-called “pain points” highlighted by this program is the “limited trustworthiness of data entered” on invoices.²³ This suggests that the lack of quality pricing data between exporting and importing customs departments is well known. Keeping in mind the WTO’s TFA Articles 12.2-12.12 (as mentioned above) with respect to information exchange between governments, GFI recommends relevant institutions begin testing the feasibility

²³ World Economic Forum, “Windows of Opportunity: Facilitating Trade with Blockchain Technology,” Geneva, July 1, 2019. <https://www.weforum.org/whitepapers/windows-of-opportunity-facilitating-trade-with-blockchain-technology>.

of using distributed ledger technology as a method of eliminating the information asymmetry at the heart of the trade misinvoicing challenge.

Establish public beneficial ownership registries

Where they have not already done so, governments should adopt legislation establishing public beneficial ownership registries (requiring the true owners of companies be identified) and incorporating beneficial ownership declarations as part of their customs laws. It would be helpful to also encourage other governments to establish public registries of beneficial ownership information on all legal entities and require gatekeepers to the financial system, such as lawyers and accountants, to know the true beneficial owner(s) of any account or client relationship they open;

Adopt the recommendations of the Financial Action Task Force

Where they have not already done so, governments should build on their anti-money laundering and counter-financing of terrorism legislation by fully implementing and strongly enforcing the Financial Action Task Force's recommendations;

Implement country-by-country reporting

The lack of adequate data on corporate taxation has been a major obstacle for measuring scale of tax avoidance by multinational enterprises (MNEs). This presents a challenge for tax authorities to carry out transfer pricing assessments on transactions between linked companies and to carry out audits. The Base Erosion and Profit Shifting (BEPS) Action 13 report on Transfer Pricing Documentation and Country-by-Country Reporting provides a template for multinational enterprises (MNEs) to report annually and for each tax jurisdiction in which they do business.²⁴ This is known as Country-by-Country (CbC) Reporting.

To facilitate the implementation of the CbC Reporting standard, the BEPS Action 13 report includes a CbC Reporting Implementation Package which consists of (i) model legislation which could be used by countries to require the ultimate parent entity of an MNE group to file the CbC Report in its jurisdiction of residence including backup filing requirements and (ii) three model Competent Authority Agreements that could be used to facilitate implementation of the exchange of CbC Reports, respectively based on the:

²⁴ Organization for Economic Cooperation and Development, "Transfer Pricing Documentation and Country-by-Country Reporting, Action 13 - 2015 Final Report - OECD/G20 Base Erosion and Profit Shifting Project," Paris, October 5, 2015. <http://www.oecd.org/tax/transfer-pricing-documentation-and-country-by-country-reporting-action-13-2015-final-report-9789264241480-en.htm>.

1. Multilateral Convention on Administrative Assistance in Tax Matters;
2. Bilateral tax conventions; and
3. Tax Information Exchange Agreements (TIEAs).

The first exchanges of CbC reports took place in June 2018 and, with the OECD's support, tax administrations are incorporating CbC reports into their tax risk assessment and assurance processes to better understand the risks posed to their jurisdictions. CbC reports are also used to provide greater tax certainty to MNEs, including the pilot for the OECD International Compliance Assurance Programme (ICAP). As of December 2019, 79 countries have implemented CbC reporting; five countries have drafted legislation for future implementation; seven countries have expressed an intention to implement and nearly 100 other countries have not yet taken any steps towards implementation.²⁵ GFI calls on all countries to take steps towards CbC reporting implementation.

Participate in the automatic exchange of tax information:

For the purposes of strengthening coordination with tax authorities in other countries, all governments should join the international Global Forum on Transparency and Exchange of Information for Tax Purposes, and establish mechanisms for the automatic exchange of information (AEOI) on taxation data with partner countries. Furthermore, governments should support the Addis Tax Initiative, a group of 55 countries committed to enhancing mobilization and effective use of domestic revenues and improving the fairness, transparency, efficiency and effectiveness of their respective tax systems.

²⁵ KPMG, "BEPS Action 13: Country implementation summary," December 20, 2019.



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Section VIII. Conclusion

This report demonstrates that **trade misinvoicing continues to be a major drain on domestic tax bases in developing countries**, undermining efforts to mobilize domestic resources to meet the UN 2030 Sustainable Development Goals (SDGs) and other long-term national development initiatives.

While the estimates of trade misinvoicing may not be exact, the numbers illustrate the orders of magnitude of the problem, which clearly underscores the reality that this phenomenon is a major global problem. The data indicate trade misinvoicing has been a persistent challenge across most countries over the ten-year period examined and the amounts involved reflect a massive level of illicit financial flows moving between countries. The data also show **the problem is universal in nature** – there are large degrees of trade misinvoicing between both advanced and developing economies, as well as between developing economies themselves.

It is important to note, however, that trade misinvoicing has a far greater negative impact on the finances of developing economies. In many cases, the estimated potential lost tax revenue from trade misinvoicing can approach billions of dollars per year for developing countries – depriving them of desperately needed financial resources that could otherwise have been directed at scaling up public investment for national economic development and poverty reduction.

In other words, **trade misinvoicing constitutes one the world's most serious global challenges for successfully achieving the SDGs** across developing countries.

Developing and advanced economy governments alike both have a responsibility to curtail trade misinvoicing in particular, and illicit financial flows in general, as these illicit practices undermine the economic and national security of all nations, not just developing ones.



Section IX. Annex

Table A. The Sums of the Value Gaps Identified in Trade Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, in USD Millions*

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1	Afghanistan	2	9	7	59	2	0	0	5	6	N/A	10
2	Albania	287	273	288	302	245	259	168	143	221	151	234
3	Algeria	11,424	7,449	8,028	10,689	9,139	10,165	9,074	5,798	5,034	5,390	8,219
4	Angola	N/A	3,064	4,002	5,640	5,554	5,149	5,061	2,124	N/A	N/A	4,371
5	Antigua and Barbuda	N/A	41	31	26	25	30	66	31	32	66	39
6	Argentina	6,105	4,055	5,404	6,476	6,246	6,496	5,693	4,765	4,473	4,717	5,443
7	Armenia	173	143	174	213	187	183	162	81	132	167	161
8	Aruba	N/A	87	84	106	97	110	102	89	77	73	92
9	Azerbaijan	3,203	1,461	1,230	1,666	2,787	2,622	2,541	1,340	1,229	1,226	1,930
10	Bahamas	637	632	815	878	818	1,024	980	755	N/A	N/A	817
11	Bahrain	785	643	562	801	831	809	1,284	1,085	1,115	1,021	893
12	Bangladesh	2,558	2,457	3,091	3,358	3,198	3,799	N/A	4,578	N/A	N/A	3,291
13	Barbados	168	123	143	135	109	109	117	134	106	106	125
14	Belarus	2,030	1,198	1,313	1,911	1,805	1,799	1,612	840	918	1,080	1,450
15	Belize	77	80	84	71	54	54	59	73	55	56	66
16	Benin	252	315	274	295	305	333	315	185	143	121	254
17	Bhutan	5	7	10	14	7	N/A	N/A	N/A	N/A	N/A	9
18	Bolivia	507	389	605	788	1,028	1,182	874	887	438	724	742
19	Bosnia Herzegovina	828	609	674	815	551	774	871	432	773	866	719
20	Botswana	400	297	571	50	49	122	82	145	113	39	187
21	Brazil	30,330	21,196	27,662	32,678	32,412	30,918	27,964	20,227	18,684	20,801	26,287
22	Brunei	518	646	547	979	1,114	790	802	626	426	379	683
23	Bulgaria	3,845	2,648	2,935	3,295	3,362	3,839	4,117	2,557	3,610	4,052	3,426
24	Burkina Faso	147	110	124	136	149	192	415	160	152	160	175
25	Burundi	22	27	22	30	30	31	43	22	18	27	27
26	Cabo Verde	108	96	122	145	118	112	82	86	88	85	104
27	Cambodia	444	468	524	787	884	1,165	1,202	1,242	1,832	N/A	950
28	Cameroon	638	546	652	616	682	1,145	1,097	836	699	709	762
29	Central African Republic	12	15	14	12	17	13	24	13	22	15	16
30	Chile	3,416	2,672	7,091	7,587	7,775	8,065	6,974	6,026	6,053	6,883	6,254
31	China	262,778	225,924	299,667	356,144	355,732	395,463	355,985	343,451	347,277	296,034	323,846
32	Colombia	5,819	5,607	6,443	6,716	6,580	7,720	7,837	7,072	5,832	5,744	6,537
33	Comoros	8	11	11	11	8	7	N/A	N/A	N/A	N/A	9
34	Congo	1,199	1,038	1,024	773	1,135	622	629	N/A	N/A	238	832
35	Costa Rica	3,970	1,988	2,936	2,145	2,354	2,279	2,265	1,755	1,778	2,179	2,365

Table A. The Sums of the Value Gaps Identified in Trade Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, in USD Millions (cont)

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
36	Côte d'Ivoire	1,522	1,493	1,347	1,397	1,160	1,160	1,424	1,309	1,262	1,357	1,343
37	Croatia	2,906	2,092	2,120	2,353	2,166	2,446	2,305	1,729	2,583	1,434	2,213
38	Djibouti	N/A	42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42
39	Dominica	15	19	15	N/A	13	N/A	N/A	N/A	N/A	N/A	15
40	Dominican Rep.	1,423	1,200	1,526	1,771	1,763	1,774	2,169	1,892	1,798	2,464	1,778
41	Ecuador	1,682	1,678	2,556	2,924	3,193	2,991	3,397	2,131	1,991	2,184	2,473
42	Egypt	5,615	4,779	4,503	5,456	3,975	4,253	5,538	3,400	3,183	3,947	4,465
43	El Salvador	959	651	640	808	859	1,075	1,062	947	826	892	872
44	Ethiopia	284	231	345	322	428	540	590	753	400	N/A	433
45	Fiji	236	189	140	168	178	287	317	302	188	250	226
46	Gabon	2,267	1,224	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,745
47	Gambia	25	31	33	33	30	34	40	30	30	41	33
48	Georgia	371	255	329	420	428	497	525	337	410	434	401
49	Ghana	1,052	898	1,070	2,130	1,670	1,460	N/A	N/A	1,317	2,222	1,477
50	Grenada	22	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19
51	Guatemala	1,401	1,365	1,625	1,846	1,836	2,013	2,031	1,879	1,865	2,080	1,794
52	Guinea	305	N/A	N/A	N/A	N/A	388	295	236	N/A	N/A	306
53	Guyana	149	172	173	220	268	213	216	219	179	126	194
54	Honduras	N/A	686	760	1,010	1,036	N/A	909	838	863	1,031	892
55	Hungary	18,013	13,034	16,274	17,324	17,959	19,873	21,211	12,452	19,066	21,567	17,677
56	India	37,687	30,488	39,093	44,172	37,695	40,142	31,100	28,240	31,251	40,857	36,073
57	Indonesia	19,718	15,268	22,810	29,431	28,667	25,877	23,572	18,985	18,392	17,649	22,037
58	Iran	N/A	N/A	3,230	3,368	N/A	1,960	1,779	N/A	3,158	4,351	2,974
59	Iraq	N/A	N/A	0	0	0	N/A	928	N/A	N/A	N/A	232
60	Jamaica	734	448	537	465	457	513	477	411	392	459	489
61	Jordan	949	971	1,008	1,010	665	1,305	1,309	984	904	1,163	1,027
62	Kazakhstan	5,817	3,325	5,296	6,819	6,917	6,384	5,002	2,501	2,619	2,869	4,755
63	Kenya	866	756	960	N/A	N/A	1,031	N/A	N/A	N/A	885	900
64	Kiribati	4	3	3	4	2	3	5	5	5	N/A	4
65	Kuwait	1,902	64	2,270	1,987	N/A	2,888	2,291	2,141	2,151	179	1,764
66	Kyrgyzstan	89	125	119	411	308	304	348	178	105	204	219
67	Laos	N/A	N/A	87	113	56	108	91	70	97	N/A	89
68	Lebanon	1,440	1,563	1,542	1,769	1,203	1,676	1,701	1,193	1,570	1,672	1,533
69	Lesotho	19	40	26	43	30	25	59	39	N/A	62	37
70	Libya	5,474	3,090	3,052	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,872
71	Madagascar	352	278	268	322	226	317	381	296	361	408	321
72	Malawi	102	136	165	189	188	177	205	115	154	211	164
73	Malaysia	27,813	25,874	35,175	40,832	38,209	40,462	39,504	38,248	39,427	41,022	36,657

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
74	Maldives	138	78	80	118	96	107	118	107	113	95	105
75	Mali	213	N/A	291	273	229	N/A	N/A	N/A	237	258	250
76	Mauritania	99	85	215	214	348	248	239	N/A	197	156	200
77	Mauritius	433	424	474	477	427	446	432	310	386	426	424
78	Mexico	60,927	49,295	55,595	70,225	72,385	71,207	58,598	64,790	61,314	64,515	62,885
79	Moldova	196	146	169	211	201	209	204	127	181	230	187
80	Mongolia	N/A	N/A	N/A	N/A	N/A	321	205	167	144	148	197
81	Morocco	5,782	4,425	4,583	5,529	5,059	5,691	5,979	5,489	6,179	6,911	5,562
82	Mozambique	147	150	129	333	282	295	360	N/A	102	54	206
83	Myanmar	N/A	N/A	387	554	431	1,102	1,909	1,335	939	1,115	971
84	Namibia	222	291	335	280	266	186	226	155	145	185	229
85	Nepal	N/A	66	71	71	61	73	91	90	83	83	77
86	Nicaragua	383	226	307	362	431	395	654	684	693	694	483
87	Niger	132	126	91	111	88	153	94	83	71	N/A	105
88	Nigeria	2,378	2,313	2,602	9,106	5,990	4,258	8,999	N/A	3,188	5,100	4,882
89	North Macedonia	366	417	484	658	620	718	857	511	818	917	637
90	Oman	2,530	2,244	2,093	2,790	941	3,178	3,129	885	640	829	1,926
91	Pakistan	3,089	2,573	3,017	3,568	2,562	3,301	3,705	2,949	3,563	3,751	3,208
92	Panama	1,267	928	1,074	1,172	1,089	821	1,079	665	665	N/A	973
93	Papua New Guinea	N/A	N/A	N/A	878	586	N/A	N/A	N/A	N/A	N/A	732
94	Paraguay	330	249	358	574	450	567	611	499	507	513	466
95	Peru	3,870	3,579	4,188	6,220	4,793	4,885	4,036	3,627	3,879	3,944	4,302
96	Philippines	10,110	9,817	9,758	10,662	10,950	10,841	12,381	10,681	9,194	12,013	10,641
97	Poland	40,828	29,558	36,246	42,409	40,687	45,258	47,707	28,642	45,289	52,002	40,863
98	Qatar	14,000	4,395	12,806	18,711	N/A	23,316	21,448	9,696	8,366	N/A	14,092
99	Romania	9,456	6,561	8,105	10,094	9,169	10,489	10,748	6,481	10,510	11,910	9,352
100	Russia	71,183	39,303	54,317	75,061	72,786	73,758	71,351	32,931	34,806	42,925	56,842
101	Rwanda	46	38	39	42	36	49	61	38	33	N/A	42
102	Saint Kitts and Nevis	28	28	26	22	20	25	28	28	30	26	26
103	Saint Lucia	49	36	48	37	37	41	42	43	41	53	43
104	Saint Vincent and the Grenadines	19	20	20	20	17	19	16	17	17	17	18
105	Samoa	14	17	22	26	18	38	35	26	20	27	24
106	Sao Tome and Principe	13	14	13	15	13	16	21	16	18	13	15
107	Saudi Arabia	11,025	8,643	10,530	12,463	13,963	14,041	14,466	12,032	6,901	9,069	11,313
108	Senegal	619	475	553	812	706	848	694	524	504	543	628

Table A. The Sums of the Value Gaps Identified in Trade Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, in USD Millions (cont)

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
109	Seychelles	54	N/A	40	69	68	90	66	46	89	72	66
110	Sierra Leone	N/A	N/A	N/A	N/A	N/A	N/A	63	87	199	57	102
111	Solomon Islands	N/A	14	N/A	24	10	11	13	34	29	39	22
112	South Africa	14,852	10,339	9,723	10,691	9,454	9,333	8,641	6,225	9,092	10,063	9,841
113	Sri Lanka	1,728	1,432	1,626	1,927	1,652	1,223	1,699	1,596	1,593	1,857	1,6332
114	Suriname	85	118	112	129	152	148	164	145	141	331	153
115	Swaziland	N/A	N/A	N/A	N/A	N/A	36	37	21	43	25	32
116	Syria	1,173	1,090	1,210	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,157
117	Tanzania	546	515	588	908	703	615	654	502	673	321	602
118	Thailand	23,830	24,933	29,949	34,178	29,930	27,229	25,600	27,076	30,565	N/A	28,143
119	Timor-Leste	N/A	N/A	N/A	N/A	N/A	20	N/A	N/A	N/A	14	17
120	Togo	183	221	174	567	738	682	442	241	197	166	361
121	Tonga	11	12	10	17	12	10	12	N/A	N/A	N/A	12
122	Trinidad and Tobago	3,120	2,639	2,292	2,607	2,512	2,452	2,028	1,117	N/A	N/A	2,346
123	Tunisia	3,529	3,021	3,494	3,590	3,520	3,570	3,626	2,427	2,752	2,954	3,248
124	Turkey	22,518	17,560	20,672	24,338	22,294	24,397	24,206	17,248	22,541	24,752	22,053
125	Uganda	210	225	248	306	259	267	259	208	186	228	240
126	Ukraine	6,911	3,526	4,599	5,962	5,705	5,635	4,358	2,513	3,651	4,148	4,701
127	United Arab Emirates	14,672	N/A	N/A	N/A	15,904	18,711	21,648	14,450	18,455	19,743	17,655
128	Uruguay	700	503	659	824	834	992	829	682	728	717	747
129	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	467	467
130	Vanuatu	N/A	25	19	17	N/A	N/A	N/A	N/A	N/A	N/A	20
131	Venezuela	11,416	2,703	2,577	3,764	3,553	2,606	N/A	N/A	N/A	N/A	4,436
132	Viet Nam	11,454	8,750	10,692	13,413	3,201	15,246	18,104	16,750	21,617	27,834	14,706
133	Yemen	381	400	530	911	860	838	482	102	N/A	N/A	563
134	Zambia	113	106	109	135	183	297	202	192	N/A	111	161
135	Zimbabwe	120	139	111	154	96	79	73	64	56	59	95
Total		841,406	643,598	843,902	1,019,361	1,013,650	1,040,943	973,007	804,777	847,105	817,609	

* A zero value signifies any value below \$US1 million, but such values are still included in the calculation of the average.

Table B. The Top Ten Value Gaps Identified in Trade Between 135 Developing Countries and 36 Advanced Economies, 2008-2017 Ranked by Size, in USD Millions

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1	China	China	China	China	China	China	China	China	China	China	China
2	Russia	Mexico	Mexico	Russia	Russia	Russia	Russia	Mexico	Mexico	Mexico	Mexico
3	Mexico	Russia	Russia	Mexico	Mexico	Mexico	Mexico	Malaysia	Poland	Poland	Russia
4	Poland	India	India	India	Poland	Poland	Poland	Russia	Malaysia	Russia	Poland
5	India	Poland	Poland	Poland	Malaysia	Malaysia	Malaysia	Poland	Russia	Malaysia	Malaysia
6	Brazil	Malaysia	Malaysia	Malaysia	India	India	India	India	India	India	India
7	Malaysia	Thailand	Thailand	Thailand	Brazil	Brazil	Brazil	Thailand	Thailand	Vietnam	Thailand
8	Thailand	Brazil	Brazil	Brazil	Thailand	Thailand	Thailand	Brazil	Turkey	Turkey	Brazil
9	Turkey	Turkey	Indonesia	Indonesia	Indonesia	Indonesia	Turkey	Indonesia	Vietnam	Hungary	Turkey
10	Indonesia	Indonesia	Turkey	Turkey	Turkey	Turkey	Indonesia	Turkey	Hungary	Brazil	Indonesia

Table C. The Total Value Gaps Identified Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, as a Percent of Total Trade

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1	Afghanistan	4.18	9.46	6.09	20.78	87.24	9.95	0.03	16.73	13.02	N/A	18.61
2	Albania	19.49	18.50	19.43	18.43	16.91	16.66	19.76	18.98	18.96	19.98	18.71
3	Algeria	16.29	16.28	15.88	16.67	15.73	16.47	14.92	15.63	16.27	16.93	16.11
4	Angola	N/A	13.30	16.40	20.60	21.40	19.30	20.57	15.85	N/A	N/A	18.20
5	Antigua and Barbuda	N/A	22.67	23.09	21.81	19.79	18.92	34.45	8.20	17.80	24.18	21.21
6	Argentina	18.60	16.74	17.35	16.92	16.76	17.51	18.02	17.55	15.75	16.23	17.14
7	Armenia	17.79	20.39	21.80	20.99	19.55	18.36	16.79	20.26	21.23	17.70	19.49
8	Aruba	N/A	8.84	15.61	16.16	15.12	14.75	13.38	17.00	17.14	15.66	14.85
9	Azerbaijan	21.91	20.37	18.84	13.52	26.92	22.79	21.26	23.92	22.95	23.31	21.58
10	Bahamas	21.52	23.24	25.98	25.32	26.64	30.24	30.82	28.99	N/A	N/A	26.59
11	Bahrain	19.62	23.38	16.62	23.52	19.51	16.17	20.84	21.36	21.95	20.76	20.37
12	Bangladesh	15.62	14.57	15.30	13.82	13.25	14.58	N/A	15.18	N/A	N/A	14.62
13	Barbados	22.12	20.64	22.76	20.30	18.64	17.94	17.50	21.75	19.61	18.81	20.01
14	Belarus	15.74	15.20	17.82	14.26	14.04	15.95	15.65	16.58	15.78	16.29	15.73
15	Belize	18.50	23.23	18.36	14.06	16.11	17.49	16.67	19.40	18.01	18.06	17.99
16	Benin	22.07	33.89	20.94	13.72	27.97	27.98	23.29	17.07	22.59	19.39	22.89
17	Bhutan	14.42	31.22	28.96	23.20	29.63	N/A	N/A	N/A	N/A	N/A	25.49
18	Bolivia	24.57	22.73	22.23	22.83	24.07	25.85	16.94	24.86	19.70	23.77	22.76
19	Bosnia Herzegovina	19.01	18.28	17.55	16.97	16.15	16.67	17.16	14.90	16.67	16.54	16.99
20	Botswana	17.21	16.92	23.87	11.99	11.15	24.14	15.96	34.83	24.57	16.02	19.67
21	Brazil	19.92	19.36	19.02	18.02	18.90	18.23	17.93	17.70	16.47	17.38	18.29
22	Brunei	9.82	11.18	7.26	9.44	10.63	8.47	10.42	11.64	11.06	19.59	10.95
23	Bulgaria	19.73	19.37	19.39	16.47	17.03	17.19	17.44	16.95	17.73	16.85	17.82
24	Burkina Faso	25.88	22.14	13.28	23.40	10.61	12.17	23.74	13.24	11.18	10.75	16.64
25	Burundi	24.71	29.72	22.11	19.37	27.45	25.97	34.35	20.98	17.09	22.83	24.46
26	Cabo Verde	19.95	21.74	24.06	22.61	24.16	20.02	16.46	20.96	19.55	19.23	20.87
27	Cambodia	13.31	14.96	13.77	16.11	17.21	18.39	16.96	15.85	17.51	N/A	16.01
28	Cameroon	27.69	24.53	19.71	21.28	20.12	24.06	25.54	27.02	27.81	24.63	24.24
29	Central African Rep.	19.18	23.32	19.83	4.64	27.19	26.39	32.73	19.58	28.02	16.70	21.76
30	Chile	6.51	6.99	14.19	12.18	12.97	13.34	12.64	13.76	14.12	15.07	12.18
31	China	19.25	18.49	18.81	18.73	18.88	20.98	17.94	18.62	18.32	17.71	18.77

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
32	Colombia	18.11	20.33	18.31	13.20	12.42	14.66	15.56	18.72	17.37	16.42	16.51
33	Comoros	32.38	35.78	28.86	24.88	28.24	28.82	N/A	N/A	N/A	N/A	29.83
34	Congo	26.24	27.67	26.56	14.77	25.14	17.09	21.74	N/A	N/A	17.51	22.09
35	Costa Rica	37.59	29.14	28.99	17.73	20.04	18.37	18.24	18.00	18.10	20.18	22.64
36	Côte d'Ivoire	22.71	23.53	20.76	19.61	17.50	17.07	18.66	17.97	16.69	16.03	19.05
37	Croatia	17.83	18.33	18.42	17.63	17.46	17.97	15.68	16.51	16.44	10.73	16.70
38	Djibouti	N/A	33.28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33.28
39	Dominica	20.15	22.74	21.94	N/A	21.72	N/A	N/A	N/A	N/A	N/A	21.64
40	Dominican Rep.	16.41	16.55	17.36	18.22	16.94	15.27	16.55	16.66	16.40	18.87	16.92
41	Ecuador	11.11	15.07	16.67	15.04	18.11	12.88	14.13	12.52	14.81	14.54	14.49
42	Egypt	22.51	21.54	17.15	19.53	19.45	17.85	18.95	18.86	18.90	19.70	19.44
43	El Salvador	18.29	16.30	13.86	14.35	15.90	17.65	17.47	16.46	15.12	15.49	16.09
44	Ethiopia	19.00	17.20	21.58	16.94	19.67	23.72	21.78	30.35	16.95	N/A	20.80
45	Fiji	14.18	17.64	13.67	13.44	20.31	15.78	17.44	21.76	15.14	19.15	16.85
46	Gabon	38.26	30.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34.26
47	Gambia	29.73	36.08	37.61	38.75	32.68	43.06	43.72	35.98	35.69	39.69	37.30
48	Georgia	24.88	23.77	20.63	20.30	18.63	19.58	20.15	22.27	21.23	22.14	21.36
49	Ghana	24.98	23.55	21.78	23.47	21.61	17.80	N/A	N/A	26.18	29.27	23.58
50	Grenada	22.11	21.73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21.92
51	Guatemala	16.19	18.27	18.83	16.70	16.91	18.68	17.19	17.20	16.99	17.52	17.45
52	Guinea	18.87	N/A	N/A	N/A	N/A	18.84	17.76	21.14	N/A	N/A	19.15
53	Guyana	17.62	19.76	17.84	16.45	19.93	17.27	20.51	24.33	14.95	10.98	17.96
54	Honduras	N/A	17.31	14.29	14.63	14.50	N/A	12.88	12.63	14.08	14.87	14.40
55	Hungary	18.04	18.50	19.59	17.79	18.41	18.92	19.11	19.31	18.51	18.37	18.66
56	India	24.04	21.01	23.70	18.56	19.12	20.09	15.86	16.74	18.02	17.85	19.50
57	Indonesia	18.99	19.14	18.13	18.04	17.15	16.31	15.58	16.32	16.28	16.25	17.22
58	Iran	N/A	N/A	22.16	20.63	N/A	24.68	22.24	N/A	21.97	25.15	22.81
59	Iraq	N/A	N/A	41.20	26.68	81.53	N/A	25.83	N/A	N/A	N/A	43.81
60	Jamaica	15.53	18.28	20.82	14.34	15.69	18.83	15.49	16.17	16.68	16.47	16.83
61	Jordan	19.08	21.36	20.11	19.07	17.64	19.64	18.34	17.85	15.89	20.68	18.97
62	Kazakhstan	20.36	17.62	21.28	19.68	19.88	17.85	15.53	14.37	16.73	14.53	17.78
63	Kenya	22.76	21.02	22.61	N/A	N/A	21.45	N/A	N/A	N/A	19.16	21.40

Table C. The Total Value Gaps Identified Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, as a Percent of Total Trade (cont)

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
64	Kiribati	22.02	17.23	21.33	18.76	12.91	15.51	18.63	20.41	21.21	N/A	18.67
65	Kuwait	16.75	4.18	23.06	19.28	N/A	22.32	19.05	23.02	21.98	18.19	18.65
66	Kyrgyzstan	11.97	19.59	15.18	33.04	26.93	26.19	26.91	23.51	18.14	28.21	22.97
67	Laos	N/A	N/A	25.03	24.48	19.53	18.60	19.30	19.79	21.55	N/A	21.18
68	Lebanon	21.99	21.49	20.85	22.27	17.75	21.15	21.84	19.60	22.87	22.04	21.19
69	Lesotho	10.53	14.90	12.92	12.17	9.76	12.98	22.70	15.24	N/A	18.80	14.44
70	Libya	22.18	20.01	13.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.61
71	Madagascar	20.17	19.65	21.23	23.51	23.96	19.65	19.40	17.73	19.23	16.05	20.06
72	Malawi	21.71	21.10	26.88	29.75	31.18	30.08	28.74	22.17	24.87	31.72	26.82
73	Malaysia	19.72	18.70	19.80	20.21	19.54	19.78	20.03	22.74	23.48	23.03	20.70
74	Maldives	31.72	28.51	27.50	29.55	25.27	28.23	26.30	27.95	26.42	22.16	27.36
75	Mali	29.78	N/A	29.97	27.16	25.15	N/A	N/A	N/A	20.12	21.13	25.55
76	Mauritania	10.99	25.49	22.84	21.87	21.58	18.65	21.91	N/A	24.74	20.96	21.00
77	Mauritius	16.87	19.32	21.81	18.76	17.09	17.41	16.74	15.59	18.08	18.19	17.99
78	Mexico	15.15	15.29	13.71	14.29	14.15	13.54	11.82	12.81	12.95	12.85	13.66
79	Moldova	18.54	17.98	16.88	17.15	16.82	15.40	14.62	14.78	15.25	16.45	16.39
80	Mongolia	N/A	N/A	N/A	N/A	N/A	20.67	21.01	22.54	21.67	16.20	20.42
81	Morocco	20.98	20.76	19.59	19.37	19.12	19.68	19.61	20.23	19.38	19.47	19.82
82	Mozambique	26.20	24.62	21.35	24.32	27.99	19.90	22.71	N/A	13.81	6.87	20.86
83	Myanmar	N/A	N/A	22.48	22.90	16.57	27.55	34.20	26.70	17.08	18.41	23.24
84	Namibia	22.40	20.68	18.73	13.75	23.09	16.50	21.01	21.96	20.27	16.85	19.52
85	Nepal	N/A	21.17	18.43	19.84	18.07	16.44	19.78	19.63	15.32	13.53	18.02
86	Nicaragua	16.09	13.67	14.20	12.10	13.55	12.79	15.83	16.69	15.50	14.09	14.45
87	Niger	29.56	26.56	25.11	18.13	30.05	25.48	16.55	15.53	12.17	N/A	22.13
88	Nigeria	20.37	6.44	4.31	11.31	8.93	8.05	18.24	N/A	15.32	15.53	12.06
89	North Macedonia	18.83	16.95	15.60	15.78	14.55	14.96	15.03	17.74	14.24	14.07	15.78
90	Oman	14.69	17.45	14.37	16.84	19.63	22.02	16.72	16.27	13.65	21.29	17.29
91	Pakistan	19.09	18.50	19.45	20.10	19.37	19.95	20.63	18.51	19.40	18.20	19.32
92	Panama	19.83	17.97	16.54	14.32	12.93	10.07	14.61	10.40	11.98	N/A	14.29
93	Papua New Guinea	N/A	N/A	N/A	16.86	16.29	N/A	N/A	N/A	N/A	N/A	16.58

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
94	Paraguay	17.50	17.15	13.20	16.43	15.71	15.21	16.95	18.76	18.34	15.98	16.52
95	Peru	14.51	15.25	13.61	16.34	12.74	13.15	12.49	13.12	13.56	13.18	13.80
96	Philippines	25.38	30.22	27.75	26.77	25.93	25.04	26.95	25.93	20.16	20.23	25.44
97	Poland	18.72	18.57	18.91	18.30	19.35	19.15	18.90	19.97	19.56	19.22	19.07
98	Qatar	26.28	16.27	26.13	28.42	N/A	28.99	29.02	22.19	25.58	N/A	25.36
99	Romania	18.58	17.52	18.31	18.11	17.73	17.97	16.90	18.04	17.35	16.94	17.75
100	Russia	23.80	21.81	21.69	22.56	21.38	21.23	22.58	20.86	21.02	20.79	21.77
101	Rwanda	28.47	19.73	21.20	18.37	18.54	17.51	26.02	17.73	14.91	N/A	20.28
102	Saint Kitts and Nevis	21.41	23.81	22.75	22.15	20.35	23.36	21.92	21.31	22.31	20.77	22.01
103	Saint Lucia	23.55	20.12	24.05	21.85	13.51	8.15	9.74	12.33	11.46	14.14	15.89
104	Saint Vincent and the Grenadines	19.95	22.82	21.94	20.82	20.09	21.94	19.64	20.44	18.63	21.60	20.79
105	Samoa	11.32	12.48	13.10	15.49	18.08	22.12	22.52	17.27	17.06	21.38	17.08
106	Sao Tome and Principe	25.24	27.61	24.33	22.48	22.28	22.93	23.56	22.72	25.58	20.33	23.71
107	Saudi Arabia	23.82	23.70	23.82	22.36	22.10	20.49	20.25	21.46	13.28	20.70	21.20
108	Senegal	22.90	21.74	21.45	25.42	22.98	27.31	22.72	21.20	18.88	16.77	22.14
109	Seychelles	17.80	N/A	12.19	19.44	17.77	18.79	16.19	12.62	21.90	16.76	17.05
110	Sierra Leone	N/A	N/A	N/A	N/A	N/A	N/A	21.79	41.52	72.67	24.08	40.02
111	Solomon Islands	N/A	19.89	N/A	26.51	12.19	16.09	19.05	22.14	23.72	20.97	20.07
112	South Africa	20.40	21.97	19.75	18.48	19.07	18.75	18.19	17.30	18.63	18.08	19.06
113	Sri Lanka	20.60	20.76	20.56	18.32	19.09	13.14	15.86	16.00	16.74	17.50	17.86
114	Suriname	22.67	27.27	21.26	21.25	22.89	22.63	21.65	25.40	18.59	30.63	23.42
115	Swaziland	N/A	N/A	N/A	N/A	N/A	20.24	21.93	14.85	23.89	18.18	19.82
116	Syria	18.10	20.08	17.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.53
117	Tanzania	21.47	23.00	20.31	26.01	20.28	23.89	26.48	26.37	26.83	18.21	23.29
118	Thailand	18.94	19.75	19.63	19.41	17.52	16.51	16.72	17.81	19.08	N/A	18.37
119	Timor-Leste	N/A	N/A	N/A	N/A	N/A	25.79	N/A	N/A	N/A	22.26	24.03
120	Togo	24.33	29.58	27.33	48.69	59.39	50.60	36.05	9.08	10.05	6.85	30.20
121	Tonga	20.72	22.21	19.96	20.55	15.23	13.41	18.53	N/A	N/A	N/A	18.66

Table C. The Total Value Gaps Identified Between 135 Developing Countries and 36 Advanced Economies, 2008-2017, as a Percent of Total Trade (cont)

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
122	Trinidad and Tobago	21.74	29.70	25.08	22.30	24.50	23.83	20.18	15.25	N/A	N/A	22.82
123	Tunisia	19.48	20.34	20.26	20.22	20.73	19.91	20.84	20.14	19.58	20.44	20.19
124	Turkey	17.93	18.89	18.25	17.21	16.98	16.53	16.36	17.08	17.47	16.71	17.34
125	Uganda	18.65	25.06	25.10	25.34	25.51	22.67	22.55	23.05	18.88	19.75	22.66
126	Ukraine	20.66	21.40	21.29	19.52	19.82	19.47	18.07	18.46	19.03	17.38	19.51
127	United Arab Emirates	21.64	N/A	N/A	N/A	15.53	14.79	21.88	19.27	23.01	21.95	19.72
128	Uruguay	22.51	21.52	20.76	20.38	21.27	22.29	20.87	20.01	21.82	19.72	21.12
129	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.57	20.57
130	Vanuatu		22.80	19.31	15.85	N/A	N/A	N/A	N/A	N/A	N/A	19.32
131	Venezuela	21.55	24.24	23.30	27.86	24.43	21.52	N/A	N/A	N/A	N/A	23.82
132	Viet Nam	18.39	16.80	17.29	17.22	14.20	15.22	15.99	15.32	15.12	16.43	16.20
133	Yemen	21.93	19.38	21.09	29.87	30.45	25.97	14.37	19.06	N/A	N/A	22.77
134	Zambia	19.56	21.66	18.98	19.39	24.79	32.86	19.67	15.72	N/A	17.77	21.16
135	Zimbabwe	30.85	35.39	17.96	23.32	10.73	9.86	17.62	21.06	21.45	17.55	20.58

Table D. The Sums of the Average Value Gaps Identified in Commodities Trade Between 135 Developing Countries and 36 Advanced Economies over 2008-2017 in USD Millions and as a Percent of Total Trade

HS Chapter	Average Value Gap	% of total trade
1 - Live Animals	838	17.4
2 - Meats	4,859	16.4
3 - Fish, Crustaceans, Etc.	6,349	17.4
4 - Dairy, Eggs, Honey, Etc.	3,772	17.3
5 - Animal Products	817	23.7
6 - Live Trees and Plants	919	21.1
7 - Edible Vegetables	3,474	17.5
8 - Edible Fruits and Nuts	7,419	21.5
9 - Coffee, Tea, Spices	2,808	14.3
10 - Cereals	4,278	12.9
11 - Milling Products	667	16.1
12 - Misc. Grains, Seeds, Fruit	4,159	12.3
13 - Gums, Resins, Etc.	729	22.6
14 - Vegetables, Other	81	22.7
15 - Edible Oils, Waxes	3,363	16.3
16 - Meat & Fish, Prepared	3,211	17.2
17 - Sugars	1,655	16.7
18 - Cocoa	2,711	19.5
19 - Cereals, Prepared	2,661	19.1
20 - Plants, Prepared	3,284	17.4
21 - Misc. Edibles	3,371	20.4
22 - Beverages	3,594	15.7
23 - Food Residues	3,907	16.6
24 - Tobacco	2,481	20.2
25 - Salt, Stone, Cement	2,688	24.0
26 - Ores	10,569	12.6
27 - Mineral Fuels	113,163	16.6
28 - Inorganic Chemicals	5,257	15.7
29 - Organic Chemicals	16,649	16.1
30 - Pharmaceuticals	22,019	25.8
31 - Fertilizers	2,715	15.5
32 - Paints, Dyes, Etc.	4,447	20.1
33 - Essential Oils	6,047	20.8
34 - Soaps, Waxes, Etc.	2,889	19.2
35 - Modified Starches, Glue	1,566	19.0
36 - Explosives, Matches	226	15.7
37 - Photographic Goods	868	21.4
38 - Chemical Products, Misc.	10,154	19.8
39 - Plastics	31,680	17.5
40 - Rubber	11,005	17.2
41 - Raw Hides, Leather	1,519	15.4
42 - Leather Articles	5,983	27.7
43 - Fur & Artificial Fur	1,119	33.7
44 - Wood Products	6,474	17.4
45 - Cork Products	58	17.9
46 - Straw, Wicker Products	379	26.8
47 - Wood Pulp, Scrap Paper	2,885	15.6
48 - Paper and Paperboard	8,430	18.0
49 - Books and Printed Goods	2,745	25.4

Table D. The Sums of the Average Value Gaps Identified in Commodities Trade Between 135 Developing Countries and 36 Advanced Economies over 2008-2017 in USD Millions and as a Percent of Total Trade (cont)

HS Chapter	Average Value Gap	% of total trade
50 - Silk	140	16.3
51 - Wool, Yarn, Woven Fabric	690	13.1
52 - Cotton	2,604	13.1
53 - Other Veg. Textiles	288	23.0
54 - Man-Made Filaments	2,163	18.8
55 - Man-Made Textiles	1,715	16.2
56 - Ropes, Cables	1,467	20.8
57 - Carpets	890	18.4
58 - Special Woven Fabrics	857	19.7
59 - Coated Textiles	1,490	19.1
60 - Knitted Fabrics	1,867	18.3
61 - Knitted Apparel	18,888	19.0
62 - Non-Knitted Apparel	18,885	19.3
63 - Worn Clothing	6,463	21.3
64 - Footwear	10,386	20.6
65 - Headgear	629	21.0
66 - Umbrellas, Walking Sticks	212	18.7
67 - Prepared Feathers	861	33.1
68 - Stone & Cement Articles	2,848	20.4
69 - Ceramics	2,778	19.9
70 - Glass and Glassware	3,499	18.4
71 - Precious Stones & Metals	31,823	18.1
72 - Iron and Steel	18,600	15.8
73 - Iron and Steel Articles	19,620	20.2
74 - Copper & Articles Thereof	7,666	15.2
75 - Nickel & Articles Thereof	1,177	15.2
76 - Aluminum & Art. Thereof	9,426	18.8
78 - Lead & Articles Thereof	357	16.8
79 - Zinc & Articles Thereof	682	16.6
80 - Tin & Articles Thereof	712	19.95
81 - Other Base Metals	1,033	20.0
82 - Tools, Cutlery	3,699	21.8
83 - Base Metal Articles, Misc.	4,402	20.2
84 - Machinery	111,721	18.8
85 - Electrical Machinery	153,710	19.5
86 - Railway Products	1,570	18.9
87 - Vehicles	66,401	17.1
88 - Aircraft	9,251	20.9
89 - Ships and Boats	3,595	29.7
90 - Optical, Medical Products	20,249	23.3
91 - Clocks and Watches	2,167	21.0
92 - Musical Instruments	353	19.2
93 - Arms and Ammunition	186	17.5
94 - Furniture	15,257	19.1
95 - Toys and Games	9,286	25.4
96 - Manufactures, Misc.	2,176	18.6
97 - Art, Antiques	199	37.8

**Table E. The Sums of the Value Gaps Identified in Trade Between
135 Developing Countries and all of their Global Trading Partners,
2008-2017 in USD Millions**

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1	Afghanistan	15	71	161	411	46	21	50	232	179	N/A	131.8
2	Albania	525	482	562	607	538	561	382	424	518	379	497.8
3	Algeria	14,934	10,645	11,379	14,370	13,173	14,618	14,147	10,689	8,331	9,057	12,134.3
4	Angola	N/A	7,911	7,331	10,878	11,682	11,405	8,424	3,817	N/A	N/A	8,778.3
5	Antigua and Barbuda	N/A	55	45	34	36	73	80	45	43	77	54.2
6	Argentina	17,102	11,424	13,981	17,864	16,835	18,100	14,656	12,134	11,644	11,513	14,525.3
7	Armenia	416	371	449	457	419	464	473	363	526	619	455.7
8	Aruba	N/A	121	123	138	121	138	132	109	94	81	117.4
9	Azerbaijan	5,161	2,845	3,185	4,483	5,893	6,038	5,293	3,230	2,488	2,546	4,116.2
10	Bahamas	651	651	834	907	866	1,061	1,016	810	N/A	N/A	849.5
11	Bahrain	1,883	1,357	2,233	2,061	2,336	2,820	3,605	3,186	2,812	2,720	2,501.3
12	Bangladesh	5,285	4,899	7,087	8,007	7,121	8,824	N/A	11,513	N/A	N/A	7,533.7
13	Barbados	352	232	205	257	311	300	230	219	144	143	239.3
14	Belarus	3,847	2,640	3,250	4,115	11,152	9,542	7,507	5,432	5,278	5,985	5,874.8
15	Belize	118	119	138	109	91	94	119	136	112	119	115.5
16	Benin	926	911	740	792	929	1,062	864	839	648	742	845.3
17	Bhutan	46	87	123	157	137	N/A	N/A	N/A	N/A	N/A	110.0
18	Bolivia	1,515	1,150	1,739	2,412	3,167	2,587	2,295	2,159	849	2,079	1,995.2
19	Bosnia Herzegovina	1,407	1,128	1,216	1,464	1,046	1,430	1,599	1,020	1,307	1,353	1,297.0
20	Botswana	574	447	1,356	834	699	771	688	741	752	628	749.0
21	Brazil	58,215	39,863	52,760	63,639	64,048	61,223	58,162	47,267	42,239	44,875	53,229.1
22	Brunei	639	1,241	849	1,684	1,691	1,576	1,512	1,302	939	737	1,217.0
23	Bulgaria	7,620	5,010	5,413	6,646	6,679	7,432	7,383	5,621	6,448	7,602	6,585.4
24	Burkina Faso	317	299	304	544	547	834	749	432	614	554	519.4
25	Burundi	56	49	63	71	111	133	113	63	69	103	83.1
26	Cabo Verde	124	115	141	170	137	139	100	102	103	103	123.4
27	Cambodia	1,537	1,034	1,449	2,047	1,989	2,719	2,626	2,856	4,095	N/A	2,261.3
28	Cameroon	944	862	990	1,032	1,246	1,704	2,009	1,508	1,341	1,306	1,294.2
29	Central African Rep.	18	25	23	16	25	22	37	26	32	30	25.4
30	Chile	7,209	5,233	14,595	16,105	16,495	17,081	15,128	13,842	13,981	14,541	13,421.0
31	China	372,853	316,687	427,622	519,303	532,805	593,914	558,395	525,724	518,952	457,663	482,391.8
32	Colombia	10,036	9,061	10,650	12,256	13,251	15,521	14,140	12,646	10,608	10,781	11,895.0
33	Comoros	30	17	24	21	20	17	N/A	N/A	N/A	N/A	21.5
34	Congo	2,118	1,676	2,313	1,058	2,812	1,502	2,293	N/A	N/A	888	1,832.5
35	Costa Rica	4,905	2,992	4,115	3,524	3,334	3,449	3,480	2,920	2,976	3,335	3,503.0
36	Côte d'Ivoire	2,387	2,406	2,266	2,631	2,704	2,233	2,908	2,462	2,625	2,904	2,552.6
37	Croatia	4,840	3,568	3,693	4,108	3,650	4,076	4,065	3,205	3,937	2,340	3,748.2
38	Djibouti	N/A	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	80.0
39	Dominica	33	38	25	0	21	N/A	N/A	N/A	N/A	N/A	29.3

**Table E. The Sums of the Value Gaps Identified in Trade Between
135 Developing Countries and all of their Global Trading Partners,
2008-2017 in USD Millions (cont)**

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
40	Dominican Rep.	1,940	1,735	2,265	2,721	2,635	2,682	3,097	2,878	2,709	3,398	2,606.0
41	Ecuador	3,586	3,060	4,457	5,305	5,448	5,704	6,412	4,580	4,310	4,748	4,761.0
42	Egypt	9,820	8,286	9,211	11,011	8,061	10,249	12,928	8,831	8,483	9,480	9,636.0
43	El Salvador	1,575	1,174	1,289	1,553	1,602	1,797	1,782	1,722	1,584	1,757	1,336.9
44	Ethiopia	657	713	756	812	1,283	1,472	2,105	2,360	1,874	N/A	1,203.2
45	Fiji	280	228	183	234	238	395	434	410	314	360	307.6
46	Gabon	3,573	1,571	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,572.0
47	Gambia	105	125	123	213	178	158	191	149	165	236	164.3
48	Georgia	1,128	732	958	1,287	1,499	1,658	1,618	1,290	1,421	1,434	1,302.5
49	Ghana	1,913	1,905	2,075	5,724	4,491	4,633	N/A	N/A	4,222	5,099	3,757.8
50	Grenada	39	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33.5
51	Guatemala	2,447	2,452	2,807	3,201	3,232	3,311	3,520	3,620	3,379	3,527	3,149.6
52	Guinea	498	N/A	N/A	N/A	N/A	856	875	684	N/A	N/A	728.3
53	Guyana	296	284	296	386	472	426	367	396	272	207	340.2
54	Honduras	N/A	1,218	1,349	1,661	1,895	N/A	1595	1,545	1,587	1,739	1,398.8
55	Hungary	24,203	17,248	21,950	23,979	24,714	26,487	28,613	18,960	25,765	28,816	24,073.5
56	India	72,610	55,789	73,919	89,309	82,466	96,316	81,134	70,762	74,005	83,467	77,977.7
57	Indonesia	35,511	27,550	42,954	54,682	53,408	53,853	49,629	39,236	38,427	39,086	43,433.6
58	Iran	N/A	N/A	9,598	11,685	N/A	11,492	12,597	N/A	12,185	13,245	11,800.3
59	Iraq	N/A	N/A	3	8	3	2	3,462	4	N/A	N/A	580.3
60	Jamaica	1,217	687	849	805	808	874	730	734	671	749	812.4
61	Jordan	2,498	2,040	2,513	2,770	2394	3,663	3,892	3,067	2,634	2,946	2,841.7
62	Kazakhstan	12,323	8,310	8,847	12,346	1,7230	14,578	13,642	9,220	8,111	9,132	11,373.9
63	Kenya	2,399	2,000	2,637	N/A	N/A	3,606	N/A	N/A	N/A	3,666	2,861.6
64	Kiribati	7	5	5	9	5	6	12	11	16	N/A	8.4
65	Kuwait	3,648	378	4,185	4,129	N/A	6,136	5,909	5,534	4,999	647	3,951.7
66	Kyrgyzstan	1,153	755	837	1,342	1,337	1,496	1,477	1,457	1,680	1,824	1,335.8
67	Laos	N/A	N/A	454	760	434	786	817	960	864	N/A	725.0
68	Lebanon	2,679	2,671	2865	3,143	2,411	3,624	3,689	2,869	3,154	3,175	3,028.0
69	Lesotho	20	40	207	336	238	247	239	173	N/A	389	209.9
70	Libya	6,888	4,576	4,885	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5,449.7
71	Madagascar	695	559	493	623	505	647	761	657	755	934	662.9
72	Malawi	321	440	394	517	595	538	582	426	437	504	475.4
73	Malaysia	46,287	43,301	60,050	70,317	70,995	76,359	73,369	68,286	66,823	64,715	64,050.2
74	Maldives	217	138	143	207	189	224	242	257	319	263	219.9
75	Mali	599	N/A	706	663	527	N/A	N/A	N/A	1,154	703	725.3
76	Mauritania	176	172	530	703	947	523	551	N/A	518	496	512.9
77	Mauritius	845	972	912	894	811	1,188	999	828	906	922	927.7
78	Mexico	73,161	60,327	70,837	88,979	92,893	91,003	79,898	88,045	84,685	85,316	81,514.4
79	Moldova	915	543	652	822	812	901	876	667	786	935	790.9
80	Mongolia	N/A	N/A	N/A	N/A	N/A	1,318	1,082	1,092	1,009	1,152	1,130.6

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
81	Morocco	8,382	6,141	6,730	8,081	7,573	8,525	8,584	8,175	8,809	9,520	8,052.0
82	Mozambique	531	551	550	1,359	1,230	1,395	1,790	N/A	645	700	972.3
83	Myanmar	N/A	N/A	1,389	1,700	2,038	2,428	5,429	4,777	4,061	4,288	3,263.8
84	Namibia	398	542	1,275	1,434	1,275	1,226	1,250	1,282	818	1,048	1,054.8
85	Nepal	N/A	657	727	924	1,184	1,113	1,254	938	1,242	1,296	1,037.2
86	Nicaragua	797	550	674	820	944	934	1,211	1,259	1,346	1,356	989.1
87	Niger	204	237	364	251	271	393	335	245	235	N/A	281.7
88	Nigeria	3,807	4,303	5,650	14,554	10,841	9,276	15,174	N/A	6,046	8,687	8,704.2
89	North Macedonia	659	677	795	1,075	964	1,073	1,231	847	1,205	1,293	981.9
90	Oman	5,596	3,454	4,192	5,899	3,848	8,307	10,073	5,162	4,427	5,243	5,620.1
91	Pakistan	6,872	5,326	6,847	7,919	6,445	8,834	9,052	8,122	8,813	8,779	7,700.9
92	Panama	2,956	2,478	2,878	3,435	3,035	2,288	2,433	2,174	1,825	N/A	2,611.3
93	Papua New Guinea	N/A	N/A	N/A	1,231	900	N/A	N/A	N/A	N/A	N/A	1,065.5
94	Paraguay	1,509	1,043	1,494	2,075	1,735	2,024	2,102	1,705	1,744	1,907	1,733.8
95	Peru	7,466	6,273	8,253	10,806	10,157	10,077	9,136	8,409	8,267	8,522	8,736.6
96	Philippines	16,556	15,330	16,413	20,457	21,360	20,848	24,415	22,437	21,255	24,889	20,396.0
97	Poland	53,848	39,079	46,891	56,628	54,065	59,457	62,958	41,545	58,582	66,337	53,939.0
98	Qatar	16,753	4,986	16,099	23,525	N/A	32,561	30,587	15,052	13,169	N/A	19,091.5
99	Romania	15,309	11,070	13,009	16,501	15,107	16,828	17,669	12,570	16,181	18,291	15,253.5
100	Russia	106,545	64,135	83,324	115,186	120,586	119,832	115,908	63,836	62,251	74,767	92,637.0
101	Rwanda	133	109	130	148	151	200	204	153	161	N/A	154.3
102	Saint Kitts and Nevis	36	37	37	30	26	33	35	38	35	31	33.8
103	Saint Lucia	75	54	71	60	108	76	86	74	58	64	72.6
104	Saint Vincent and the Grenadines	34	47	48	47	40	37	110	37	26	25	45.1
105	Samoa	19	21	28	32	23	48	50	39	38	38	33.6
106	Sao Tome and Principe	14	16	15	16	14	18	22	18	20	15	16.8
107	Saudi Arabia	21,210	16,221	21,156	24,447	28,116	29,097	31,250	27,554	16,548	23,169	23,876.8
108	Senegal	1,307	875	1,100	1,449	1,430	1,474	1,567	1,465	1,562	1,882	1,411.1
109	Seychelles	85	N/A	64	98	103	144	117	116	161	131	113.2
110	Sierra Leone	N/A	N/A	N/A	N/A	N/A	N/A	169	358	336	200	265.8
111	Solomon Islands	N/A	20	N/A	40	25	17	22	55	52	90	40.1
112	South Africa	23,555	17,684	17,572	22,035	20,006	22,174	20,041	15,569	19,095	22,149	19,988.0
113	Sri Lanka	3,172	2,551	3,277	4,111	3,828	2,989	4,369	4,320	3,871	4,451	3,693.9
114	Suriname	143	167	208	310	339	389	276	285	197	396	271.0
115	Swaziland	N/A	N/A	N/A	N/A	N/A	337	271	259	240	235	268.4
116	Syria	3,597	3,376	3,571	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,514.7
117	Tanzania	1,520	1,379	1,701	2,108	1,965	2,895	4,298	2,796	2,829	1,996	2,348.7
118	Thailand	41,257	41,830	52,802	62,786	59,487	60,067	57,868	58,712	61,435	0	55,138.2
119	Timor-Leste	N/A	N/A	N/A	N/A	N/A	88	N/A	N/A	N/A	83	85.5
120	Togo	462	430	362	2,583	1,653	1,409	1,260	1,127	1,306	510	1,110.2

**Table E. The Sums of the Value Gaps Identified in Trade Between
135 Developing Countries and all of their Global Trading Partners,
2008-2017 in USD Millions (cont)**

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
121	Tonga	14	14	13	23	16	14	17	N/A	N/A	N/A	15.9
122	Trinidad and Tobago	4,622	3,588	3,316	4,286	4,227	5,661	4,695	2,468	N/A	N/A	4,107.9
123	Tunisia	4,921	4,284	4,785	4,937	5,075	5,059	5,188	3,645	4,111	4,218	4,622.3
124	Turkey	40,021	30,422	36,691	44,286	43,048	47,346	46,997	36,279	41,913	44,989	41,199.2
125	Uganda	589	627	627	686	692	857	779	630	687	703	687.7
126	Ukraine	22,615	12,202	14,239	18,650	18,037	17,277	13,708	9,350	10,135	11,412	14,762.5
127	United Arab Emirates	30,874	N/A	N/A	N/A	40,747	54,436	56,982	38,137	45,211	50,034	45,203.0
128	Uruguay	1,817	1,602	2,000	2496	2,787	2,899	2,986	2,196	2,063	2,350	2,319.6
129	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,637	2,637.0
130	Vanuatu	N/A	34	27	31	N/A	N/A	N/A	N/A	N/A	N/A	30.7
131	Venezuela	15,827	5,745	5,830	8,172	8,266	6,952	N/A	N/A	N/A	N/A	8,465.3
132	Viet Nam	17,814	14,481	18,718	24,486	7,171	29,320	34,055	32,880	40,876	49,284	26,908.5
133	Yemen	2,036	2,083	2,309	2,312	2,610	2,964	2,335	937	N/A	N/A	2,198.3
134	Zambia	1,042	719	896	1,182	1,707	2,043	1,683	1,126	N/A	1,718	1,346.2
135	Zimbabwe	1,179	770	850	1,482	1,206	1,497	929	797	705	694	1,010.9

Table F. The Total Value Gaps Identified in Trade Between 135 Developing Countries and all of their Trading Partners, 2008-2017 as a Percent of Total Trade

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1	Afghanistan	4.32	8.50	13.24	18.90	26.37	8.16	20.29	23.65	15.34	N/A	15.42
2	Albania	19.74	19.04	20.86	20.12	19.57	18.43	21.81	21.91	21.41	22.63	20.55
3	Algeria	17.13	17.49	16.74	16.49	16.01	16.74	16.20	18.33	16.65	17.33	16.91
4	Angola	N/A	16.40	13.05	16.94	15.41	15.58	12.09	10.28	N/A	N/A	14.25
5	Antigua and Barbuda	N/A	20.99	22.01	19.73	18.44	18.36	25.49	9.61	16.98	23.04	19.41
6	Argentina	15.91	14.47	13.29	13.68	13.71	14.11	13.54	13.01	12.61	11.78	13.61
7	Armenia	17.22	21.02	20.89	18.68	17.50	16.36	16.05	18.04	20.41	19.04	18.52
8	Aruba	N/A	10.68	18.34	17.45	14.86	15.41	14.70	17.69	18.25	16.21	15.95
9	Azerbaijan	22.36	22.38	21.13	19.36	26.24	24.02	22.50	25.43	20.29	19.01	22.27
10	Bahamas	21.00	23.30	25.80	25.40	26.74	28.55	30.40	25.80	N/A	N/A	25.87
11	Bahrain	19.06	21.87	25.14	21.73	19.07	18.40	19.88	19.93	19.23	19.78	20.41
12	Bangladesh	18.33	17.20	19.32	17.04	16.32	17.97	N/A	19.44	N/A	N/A	17.95
13	Barbados	24.66	21.78	19.29	17.46	23.38	20.31	16.88	19.70	17.55	18.37	19.94
14	Belarus	15.22	16.87	17.74	14.10	18.13	16.98	14.66	14.84	14.42	13.37	15.63
15	Belize	17.46	21.38	19.31	14.71	15.48	16.24	16.61	18.83	18.06	19.95	17.80
16	Benin	28.57	34.51	20.15	16.54	25.23	23.13	17.03	22.60	20.29	22.64	23.07
17	Bhutan	23.08	23.96	25.51	23.97	26.92	N/A	N/A	N/A	N/A	N/A	24.69
18	Bolivia	16.57	16.37	17.61	18.60	19.62	14.11	12.16	15.06	13.38	16.12	15.96
19	Bosnia Herzegovina	15.52	17.35	16.23	15.68	14.68	15.63	16.52	15.68	16.10	15.32	15.87
20	Botswana	18.79	19.52	19.41	15.12	16.44	15.37	13.67	16.80	17.31	17.21	16.96
21	Brazil	19.41	17.19	16.50	15.65	16.56	15.55	15.83	16.87	15.92	15.54	16.50
22	Brunei	10.93	15.63	8.55	11.78	11.55	11.16	12.43	15.20	14.63	16.16	12.80
23	Bulgaria	19.43	19.19	17.53	16.69	16.65	17.27	16.64	17.29	16.90	16.99	17.46
24	Burkina Faso	24.77	24.46	17.32	31.75	19.14	24.49	22.24	18.42	21.83	17.87	22.23
25	Burundi	23.79	29.70	23.33	18.03	27.12	25.30	25.53	18.36	19.06	22.33	23.26
26	Cabo Verde	19.90	22.52	23.95	22.39	23.11	20.89	17.37	20.69	19.86	19.81	21.05
27	Cambodia	24.89	18.92	21.29	22.14	19.81	20.59	18.23	17.11	19.34	N/A	20.26
28	Cameroon	26.78	25.11	17.16	21.54	17.22	19.89	21.22	22.23	26.00	22.63	21.98
29	Central African Rep.	17.72	21.04	17.36	5.39	20.73	20.58	28.83	22.39	24.04	19.04	19.71
30	Chile	7.17	6.75	13.91	12.54	12.97	13.29	12.55	13.75	14.47	13.80	12.12

Table F. The Total Value Gaps Identified in Trade Between 135 Developing Countries and all of their Trading Partners, 2008-2017 as a Percent of Total Trade (cont)

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
31	China	20.41	19.23	19.45	19.36	19.89	21.23	19.04	19.71	19.27	18.68	19.63
32	Colombia	16.91	18.39	17.09	13.72	14.04	16.18	15.24	18.30	17.47	16.62	16.40
33	Comoros	35.67	24.83	23.70	22.47	19.95	21.77	N/A	N/A	N/A	N/A	24.73
34	Congo	24.59	27.24	34.78	10.43	31.93	15.64	28.92	N/A	N/A	17.29	23.85
35	Costa Rica	30.35	26.63	24.92	18.05	19.14	17.80	17.57	17.30	17.38	18.67	20.78
36	Côte d'Ivoire	22.56	21.06	18.84	19.02	18.32	15.57	18.37	19.18	17.92	18.13	18.90
37	Croatia	18.02	19.14	18.72	17.86	17.53	18.22	17.12	17.74	17.00	11.67	17.30
38	Djibouti	N/A	20.85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.85
39	Dominica	18.18	23.70	17.25	N/A	15.66	N/A	N/A	N/A	N/A	N/A	18.70
40	Dominican Rep.	16.47	17.03	17.72	18.96	17.26	16.47	17.38	17.43	16.79	18.22	17.37
41	Ecuador	12.53	14.33	15.61	15.05	15.92	13.73	14.80	14.31	16.05	15.51	14.78
42	Egypt	20.20	18.97	17.84	18.65	16.66	18.05	19.24	17.54	18.48	18.83	18.45
43	El Salvador	15.96	14.84	14.14	14.19	15.13	16.66	15.44	14.95	14.13	14.69	15.01
44	Ethiopia	17.69	19.64	19.48	18.01	18.85	22.15	23.53	26.24	22.85	N/A	20.94
45	Fiji	14.64	17.96	14.43	14.64	20.62	16.61	18.60	22.43	17.74	20.55	17.82
46	Gabon	41.49	29.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.50
47	Gambia	42.59	53.75	48.42	55.78	42.25	39.91	44.78	42.44	45.08	53.04	46.80
48	Georgia	21.17	19.95	19.27	19.27	19.18	19.36	18.95	19.48	19.23	18.59	19.45
49	Ghana	23.99	27.41	24.65	30.60	24.35	25.55	N/A	N/A	27.79	27.96	26.54
50	Grenada	19.91	20.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.14
51	Guatemala	15.76	17.68	17.09	15.64	15.97	16.76	16.18	16.86	16.03	15.88	16.39
52	Guinea	20.74	N/A	N/A	N/A	N/A	23.82	24.10	26.01	N/A	N/A	23.67
53	Guyana	20.68	21.33	17.72	17.88	21.90	20.17	18.73	24.81	16.80	12.59	19.26
54	Honduras	N/A	17.51	15.05	14.71	15.97	N/A	13.85	13.79	14.64	14.58	15.01
55	Hungary	18.13	18.17	18.78	17.16	17.68	17.69	18.46	18.69	18.38	18.20	18.13
56	India	23.77	20.89	22.40	19.38	18.57	19.84	16.72	17.84	18.39	17.24	19.50
57	Indonesia	21.23	20.05	19.59	18.91	18.14	18.13	17.54	17.35	17.38	17.22	18.55
58	Iran	N/A	N/A	25.06	25.75	N/A	23.38	22.58	N/A	20.19	19.86	22.80
59	Iraq	N/A	N/A	82.04	29.84	20.69	36.32	17.94	76.99	N/A	N/A	40.67
60	Jamaica	15.46	18.44	20.91	15.88	16.42	18.56	15.58	18.20	18.63	18.74	17.68
61	Jordan	19.39	20.12	21.22	20.85	21.01	21.00	20.27	20.30	17.68	20.36	20.22

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
62	Kazakhstan	16.97	16.49	17.89	17.60	18.38	15.92	17.15	18.30	18.60	16.19	17.35
63	Kenya	23.54	21.59	23.63	N/A	N/A	21.98	N/A	N/A	N/A	22.38	22.62
64	Kiribati	21.44	16.17	18.04	21.47	14.31	15.94	17.33	16.43	23.04	N/A	18.24
65	Kuwait	17.17	9.24	21.98	20.70	N/A	20.15	19.88	20.89	19.91	13.30	18.14
66	Kyrgyzstan	16.58	17.19	16.96	21.70	20.27	20.81	21.54	26.05	29.72	27.47	21.83
67	Laos	N/A	N/A	15.79	20.24	12.44	16.13	14.16	18.75	20.04	N/A	16.79
68	Lebanon	20.83	21.70	20.84	21.54	19.06	21.86	22.39	21.22	22.12	21.32	21.29
69	Lesotho	10.80	14.61	18.06	20.06	16.72	16.67	18.06	11.96	N/A	19.13	16.23
70	Libya	20.77	18.44	15.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.12
71	Madagascar	22.55	21.22	23.19	23.89	23.32	19.80	19.36	18.64	20.03	19.16	24.92
72	Malawi	20.50	23.41	21.91	26.02	31.32	24.59	27.54	24.34	25.04	24.54	20.51
73	Malaysia	20.10	18.95	19.99	19.95	20.59	20.22	20.25	21.46	21.59	22.01	23.63
74	Maldives	23.51	24.98	23.87	25.61	22.84	24.68	22.45	23.37	23.81	21.20	24.46
75	Mali	28.80	N/A	26.84	24.56	16.16	N/A	N/A	N/A	29.53	20.86	23.89
76	Mauritania	12.93	27.74	30.71	33.43	25.17	16.37	19.17	N/A	26.75	22.76	19.67
77	Mauritius	17.17	25.20	21.92	16.98	18.41	22.62	17.58	18.61	19.69	18.55	14.89
78	Mexico	15.80	16.15	14.97	15.28	15.29	14.49	13.31	14.46	14.71	14.40	14.46
79	Moldova	19.05	16.30	17.03	16.44	17.31	16.92	16.94	16.72	17.60	17.75	19.66
80	Mongolia	N/A	N/A	N/A	N/A	N/A	14.99	11.71	15.46	16.32	13.83	18.36
81	Morocco	21.06	20.90	20.03	18.78	18.59	19.78	19.30	19.97	19.21	19.00	19.26
82	Mozambique	17.87	16.59	16.41	22.22	22.39	18.10	21.24	N/A	16.34	14.12	19.46
83	Myanmar	N/A	N/A	15.12	14.66	17.96	15.47	25.35	23.50	20.03	22.02	20.15
84	Namibia	23.33	19.93	19.12	19.51	19.29	18.72	18.39	21.29	16.72	18.31	14.97
85	Nepal	N/A	26.03	20.42	21.04	23.49	19.70	17.85	18.38	17.71	16.74	25.47
86	Nicaragua	17.18	15.72	15.59	14.01	14.36	14.34	14.75	15.02	14.37	14.38	11.96
87	Niger	26.80	25.68	38.51	23.10	26.94	22.84	23.74	21.84	19.82	N/A	16.11
88	Nigeria	20.51	7.44	6.15	11.87	9.24	9.19	14.73	N/A	13.84	14.66	17.88
89	North Macedonia	18.79	16.92	15.37	15.79	14.64	15.07	14.97	15.96	14.63	13.89	21.12
90	Oman	14.01	14.22	13.50	13.37	19.31	21.28	15.71	13.34	13.74	22.58	15.10
91	Pakistan	17.76	18.15	18.78	19.34	17.19	18.44	18.02	17.21	17.39	16.53	17.65
92	Panama	17.98	18.46	15.75	14.83	13.76	11.93	14.53	14.57	14.10	N/A	14.08

Table F. The Total Value Gaps Identified in Trade Between 135 Developing Countries and all of their Trading Partners, 2008-2017 as a Percent of Total Trade (cont)

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
93	Papua New Guinea	N/A	N/A	N/A	17.76	17.53	N/A	N/A	N/A	N/A	N/A	14.13
94	Paraguay	15.09	13.97	12.47	15.57	14.37	13.47	13.77	14.10	14.33	13.69	27.08
95	Peru	14.78	15.23	14.58	15.08	13.62	13.73	13.58	14.25	13.83	12.62	18.87
96	Philippines	26.64	29.05	27.46	28.93	28.54	26.34	28.33	28.08	23.67	23.78	24.24
97	Poland	18.78	18.89	18.62	18.29	18.79	18.63	18.72	19.58	19.46	18.95	17.21
98	Qatar	24.62	14.51	25.55	27.95	N/A	28.07	27.76	21.47	23.95	N/A	17.31
99	Romania	17.71	18.10	17.28	17.36	17.28	17.35	16.77	17.78	16.81	16.64	19.94
100	Russia	21.54	21.22	20.37	21.05	19.72	19.31	20.25	18.95	18.83	18.12	19.30
101	Rwanda	21.31	18.40	19.35	19.66	18.45	19.20	20.26	18.09	19.01	N/A	21.76
102	Saint Kitts and Nevis	21.15	23.27	23.33	22.70	19.85	22.55	20.90	21.11	21.86	20.88	16.98
103	Saint Lucia	21.48	17.77	21.89	20.10	23.06	10.42	13.08	14.94	12.61	14.40	21.05
104	Saint Vincent and the Grenadines	18.91	20.78	19.55	18.02	18.06	16.86	42.20	19.20	17.52	19.41	17.76
105	Samoa	12.22	12.80	14.43	15.79	18.58	21.60	22.95	18.06	20.28	20.84	24.28
106	Sao Tome and Principe	25.33	28.97	25.40	22.62	22.06	23.46	23.81	23.70	26.09	21.40	20.68
107	Saudi Arabia	22.80	23.34	23.74	21.95	21.19	19.08	19.51	20.46	13.77	20.95	22.44
108	Senegal	24.53	20.75	21.45	21.74	19.86	22.54	23.48	25.02	21.93	23.08	18.81
109	Seychelles	17.26	N/A	14.34	19.43	18.50	21.14	18.98	18.37	22.53	18.75	38.34
110	Sierra Leone	N/A	N/A	N/A	N/A	N/A	N/A	24.79	48.48	51.13	28.95	17.15
111	Solomon Islands	N/A	20.76	N/A	26.60	18.92	17.32	21.59	10.65	9.47	11.90	18.56
112	South Africa	20.90	20.65	17.84	18.37	17.86	18.18	17.25	17.72	18.26	18.56	19.41
113	Sri Lanka	20.65	21.28	21.86	19.46	19.97	15.68	18.80	19.15	18.20	19.01	22.51
114	Suriname	25.16	25.30	18.10	21.91	24.11	26.61	20.42	21.60	14.73	27.19	9.75
115	Swaziland	N/A	N/A	N/A	N/A	N/A	11.13	9.39	10.64	9.19	8.41	21.48
116	Syria	20.77	23.12	20.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.60
117	Tanzania	22.27	24.35	23.50	23.79	19.79	23.69	33.96	28.91	29.97	21.37	19.11
118	Thailand	19.10	19.52	19.66	19.58	18.94	18.44	18.44	18.92	19.37	N/A	25.30
119	Timor-Leste	N/A	N/A	N/A	N/A	N/A	26.22	N/A	N/A	N/A	24.38	28.85
120	Togo	23.42	24.87	18.70	46.86	41.03	36.04	32.69	23.43	30.61	10.80	17.59

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
121	Tonga	20.34	21.03	18.21	17.56	16.48	14.39	15.14	N/A	N/A	N/A	23.97
122	Trinidad and Tobago	21.53	27.55	24.03	22.52	23.83	28.31	25.21	18.77	N/A	N/A	20.17
123	Tunisia	18.53	20.70	20.24	19.92	21.20	20.36	20.82	19.85	19.94	20.15	18.36
124	Turkey	18.68	19.99	18.76	18.37	18.12	17.84	17.74	18.23	18.57	17.27	20.85
125	Uganda	18.90	23.95	21.64	23.02	21.88	20.21	21.17	19.57	21.34	16.82	17.40
126	Ukraine	19.58	19.78	17.55	16.32	17.16	16.90	16.30	16.98	17.10	16.31	19.96
127	United Arab Emirates	20.10	N/A	N/A	N/A	17.45	18.56	21.09	19.85	22.09	20.57	25.16
128	Uruguay	16.24	16.62	16.13	16.06	16.88	16.74	17.93	16.38	16.20	17.30	16.65
129	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.36	20.36
130	Vanuatu	N/A	22.42	18.41	17.17	N/A	N/A	N/A	N/A	N/A	N/A	19.33
131	Venezuela	20.93	21.42	23.30	24.87	23.17	23.63	N/A	N/A	N/A	N/A	22.89
132	Viet Nam	18.53	16.78	17.40	17.77	15.95	15.95	16.18	15.81	15.96	16.43	16.68
133	Yemen	16.59	22.24	21.99	21.50	20.37	21.54	19.05	21.46	N/A	N/A	20.59
134	Zambia	22.72	20.47	20.57	21.76	24.58	24.83	23.92	19.93	N/A	24.03	22.53
135	Zimbabwe	35.85	25.10	20.75	24.14	21.48	25.50	19.65	18.41	17.44	17.89	22.62

Table G. The Countries with the Top Ten Largest Value Gaps Identified in Trade Between 135 Developing Countries and all of their Trading Partners, 2008-2017 as a Percent of Total Trade*

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
1	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia
2	Zimbabwe	Benin	Niger	Togo	Togo	Togo	Saint Vincent and the Grenadines	Tanzania	Togo	Ghana	Seychelles
3	Costa Rica	Burundi	Congo	Mauritania	Congo	Bahamas	Tanzania	Philippines	Tanzania	Kyrgyzstan	Paraguay
4	Benin	Philippines	Mauritania	Burkina Faso	Malawi	Trinidad and Tobago	Togo	Ethiopia	Kyrgyzstan	Suriname	Ghana
5	Niger	Sao Tome and Principe	Philippines	Ghana	Philippines	Qatar	Bahamas	Kyrgyzstan	Ghana	Malawi	Bahamas
6	Cameroon	Mauritania	Bahamas	Philippines	Burundi	Suriname	Congo	Bahamas	Mauritania	Zambia	Nepal
7	Philippines	Trinidad and Tobago	Qatar	Qatar	Niger	Philippines	Central African Rep.	Azerbaijan	Sao Tome and Principe	Philippines	Thailand
8	Sao Tome and Principe	Ghana	Sao Tome and Principe	Solomon Isds	Bahamas	Ghana	Philippines	Senegal	Cameroon	Senegal	UAE
9	Suriname	Congo	Bahrain	Malawi	Afghanistan	Zimbabwe	Qatar	Guyana	Malawi	Antigua and Barbuda	Madagascar
10	Cambodia	Costa Rica	Costa Rica	Maldives	Azerbaijan	Burundi	Malawi	Malawi	Central African Rep.	Mauritania	Maldives

* Whereas Table F above includes data for all 135 developing countries examined, this analysis for Table G only includes developing countries for which data was available for at least seven of the ten years in the period being examined (2008-2017).

Table H. Geographical breakdown by major world regions

135 Developing Countries*					36 Advanced Economies (36)
Africa (38)	Developing Asia (25)	Developing Europe (19)	Middle East/North Africa (21)	Western Hemisphere (32)	
Angola	Bangladesh	Albania	Afghanistan	Antigua and Barbuda	Australia
Benin	Bhutan	Armenia	Algeria	Argentina	Austria
Botswana	Brunei	Azerbaijan	Bahrain	Aruba	Belgium
Burkina Faso	Cambodia	Belarus	Djibouti	Bahamas	Canada
Burundi	China	Bosnia and Herzegovina	Egypt	Barbados	Cyprus
Cote d'Ivoire	Fiji	Bulgaria	Iran	Belize	Czech Republic
Cabo Verde	India	Croatia	Iraq	Bolivia	Denmark
Cameroon	Indonesia	Georgia	Jordan	Brazil	Estonia
Central African Republic	Kiribati	Hungary	Kuwait	Chile	Finland
Comoros	Laos	Kazakhstan	Lebanon	Colombia	France
Congo	Malaysia	Kyrgyzstan	Libya	Costa Rica	Germany
Eswanti (Swaziland)	Maldives	Moldova	Mauritania	Dominica	Greece
Ethiopia	Mongolia	North Macedonia	Morocco	Dominican Republic	Hong Kong
Gabon	Myanmar	Poland	Oman	Ecuador	Iceland
Gambia	Nepal	Romania	Pakistan	El Salvador	Ireland
Ghana	Papua New Guinea	Russia	Qatar	Grenada	Israel
Guinea	Philippines	Turkey	Saudi Arabia	Guatemala	Italy
Kenya	Samoa	Ukraine	Syria	Guyana	Japan
Lesotho	Solomon Islands	Uzbekistan	Tunisia	Honduras	Korea
Madagascar	Sri Lanka		UAE	Jamaica	Latvia
Malawi	Thailand		Yemen	Mexico	Lithuania
Mali	Timor-Leste			Nicaragua	Luxembourg
Mauritius	Tonga			Panama	Malta
Mozambique	Vanuatu			Paraguay	Netherlands
Namibia	Vietnam			Peru	New Zealand
Niger				St. Kitts and Nevis	Norway
Nigeria				St. Lucia	Portugal
Rwanda				St. Vincent and the Grenadines	San Marino
Sao Tome and Principe				Suriname	Singapore
Senegal				Trinidad and Tobago	Slovak Republic
Seychelles				Uruguay	Slovenia
Sierra Leone				Venezuela	Spain
South Africa					Sweden
Tanzania					Switzerland
Togo					United Kingdom
Uganda					United States
Zambia					
Zimbabwe					

* Countries for which UN Comtrade data was available for 2017



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

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