



TRADE-RELATED
**ILLICIT FINANCIAL FLOWS
IN 134 DEVELOPING COUNTRIES**
2009 - 2018



GLOBAL FINANCIAL INTEGRITY

2021 REPORT

Trade-Related Illicit Financial Flows in 134 Developing Countries

2009 - 2018



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Executive Summary

In this report, Global Financial Integrity (GFI) documented the international problem of “trade misinvoicing”—when importers and exporters deliberately falsify the declared value of goods on the invoices they submit to their customs authorities in order to illicitly transfer money across international borders, evade tax and/or customs duties, launder the proceeds of criminal activity, circumvent currency controls, and hide profits in offshore bank accounts. By over-pricing or under-pricing the declared value of imports or exports, traders illicitly move wealth across international borders by hiding it within the regular payments for commerce in the international trading system (see Graphic 6 in the Annex). Trade misinvoicing activity represents a major global challenge on two fronts: for customs and tax authorities around the world, particularly in developing countries, trade misinvoicing reflects the loss of USD billions in uncollected trade-related tax revenues every year; and for law enforcement, trade misinvoicing facilitates illicit financial flows (IFFs) throughout the global economy.

GFI explored the magnitude of this problem by examining the latest international trade data officially reported by governments to the United Nations in order to estimate the magnitude of trade misinvoicing activity occurring within the global commercial trading system. Trade misinvoicing is one of the largest components of measurable illicit financial flows (IFFs). We analyzed the last 10 years of trade data for the 134 developing countries for which there is sufficient data available in the United Nations Comtrade database to identify the mismatches, or “value gaps,” between what any two countries had reported regarding their trade with each other. In examining the bilateral trade data for each of the 134 developing countries, we looked at both their trade with a set of 36 advanced economies as well as their trade with all of their global trading partners for each year over the ten-year period of 2009-2018 in order to identify and calculate the value gaps found in the official data.

It is important to note that while the term “illicit financial flows” (IFFs) tends to include many types of activities, such as tax evasion, smuggling, 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 list of countries used in this report are based on a classification system established by the International Monetary Fund (IMF), which includes categories of 148 developing countries and 36 advanced economies. However, 14 of the 148 developing countries listed in the IMF’s classification were excluded from this analysis because they have not reported sufficient annual trade data to the United Nations over the ten-year period of 2009-2018, leaving a set of 134 developing countries on which to focus this report.

Key findings include:

US\$835.0 billion

The sum of the value gaps identified in trade between 134 developing countries and a set of 36 advanced economies¹ in 2018, the most recent year for which comprehensive data are available (see Table A in the Annex).

US\$1.6 trillion

The sum of the value gaps identified in trade between 134 developing countries and all of their global

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

trading partners in 2018, the most recent year for which comprehensive data are available (see Table E in the Annex).

China – US\$305.0 billion

Poland – US\$62.3 billion

India – US\$38.9 billion

Russia – US\$32.6 billion

Malaysia – US\$30.7 billion

Developing countries with the five largest value gaps identified in US Dollars in the bilateral trade between 134 developing countries and 36 advanced economies in 2018 (see Table 2 in the Annex).

The Gambia – 45.0%

Malawi – 36.6%

Suriname – 31.9%

Kyrgyzstan - 30.6%

Belize – 29.2%

Developing countries with the top-five largest value gaps identified as a percent of total trade in the bilateral trade between 134 developing countries and 36 advanced economies in 2018 (see Table 3 in the Annex).

Developing Asia - US\$388.6 billion

Developing Europe - US\$158.6 billion

Western Hemisphere - US\$97.4 billion

Middle East & North Africa - US\$58.6 billion

Sub-Saharan Africa - US\$25.2 billion

The average value gaps identified in US Dollars within the bilateral trade between five developing country regions and the set of 36 advanced economies over the ten-year period of 2009-2018 (See Table 8).

In order to identify a country's potentially misinvoiced imports/exports, GFI conducted a value gap analysis by examining official data submitted by governments each year to the United Nations Comtrade database. GFI used a customized program to conduct a partner-country analysis, which compares what any set of two trading partners each reported about their trade with one another in a given year in order to identify any mismatches or value gaps in the officially reported trade data. For example, if Ecuador reported exporting US\$400 million in bananas to the United States in 2016, but the US reported having imported only US\$375 million in bananas from Ecuador in that year, this would reflect a mismatch, or value gap, of US\$25 million in the reported trade of this product between the two trading partners for that year. GFI then sums all of the identified value gaps for all traded products between countries each year, while applying a series of filters to ensure unmatched trades are omitted.

While the available data in the United Nations database is not perfect and country figures are not exact, these value gap estimates are the result of rigorous analysis of such data and provide an order of magnitude view of each country's trade misinvoicing challenge, and give an approximation of the degrees of trade misinvoicing happening between any two countries. When the identified value gaps are totaled, the analysis offers an estimate of the size of the global problem of trade misinvoicing which is occurring in the international commercial trading system. **Overall, the analysis shows that 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 upon UN 2030 Sustainable Development Goals (SDGs) and address the economic slowdown related to the COVID-19 pandemic.

Further, because it is difficult to know which side of the transaction mispriced the shipment, **this report seeks to highlight the overall scale of the total value gaps identified in global trade** that can be empirically identified in the UN data. In doing so, we intend to underscore the magnitude of the problem at the global level in terms of lost tax revenues for governments around the world, particularly the developing countries which rely disproportionately on trade taxes as a key part of their national revenue base. Using this approach to identify value gaps, the report shows the results of examining the bilateral trade data for 134 developing countries' bilateral trade with 36 advanced economies for each year over the ten-year period of 2009-2018, reflecting 4,824 bilateral trade relationships in the UN database. "The report also analyses the bilateral trade data for 134 developing countries' bilateral trade with all of their global trading partners over the period, and conducts a regional-level analysis as well." The findings are presented in two ways: a) in US Dollars (see also Table A in the Annex); and b) as a percent of total trade between each developing country and the set of 36 advanced economies.

The analysis is intended to help developing countries understand the magnitude of their misinvoicing activity - in dollar terms and as a percentage of total trade - in order to highlight potentially massive revenue losses due to uncollected taxes and duties. In the final section of this report, GFI provides a list of specific 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. The recommendations include both steps that all countries can take at the national level as well as steps that can be taken in coordination with others at the international level.



Analysis of 134 Developing Countries' Trade with the 36 Advanced Economies

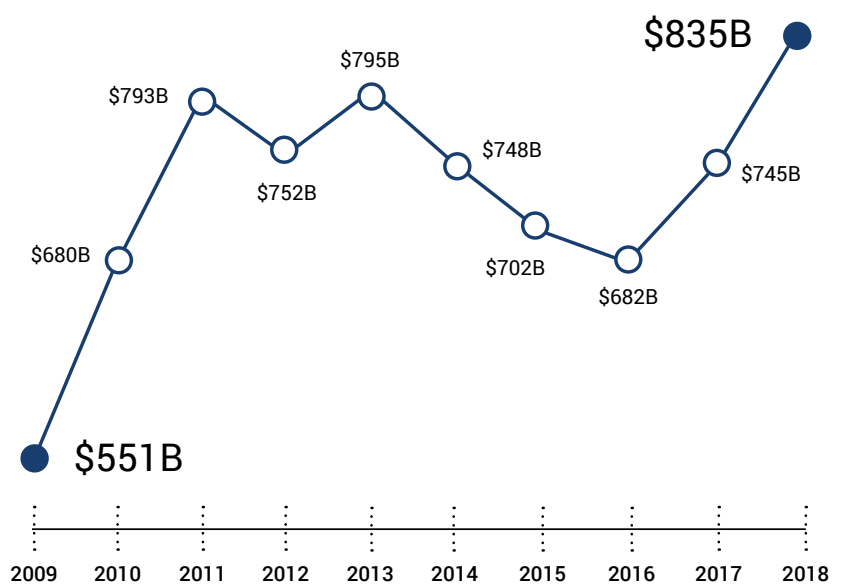
In this report, Global Financial Integrity (GFI) documented the international problem of “trade misinvoicing” – when importers and exporters deliberately falsify the declared value of goods on the invoices they submit to their customs authorities in order to illicitly transfer money across international borders, evade tax and/or customs duties, launder the proceeds of criminal activity, circumvent currency controls, and hide profits in offshore bank accounts. By over-pricing or under-pricing the declared value of imports or exports, traders illicitly move wealth across international borders by hiding it within the regular payments for commerce in the international trading system. Trade misinvoicing activity represents a major global challenge on two fronts: for customs and tax authorities around the world, particularly in developing countries, trade misinvoicing reflects the loss of USD billions in uncollected trade-related tax revenues every year; and for law enforcement, trade misinvoicing facilitates illicit financial flows (IFFs) throughout the global economy (see Annex I: What is Trade Misinvoicing?).

Each year, most governments provide annual reports on all of their trading activity in the previous year to the United Nations, the International Monetary Fund (IMF) and other international organizations. GFI's analysis is based on an in-depth examination of the most recent international trade data reported by governments to the United Nations Comtrade database. GFI uses the “partner-country” or mirroring method, which compares what any two countries had officially reported about their bilateral trade with the other in a given year in order to identify any mismatches or discrepancies in the values. By identifying such discrepancies, or “value gaps” in the international trade data, GFI estimates the overall magnitude of trade misinvoicing activity within the international commercial trading system – one of the largest components of measurable illicit financial flows (IFFs).

First, we examined all data provided to UN Comtrade over the ten-year period of 2009-2018 and eliminated countries for which there was insufficient information (i.e. data for fewer than seven of the ten years). Next, we compared the bilateral trade data for each of 134 developing countries to analyze their trade with 36 advanced economy nations in order to identify all of the discrepancies, or value gaps, found between what each country reported about its trade with the other. While there are reasons to normally expect some

GRAPHIC 1

Value Gaps in Trade 2009 - 2018

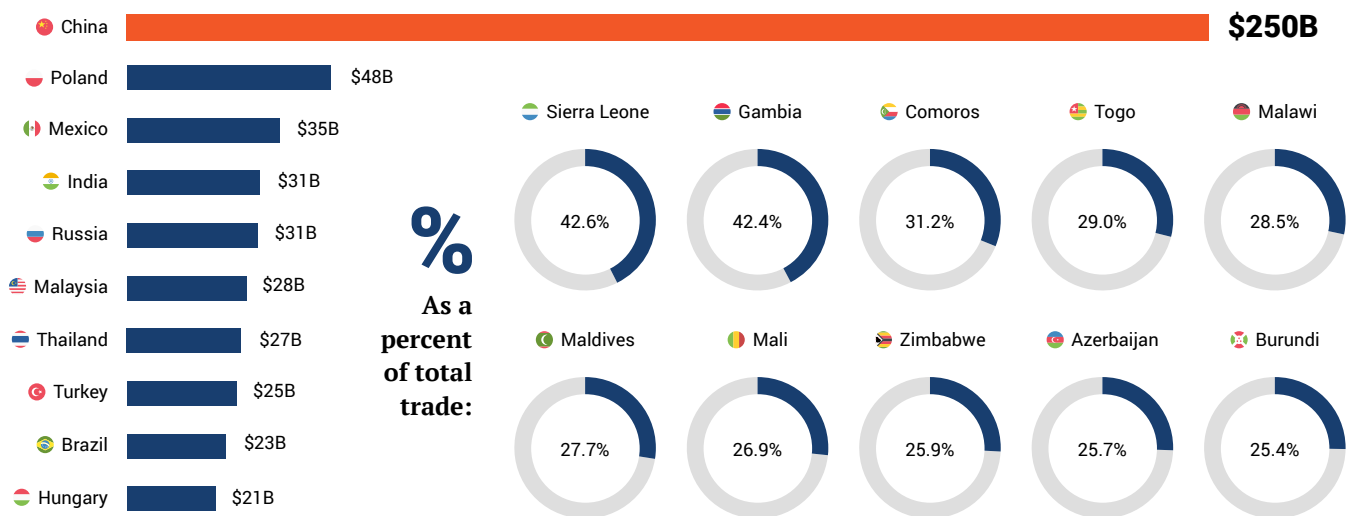


minor degree of discrepancy in the reported international trade data between any two countries in a given year, GFI believes the majority of the value gaps identified are indicative of trade misinvoicing activity² (see Annex II: GFI Methodology for Analyzing Trade Misinvoicing).

Graphic 1 (previous page) shows the total of the value gaps identified for all 134 developing countries in each year over the 2009-2018 period in their trade with the 36 advanced economies. **The data indicates that the size of the sums of the value gaps increased from US\$551.2 billion in 2009 to US\$835.0 billion in 2018.** The detailed results for the sums of all value gaps identified between each of the 134 developing countries and the set of 36 advanced economies in US Dollars are presented in Table A in the Annex.

GRAPHIC 2

Top 10 Value Gaps³ 2009 - 2018



Graphic 2 lists countries with the largest average value gaps identified over the ten-year period of 2009-2018, which include: China at US\$250.2 billion; Poland (US\$47.7 billion); Mexico (US\$35.4 billion); India (US\$30.7 billion); and Russia (US\$30.5 billion). China was the country with the largest value gap, by far, for each year over the entire ten-year period, while countries such as Mexico, Russia, Poland, Malaysia, India, Thailand, Brazil, Turkey and Indonesia also frequently registered as having been among the top ten largest average value gaps in terms of US Dollars over the period (see Table B in the Annex for the countries with the ten largest value gaps for each year over the ten-year period).

For 2018, the countries with the largest value gaps identified among the 134 developing countries' trade with the 36 advanced economies, ranked by size in USD billions, were: China, at US\$305.0 billion, followed by Poland (US\$62.3 billion); India (US\$38.9 billion); Russia (US\$32.6 billion); and Malaysia (US\$30.7 billion). The average size of the value gaps found among the entire set of 134 developing countries in 2018 was US\$7.5 billion (see Table 2 in the Annex, and Table A for the complete data set).

² Detailed in the description of the report's methodology in the Annex.

³ Graphic 2 only includes countries for which there was data for at least 5 of the 10 years examined.

GFI also examined the value gaps identified in the bilateral trade between 134 developing countries and 36 advanced economies over the ten years of 2009-2018 as a percent of total trade, which provides for more proportional cross-country comparisons. Table 3 in the Annex shows that The Gambia registered the largest value gap in 2018 at 45.0 percent of its total trade with the 36 advanced economies, followed by Malawi at 36.6 percent; Suriname at 31.9 percent; Kyrgyzstan at 30.6 percent; and Belize at 29.2 percent (see Table C in the Annex for the full data set). When looking at the value gaps measured as a percent of total trade in Table 3, it is notable that China is not included in the top-ten table for 2018. In fact, China's value gap ranked 25th largest out of the 134 developing countries analyzed, at 21.9 percent of its total trade with the 36 advanced economies.

Graphic 2 also shows the top ten countries with the largest average value gaps as a percent of their total trade with advanced economies during the ten-year period of 2009-2018. For this period, the top five countries included Sierra Leone, which registered the highest average value gap at 42.6 percent followed by The Gambia with 42.4 percent; The Comoros (31.2 percent); Togo (29.0 percent); and Malawi (28.5 percent).



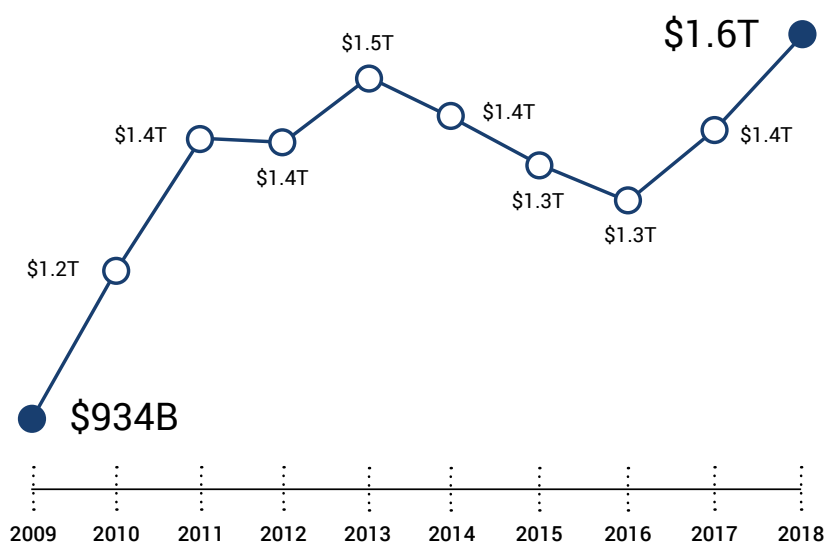
Analysis of 134 Developing Countries' Trade with All Global Trading Partners

This section of the report explores the findings from a larger dataset that examined the bilateral trade data for each of the 134 developing countries with all of their global trading partners for each year over the ten-year period of 2009-2018. This included data for 22,780 bilateral trade relationships in the UN database. Similar to the previous section, the findings of the analysis are presented below in two main ways: a) the total sums of all value gaps identified are presented in US Dollars and b) as a percent of the value of total bilateral trade.

Graphic 3 below shows the sums of the value gaps identified for each year over the ten-year period, and indicates that **the size of the sums of the value gaps increased from US\$934.1 billion in 2009 to US\$1,626.9 billion (US\$1.6 trillion) in 2018.**

GRAPHIC 3

Value Gaps in Trade 2009 - 2018



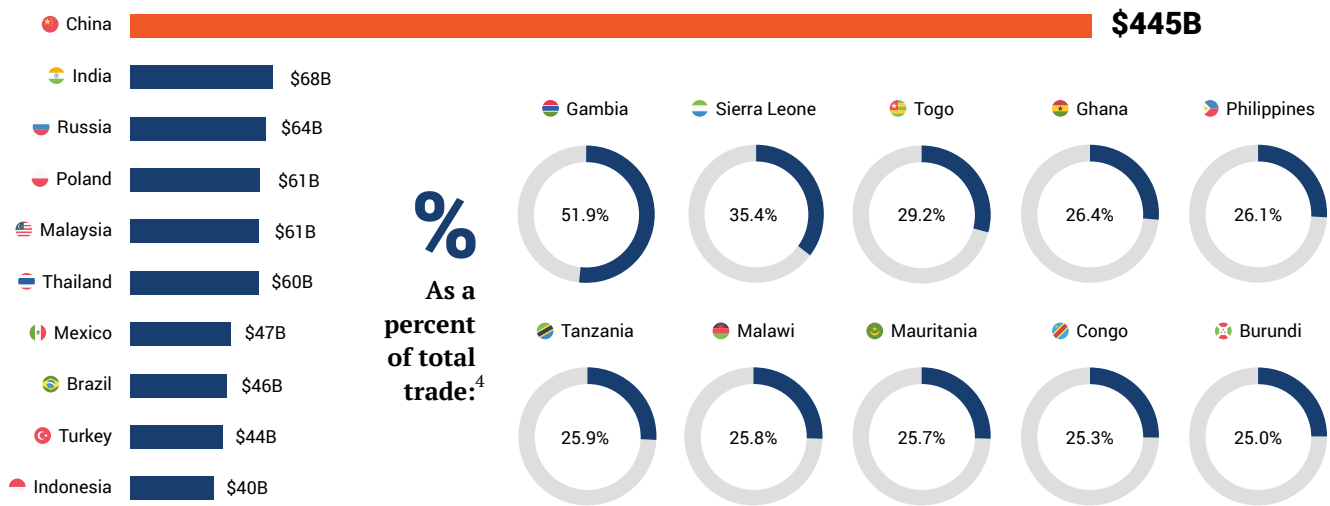
The results for the sums of all value gaps identified in US Dollars are presented in Table E in the Annex. Drawing from this dataset, Graphic 4 shows the top ten largest sums of value gaps identified among the 134 developing countries' bilateral trade with all global trading partners over the ten-year period, ranked by amounts in USD billions. For 2018, Table 5 in the Annex shows that the countries with the largest identified value gaps in terms of US Dollars included China, at US\$546.4 billion, followed by India (US\$84.9 billion); Poland (US\$81.2 billion); Malaysia (US\$71.4 billion); and Russia (US\$70.3 billion). Across all 134 developing countries

examined, the average size of the identified value gaps was US\$147 billion in 2018 (see Table E in the Annex for the complete data set).

In terms of averages over the ten-year period, Graphic 4 shows that the countries with the largest average value gaps identified were: China at US\$445.3 billion; India (US\$67.5 billion); Russia (US\$63.7 billion); Poland (US\$61.1 billion); and Malaysia (US\$60.8 billion). When measured in US Dollar amounts, it is notable that China was the country with the largest value gap for each year over the ten-year period, while countries such as Russia, India and Mexico frequently ranked among the largest average value gaps over the period. Other countries such as Malaysia, Brazil, Poland, Thailand, Turkey and Indonesia also consistently ranked within the ten largest average value gaps in terms of US Dollars over the period (See Table F in the Annex).

GRAPHIC 4

Top 10 Value Gaps 2009 - 2018



GFI also examined the value gaps identified in the bilateral trade between the 134 developing countries and all of their global trading partners over the ten years of 2009-2018 as a percent of their total trade. 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 6 in the Annex shows that in 2018, the country with the largest value gap measured as a percent of its total trade with all trading partners was The Gambia at 58.1 percent. Rounding out the top five countries were Suriname at 30.7 percent, followed by Republic of Congo (29.2 percent), Ghana (28.8 percent) and Malawi (28.5 percent). In contrast, China's value gap in 2018 was ranked 31st at 22.0 percent of its total global trade.

Graphic 4 shows the ten countries with the largest average value gaps as a percent of their total trade with all trading partners over the ten-year period of 2009-2018. The Gambia registered as having the largest, with an average value gap at 51.9 percent. It was followed by Sierra Leone, with an average value gap of 35.4 percent over the period; Togo (29.2 percent); Ghana (26.4 percent); and The Philippines (26.1 percent). By contrast, China ranked 41st out of the 134 developing countries analyzed, with an average value gap of 21.5 percent of its trade with all trading partners over the period.

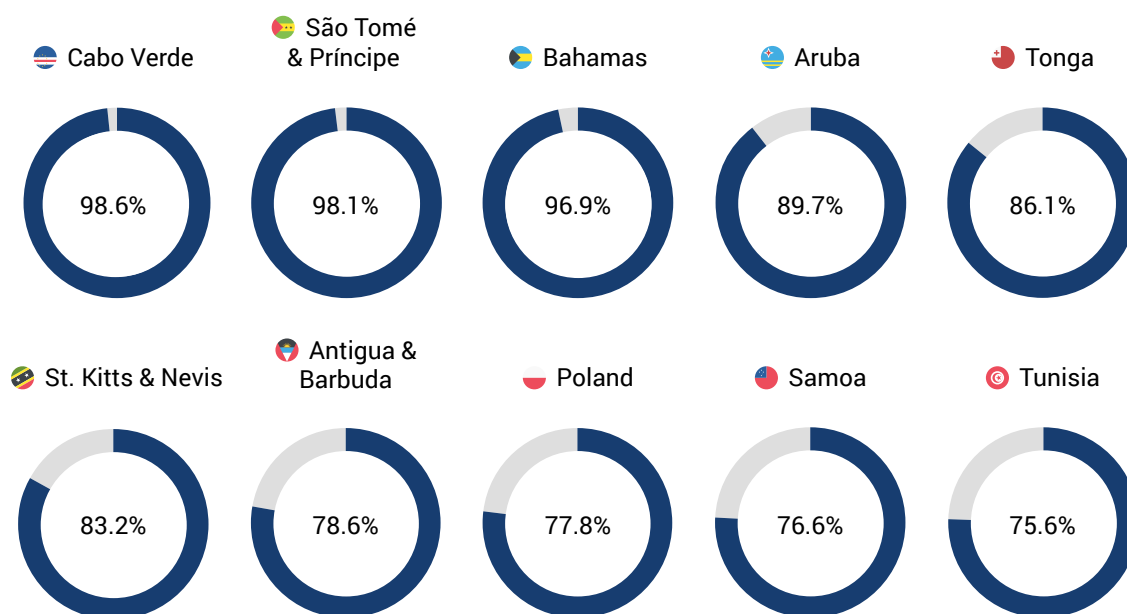
For the full set, see Table G in the Annex. Drawing from Table G, Table H in the Annex shows the countries with the ten largest value gaps as a percent of total trade identified over the ten-year period.

We also examined the relationship between the sizes of value gaps found in the two different data sets. Specifically, we estimated how much trade misinvoicing may have occurred in countries' trade with the 36 advanced economies as compared to that found within their total trade with all global

4 Graphic 4 only includes countries for which there was data for at least 5 of the 10 years examined.

partners. For example, this analysis shows that Poland registered at 76.7 percent in 2018. This means the total value gap found in the bilateral trade between Poland and the 36 advanced economies in 2018 (\$62,289 million) comprised 76.7 percent of the total value gap found in the trade between Poland and all of its global trading partners in the same year (\$81,210 million). This indicates that more of Poland's trade misinvoicing activity is found within its trade with the 36 advanced economies than within its total global trade generally. The key findings are represented in Graphic 5 below, which shows the ten largest percentages identified in this comparison over the ten year period (see Table J for the ten largest percentages found in 2018 and as averages over the ten year period and Table I for the complete data set).

GRAPHIC 5
Top 10 Value Gaps 2009 - 2018



This analysis shows that several small island nations registered the largest percentages in both 2018 and in the averages over the 2008-2019 period, reflecting the fact that all or most of their bilateral trade was with countries within the set of 36 advanced economies. But for most other countries, there was a difference between the total value gaps found in their trade with the 36 advanced economies and their trade with all other trading partners. The complete findings for this comparison show that in 38 percent of the cases examined, the developing countries had larger value gaps in their trade with the 36 advanced economies than they had in their trade with all of their global trading partners (see Table I in the Annex).

Regional Comparative Analyses

GFI also examined value gaps identified in the trade between the 134 developing countries and the 36 advanced economies by geographic regions over the ten-year period of 2009-2018 in US Dollars (See Table K in the Annex for a complete breakdown of countries by region, using International Monetary Fund classifications). In this case, the IMF grouped developing countries into five regions based on geographic designation (Developing Europe; Developing Asia, Middle East & North Africa, Sub-Saharan Africa and the Western Hemisphere) and one group based on its level of economic development (the 36 advanced economies).

The results for the sums of all value gaps identified in US Dollars are presented in Table 8 below. For example, Row 1 in Table 8 shows the data for the Developing Asia region, and in the column for the year 2009 is the figure of US\$290.2 billion. This figure represents the sum of all the value gaps identified in the bilateral trade relationships between the 25 countries of the Developing Asia region and the set of 36 advanced economies in 2009. In the far-right column, Table 8 also provides an average US Dollar amount for the sums of value gaps identified within each developing country region's bi-

TABLE 8

Total Value Gaps Identified in Trade Between 134 Developing Countries and 36 Advanced Economies, 2009-2018, by Developing Country Region, in USD Billions

	Region	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Developing Asia	290.2	361.2	422.5	386.2	407.4	391.9	387.4	373.4	396.5	469.1	388.6
2	Developing Europe	114.6	137.9	165.5	158.9	170.9	172.7	148.7	151.9	171.4	193.6	158.6
3	Western Hemisphere	84.5	104.6	123.3	120.8	122.7	88.6	80.5	74.3	86.0	88.6	97.4
4	Middle East & North Africa	39.1	54.2	52.8	58.2	66.7	68.8	62.8	60.0	64.4	59.3	58.6
5	Sub-Saharan Africa	22.9	21.9	29.0	28.3	27.5	25.9	23.1	22.6	26.2	24.4	25.2

lateral trade with the 36 advanced economies over the ten-year period of 2009-2018.

Table 8 shows that in 2018, the countries of the Developing Asia region had the largest combined value gap in terms of US Dollars, at US\$469.1 billion, in their trade with the 36 advanced economies. This relatively higher rank for the Developing Asia region reflects the outsized role played by China within this regional group. It was followed by Developing Europe, with an identified value gap of US\$193.6 billion; the Western Hemisphere region (US\$88.6 billion); the Middle East/North Africa region (US\$59.3 billion); and the Sub-Saharan Africa region (US\$24.4 billion).

The average value gaps identified between each region and the 36 advanced economies over the ten-year period also show the Developing Asia region had the largest value gap at US\$388.6 billion, followed by the Developing Europe region (US\$158.6 billion); Western Hemisphere (US\$97.4 billion); Middle East/North Africa (US\$58.6 billion); and Sub-Saharan Africa (US\$25.2 billion).

The identified value gaps were also examined as a percent of total trade. Table 9 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 2018, the region with the largest value gap as a percent of total trade was the Developing Asia region at 21.2 percent, followed by the Developing Europe region at 20.4 percent; the Western Hemisphere region (19.9 percent); Sub-Saharan Africa (19.5 percent); and the Middle East/North Africa (18.8).

In terms of averages over the ten-year period, Table 9 also shows that the Sub-Saharan Africa region registered the largest average value gap over the period as a percent of its trade with the 36 advanced economies at 21.7 percent, followed by the Developing Europe region at 20.5 percent; the Developing Asia region (20.0 percent); Middle East/North Africa region (19.9 percent); and the Western

TABLE 9

The Sums of Value Gaps Identified in 134 Developing Countries' Trade with 36 Advanced Economies, 2009-2018 by Developing Country Region, as a Percent of Total Trade

Region	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
Sub-Saharan Africa	23.8	20.6	20.2	23.1	22.6	23.3	21.8	20.5	21.4	19.5	21.7
Developing Asia	20.0	19.5	19.2	20.1	19.1	19.2	19.5	20.9	21.4	21.1	20.0
Developing Europe	21.5	20.7	21.8	20.2	20.2	20.0	19.5	19.9	20.5	20.4	20.5
Middle East & North Africa	20.8	20.1	21.5	19.5	19.1	19.8	20.1	19.0	20.0	18.8	19.9
Western Hemisphere	20.8	20.0	19.4	19.2	18.7	20.3	19.2	18.3	19.3	19.9	19.5

Hemisphere (19.5 percent).

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 2009-2018. The results are presented in Table 10, which shows that in 2018, 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 likely reflects the outsized role played by China within this region of developing countries.

When comparing all five of the major developing country regions' trade with one another over the ten-year period, Table 10 shows the largest value gap in US Dollars over the period occurred between

Developing Asia and Developing Europe in 2018 at US\$47.1 billion. In contrast, the smallest value gaps identified over the period were found in Sub-Saharan Africa's trade with the Middle East/North Africa region in 2009 and its trade the Western Hemisphere region in 2018, registering at US\$0.9 billion in both cases.

In terms of averages over the ten-year period, the largest average value gap was found in trade between the Developing Asia and Developing Europe regions at US\$35.4 billion. Beyond the gaps found within the Developing Asia region's trade with the other regions, the average amounts for the sums of the value gaps identified in the trade between the other developing country regions over the peri-

TABLE 10

The Sums of the Value Gaps Identified in 134 Developing Countries, 2009-2018, between Regions, Rounded in USD Billions

Pairs of Regions			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	DASIA	DEUR	21.0	28.1	35.8	37.9	40.5	39.9	32.6	33.2	37.8	47.1	35.4
2	DASIA	MENA	13.1	22.6	24.6	29.7	38.5	41.7	39.9	37.6	38.6	39.2	32.6
3	DASIA	SSA	10.1	9.8	13.0	13.4	18.2	18.5	18.1	18.1	18.4	19.7	15.7
4	DASIA	WHEM	19.6	29.1	36.4	40.2	42.2	33.8	30.8	29.1	29.5	38.7	32.9
5	DEUR	DASIA	21.0	28.1	35.8	37.9	40.5	39.9	32.6	33.2	37.8	47.1	35.4
6	DEUR	MENA	4.5	6.4	6.9	6.6	8.0	9.1	8.5	8.5	9.1	9.9	7.8
7	DEUR	SSA	1.0	1.2	1.2	1.3	1.7	1.7	1.4	1.5	2.2	2.1	1.5
8	DEUR	WHEM	2.6	3.4	4.6	4.8	4.6	4.0	3.3	3.3	4.2	5.1	4.0
9	MENA	DASIA	13.1	22.6	24.6	29.7	38.5	41.7	39.9	37.6	38.6	39.2	32.6
10	MENA	DEUR	4.5	6.4	6.9	6.6	8.0	9.1	8.5	8.5	9.1	9.9	7.8
11	MENA	SSA	0.9	1.1	1.3	2.5	2.8	3.1	2.9	3.6	3.8	4.0	2.6
12	MENA	WHEM	1.9	2.6	2.6	2.2	2.9	2.2	2.3	2.5	2.9	2.5	2.5
13	SSA	DASIA	10.1	9.8	13.0	13.4	18.2	18.5	18.1	18.1	18.4	19.7	15.7
14	SSA	DEUR	1.0	1.2	1.2	1.3	1.7	1.7	1.4	1.5	2.2	2.1	1.5
15	SSA	MENA	0.9	1.1	1.3	2.5	2.8	3.1	2.9	3.6	3.8	4.0	2.6
16	SSA	WHEM	1.3	1.9	3.0	1.4	1.2	1.4	1.1	1.0	1.2	0.9	1.4
17	WHEM	DASIA	19.6	29.1	36.4	40.2	42.2	33.8	30.8	29.1	29.5	38.7	32.9
18	WHEM	DEUR	2.6	3.4	4.6	4.8	4.6	4.0	3.3	3.3	4.2	5.1	4.0
19	WHEM	MENA	1.9	2.6	2.6	2.2	2.9	2.2	2.3	2.5	2.9	2.5	2.5
20	WHEM	SSA	1.3	1.9	3.0	1.4	1.2	1.4	1.1	1.0	1.2	0.9	1.4

od were relatively smaller.

The sizes of these value gaps in terms of US Dollars as presented in Table 10 likely reflects the relative value of each region's total global trade over the period, with China making the Developing Asia region's values disproportionately larger than those in the other developing country regions. Therefore, we also examined the same value gaps in the 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 11 indicates that, in the bilateral trade among the five developing country regions, the sizes of the identified value gaps ranged from 12.6 percent to 30.2 percent of the value of total bilateral trade. For example, Table 11 shows that the largest value gap as a percent of each region's total trade with the others was found between the Sub-Saharan Africa and the Western Hemisphere in 2011 at 30.2 percent of their total bilateral trade. In contrast, the smallest value gap identified over the period was found in trade between the Western Hemisphere and the Middle East/North Africa regions in 2015 at 12.6 percent of their total bilateral trade. As with the previous sections, this again shows that the countries/regions with the largest value gaps in terms of US Dollars are not necessarily those with the largest value gaps when measured as a percent of total trade.

In terms of the average sizes of the value gaps identified over the ten-year period of 2009-2018, Table 11 (next page) shows that the largest average value gap over the period was in the trade between the Developing Asia and Developing Europe regions at 23.6 percent of their total bilateral trade, while the smallest average value gap over the period was found in trade between the Middle East/North Africa and Western Hemisphere regions at 14.9 percent.



TABLE 11

Total Value Gaps Identified in 134 Developing Countries, 2009-2018 by Regions, as a Percent of each Region's Total Trade with the Other

Pairs of Regions			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	DASIA	DEUR	22.5	23.3	23.5	24.2	24.0	23.7	22.9	23.6	24.2	24.2	23.6
2	DASIA	MENA	22.0	23.9	22.8	22.2	22.8	22.8	23.8	22.6	22.5	22.2	22.8
3	DASIA	SSA	24.5	21.0	22.5	22.5	23.3	21.7	22.5	23.2	23.0	23.8	22.8
4	DASIA	WHEM	20.4	21.4	21.3	22.4	22.3	21.3	20.5	21.2	20.8	22.4	21.4
5	DEUR	DASIA	22.5	23.3	23.5	24.2	24.0	23.7	22.9	23.6	24.2	24.2	23.6
6	DEUR	MENA	21.0	20.8	19.3	18.6	19.4	18.9	19.5	19.8	21.3	20.5	19.9
7	DEUR	SSA	23.7	25.8	21.4	22.7	24.9	22.2	20.8	22.2	26.2	23.5	23.3
8	DEUR	WHEM	19.3	18.6	19.4	19.4	17.7	18.1	18.6	19.2	21.4	22.4	19.4
9	MENA	DASIA	22.0	23.9	22.8	22.2	22.8	22.8	23.8	22.6	22.5	22.2	22.8
10	MENA	DEUR	21.0	20.8	19.3	18.6	19.4	18.9	19.5	19.8	21.3	20.5	19.9
11	MENA	SSA	23.9	21.1	26.2	18.7	19.9	25.9	25.1	25.9	24.5	22.5	23.4
12	MENA	WHEM	16.7	16.8	15.4	13.1	13.3	13.0	12.6	14.0	16.9	16.7	14.9
13	SSA	DASIA	24.5	21.0	22.5	22.5	23.3	21.7	22.5	23.2	23.0	23.8	22.8
14	SSA	DEUR	23.7	25.8	21.4	22.7	24.9	22.2	20.8	22.2	26.2	23.5	23.3
15	SSA	MENA	23.9	21.1	26.2	18.7	19.9	25.9	25.1	25.9	24.5	22.5	23.4
16	SSA	WHEM	19.9	25.1	30.2	16.6	14.9	16.5	18.3	16.8	17.7	18.2	19.4
17	WHEM	DASIA	20.4	21.4	21.3	22.4	22.3	21.3	20.5	21.2	20.8	22.4	21.4
18	WHEM	DEUR	19.3	18.6	19.4	19.4	17.7	18.1	18.6	19.2	21.4	22.4	19.4
19	WHEM	MENA	16.7	16.8	15.4	13.1	13.3	13.0	12.6	14.0	16.9	16.7	14.9
20	WHEM	SSA	19.9	25.1	30.2	16.6	14.9	16.5	18.3	16.8	17.7	18.2	19.4

The value gaps identified in the bilateral trade among the developing country regions were also compared with those found between each of the developing country regions and the 36 advanced economies in terms of percentage of total trade. Therefore, drawing on data from Tables 9 and 11, Table 12 (next page) 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 22.6 percent of bilateral trade, while the average value gap between Developing Asia and the 36 advanced economies over the period was similar at 20.0 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 22.2 percent, while the average value gap between Sub-Saharan Africa and the 36 advanced economies over the period was similar at 21.7 percent. In other words, Table 12 suggests that **trade misinvoicing is as much of a problem in trade between developing country regions as it is in trade between developing countries and advanced economies.**

TABLE 12

Comparing Value Gaps Identified in Trade Between 134 Developing Countries and 36 Advanced Economies, 2009-2018 by Regions, as a Percent of each Region's Total Trade with the Other

Pairs of Regions		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
DASIA	DEUR	22.5	23.3	23.5	24.2	24.0	23.7	22.9	23.6	24.2	24.2	23.6
DASIA	MENA	22.0	23.9	22.8	22.2	22.8	22.8	23.8	22.6	22.5	22.2	22.8
DASIA	SSA	24.5	21.0	22.5	22.5	23.3	21.7	22.5	23.2	23.0	23.8	22.8
DASIA	WHEM	20.4	21.4	21.3	22.4	22.3	21.3	20.5	21.2	20.8	22.4	21.4
DASIA with 36 AEs		20.0	19.5	19.2	20.1	19.1	19.2	19.5	20.9	21.4	21.1	20.0
DEUR	DASIA	22.5	23.3	23.5	24.2	24.0	23.7	22.9	23.6	24.2	24.2	23.6
DEUR	MENA	21.0	20.8	19.3	18.6	19.4	18.9	19.5	19.8	21.3	20.5	19.9
DEUR	SSA	23.7	25.8	21.4	22.7	24.9	22.2	20.8	22.2	26.2	23.5	23.3
DEUR	WHEM	19.3	18.6	19.4	19.4	17.7	18.1	18.6	19.2	21.4	22.4	19.4
DEUR with 36 AEs		21.5	20.7	21.8	20.2	20.2	20.0	19.5	19.9	20.5	20.4	20.5
MENA	DASIA	22.0	23.9	22.8	22.2	22.8	22.8	23.8	22.6	22.5	22.2	22.8
MENA	DEUR	21.0	20.8	19.3	18.6	19.4	18.9	19.5	19.8	21.3	20.5	19.9
MENA	SSA	23.9	21.1	26.2	18.7	19.9	25.9	25.1	25.9	24.5	22.5	23.4
MENA	WHEM	16.7	16.8	15.4	13.1	13.3	13.0	12.6	14.0	16.9	16.7	14.9
MENA with 36 AEs		20.8	20.1	21.5	19.5	19.1	19.8	20.1	19.0	20.0	18.8	19.9
SSA	DASIA	24.5	21.0	22.5	22.5	23.3	21.7	22.5	23.2	23.0	23.8	22.8
SSA	DEUR	23.7	25.8	21.4	22.7	24.9	22.2	20.8	22.2	26.2	23.5	23.3
SSA	MENA	23.9	21.1	26.2	18.7	19.9	25.9	25.1	25.9	24.5	22.5	23.4
SSA	WHEM	19.9	25.1	30.2	16.6	14.9	16.5	18.3	16.8	17.7	18.2	19.4
SSA with 36 AEs		23.8	20.6	20.2	23.1	22.6	23.3	21.8	20.5	21.4	19.5	21.7

Trade Misinvoicing During COVID-19

The very high degree of the value gaps identified in the international trade data suggests that trade misinvoicing continues to be a persistent and major problem for the 134 developing countries examined. The problem with trade misinvoicing is reflected in both lost tax revenues as well as the inability of governments to stop capital flight and illicit outflows through the international trading system. In the midst of the global COVID crisis, such **revenue losses** are likely to aggravate efforts by developing countries to grapple with the enormous consequences of the national and international economic fallout from the global health crisis in 2020-2021.

As many countries closed their borders to trade and tourism and went into months of economic lockdown in 2020 to slow the spread of COVID-19, the result was increased unemployment, lower GDP growth and declines in the volume of international trade. According to the United Nations Conference on Trade and Development (UNCTAD), the value of total world merchandise exports in 2019 was US\$19 trillion, but decreased by 7.5 percent to US\$17.6 trillion in 2020 due to the COVID-19 pandemic.⁵ According to the World Trade Organization (WTO), the volume of total world merchandise trade contracted by 5.3 percent in 2020, making it the biggest fall in merchandise trade since the global financial crisis of 2009, when trade fell by 22 percent. The WTO projected a rebound of 8.0 percent growth in trade volumes in 2021, and a 4.0 percent increase in 2022.⁶

While global trade volumes appear to be recovering in 2021, the COVID 19 crisis hit developing countries especially hard. Combined with the global economic recession, many countries faced declining exports, a halt to tourism and a slowing of remittances from overseas workers and, in some cases, severe food crises. The United Nation's World Food Program projected that 155 million people experienced acute food insecurity across 55 countries/territories in 2020 - an increase of around 20 million people from 2019.⁷ The impacts of the pandemic on international trade have included reductions in both supply and demand of essential goods such as medicines, medical supplies, and food imports for many countries. There are also major budget shortfalls stemming from reduced trade-related tax revenues and a general decline in economic activity—"leading, in many cases, to recessions, threats to social safety nets, and to increased precariousness of income, employment, and food security."⁸

Even before the COVID crisis struck in 2020, the annual growth in the value of global trade had already experienced an historic drop to 2.3 percent in 2016, after nearly four decades of steady, dramatic growth that had averaged 2.8 percent per year over the period. The value of global trade began deteriorating in 2015, correlated with slowing global GDP rates, including the slowdown in China and the end of the "commodity super-cycle" that had benefited developing countries over the previous decade.⁹

5 United Nations Conference on Trade and Development (UNCTAD) "International trade in developing economies," Accessed September 23, 2021. [Retrieved online.](#)

6 World Trade Organization, "World trade primed for strong but uneven recovery after COVID-19 pandemic shock," March 31, 2021. [Retrieved online.](#); United Nations Conference on Trade and Development, "Handbook of International Statistics 2020," Geneva, 2020. [Retrieved online.](#) While this analysis by GFI is primarily focused on merchandise trade, global trade in services in 2020 is also projected to have declined, with the UN estimating that the value of total trade in services fell by 15.4 percent in 2020, compared with 2019, marking the sharpest decline since 1990. In contrast, during the global financial crisis in 2009, services trade fell by 9.5 percent from 2008.

7 World Food Program, "Acute food insecurity soars to five-year high warns Global Report on Food Crises," May 5, 2021. [Retrieved online.](#)

8 Pepita Barlow, May CI van Schalkwyk, Martin McKee, Ron Labonté, and David Stuckler, "COVID-19 and the collapse of global trade: building an effective public health response," *The Lancet*, 5, no. 2, February 1, 2021. [Retrieved online.](#)

9 World Trade Organization, "World Trade Statistical Review 2017," Geneva. [Retrieved online.](#)

From the perspective of trade-related illicit financial flows (IFFs), the broader effects of the global COVID crisis are widely viewed as increasing opportunities for crime, smuggling and illicit financial flows.¹⁰ International crime experts expressed concern that the economic fallout from the lockdowns and decline in world trade created new incentives to illicitly move wealth out of developing countries as they suffered from the economic fallout of the COVID crisis. While foreign investors officially pulled out a record US\$243 billion from emerging markets in the first four months of the crisis in 2020,¹¹ it is likely that many had also pursued unofficial means of illicitly moving wealth out as well, including through the trade misinvoicing channel.

For example, Europe's top banking regulator, the European Banking Authority (EBA), singled out the likelihood of international trade as a potential risk.¹² The EBA noted from past crises that even when overall levels of legitimate financial activity decline, "in many cases, illicit finance will continue to flow."¹³ In fact, the Financial Crime Enforcement Network (FinCEN), a bureau of the US Department of the Treasury, the UK's National Crime Agency and Europol documented an increase in cybercrime, insider trading, fraud and trading of counterfeit goods directly linked to those exploiting the chaos of the COVID-19 crisis.¹⁴

"COVID-19: an accelerator for crime."

UNODC EXECUTIVE DIRECTOR GHADA WALY

There is also the related problem of increased opportunities for trade-based money laundering (TBML)—the process by which criminals use a legitimate trade to disguise the origins of their criminal proceeds—a practice that often involves trade misinvoicing activity. In both the cases of trade misinvoicing and TBML, the common factor is that often times regulatory officials lack good data on the actual prices of goods being imported or exported. This enables those declaring false prices for goods on invoices to get away with it. According to the Financial Action Task Force (FATF) and the Egmont Group, it is difficult to detect TBML activity, "particularly when there is a lack of understanding of this technique."¹⁵ For example, it is difficult for customs officials looking at declared values on invoices, or bank officials approving trade financing, to know if the prices for goods being declared by an importer or exporter are close to actual prices on world markets. Anton Moiseienko of the UK-based Royal United Services Institute explained, "If a client asks a bank to wire money as

10 United Nations Office on Drugs and Crime, "Increased trafficking in falsified medical products due to COVID-19, says UNODC research," Research Brief, Vienna, 2020. [Retrieved online.](#)

11 Jonathan Wheatly, "Foreign investors dash into emerging markets at swiftest pace since 2013," *The Financial Times*, December 18, 2020. [Retrieved online.](#)

12 John Basquill, "Regulators issue money laundering warning as criminals adapt to Covid-19," *Global Trade Review*, April 1, 2020. [Retrieved online.](#)

13 European Banking Authority, "EBA statement on actions to mitigate financial crime risks in the COVID-19 pandemic," March 31, 2020. [Retrieved online.](#)

14 Financial Crimes Enforcement Network, "The Financial Crimes Enforcement Network (FinCEN) Encourages Financial Institutions to Communicate Concerns Related to the Coronavirus Disease 2019 (COVID-19) and to Remain Alert to Related Illicit Financial Activity," March 16, 2020. [Retrieved online.](#); Financial Crimes Enforcement Network, "Advisory on Imposter Scams and Money Mule Schemes Related to Coronavirus Disease 2019 (COVID-19)," July 7, 2020. [Retrieved online.](#); National Crime Agency, "Beware fraud and scams during Covid-19 pandemic fraud," March 30, 2020. [Retrieved online.](#); Europol, "Pandemic Profiteering: How Criminals Exploit the COVID-19 Crisis," European Union Agency for Law Enforcement Cooperation, March 27, 2020. [Retrieved online.](#)

15 A new FATF-Egmont Group report aims to help the public and private sector with the challenges of detecting TBML. Using numerous case studies from around the FATF's Global Network, it explains the ways in which criminals exploit trade transactions to move money, rather than goods: Financial Action Task Force and the Egmont Group, "FATF/Egmont Trade-Based Money Laundering: Trends and Developments," December 2020. [Available online.](#)

payment for goods, it's very difficult for the bank to say whether that payment is adequate, too much or too little... Because the bank won't necessarily know what the goods are, what the quality is, and it can be difficult to price them anyway. So, banks just don't have enough information to be able to say, 'this is trade-based money laundering.'¹⁶

FTAF and the Egmont Group¹⁷ have noted that “open account transactions”—an international sale in which the goods are shipped and delivered before payment is due—are particularly susceptible to TBML schemes. Open account transactions, which are used in around 80 percent of international trade, are helpful for importers in terms of cash flow and cost, but they have been identified by US regulators as a money laundering risk because financial institutions have little visibility over the underlying trade documents.¹⁸ TBML schemes “frequently involve this method because [banks] have a reduced role, meaning less oversight than for the documentary collection process”. However, experts also caution that even documentary trade—such as transactions supported by letters of credit—also show vulnerabilities, because, “[d]espite a perceived increase in role for financial institutions, it is limited as they do not necessarily verify the documents... [and the] documents are not always standardized, increasing the risk of TBML exploitation through fictitious or false invoicing.”¹⁹

Additionally, for those ports around the world which are currently moving record numbers of medicines and medical supplies in response to the COVID crisis, their immediate problem is the expedited nature of so many more goods to meet the health needs of the pandemic. The sudden increase in health-related cargo can leave customs officials unable to adequately scrutinize containers and associated invoices. This is particularly the case for vaccines being shipped into Africa's free trade zones (FTZs), which suffer from a lack of adequate customs oversight.²⁰

The crisis has also presented both corrupt officials as well as counterfeiters and smugglers with new opportunities to exploit inefficiencies in customs departments. As governments mobilized large fiscal stimulus packages to keep their economies afloat, this meant large bursts of emergency government spending, typically involving a sudden increase in purchase orders and goods being quickly moved from national to local levels. The nature of emergency government purchases and transit of goods often means that regulatory oversight is weakened as corners are cut to save time. The problem was magnified by the world's supply chains that were disrupted at various points in 2020, as those engaged in procurement were under pressure to resort to less well-vetted suppliers. In this environment, the World Customs Organization (WCO) warned of an uptick in COVID-19-related “fraudulent activities, particularly the trafficking of counterfeit medical supplies, such as face masks and medical gloves.”²¹ Similar problems have been reported in Mexico, where the Global Initiative Against Transnational

16 Hiba Mahamadi, “Illicit finance hidden in trade numbers fed \$9tn loss for developing nations: GFI,” RiskScreen KYC360News.com, March 4, 2020. [Retrieved online.](#)

17 Financial Action Task Force and Egmont Group, December 2020.

18 United States Government Accountability Office, “Trade-Based Money Laundering: U.S. Government Has Worked with Partners to Combat the Threat, but Could Strengthen Its Efforts,” No. GAO-20-333, Washington DC, May 1, 2020. [Retrieved online.](#)

19 John Basquill, “Money laundering groups ‘exploiting trade finance transactions’, task force warns,” Global Trade Review, September 12, 2020. [Retrieved online.](#)

20 Darren Taylor, “Little vials, big crime: Criminals primed for onslaught on Africa's vaccines,” Bhekisisa Center for Health Journalism, February 11, 2021. [Retrieved online.](#); Darren Taylor, “Crime and (no) punishment: Why Africa's ports are vulnerable to counterfeit COVID vaccines,” Bhekisisa Center for Health Journalism, February 18, 2021. [Retrieved online.](#); Daniel Neale, “Free Trade Zones: a Pandora's Box for Illicit Money,” Global Financial Integrity, October 7, 2019. [Retrieved online.](#)

21 World Customs Organization, “COVID-19: WCO launches an IPR CENcomm Group for data exchange on counterfeit medical supplies and fake medicines,” March 25, 2020. [Retrieved online.](#); David Luna, “Illicit Trade at the time of crisis: current challenges and long-term impacts,” Business at OECD, April 23, 2020. [Retrieved online.](#)

“Criminals are seeking to profit from the COVID-19 crisis.”

UN SECRETARY-GENERAL ANTÓNIO GUTERRES



Organized Crime has reported that as many as 60 percent of medical products “are falsified, expired or stolen, and the Jalisco New Generation cartel—one of the most widespread criminal organizations operating in the country—promotes the production of pirated drugs and then forces many pharmacies to sell them.”²² Additionally, authorities in Italy, Iran, Ukraine and Azerbaijan have intercepted attempts to smuggle essential stocks of medical face masks and hand sanitizer, and according to the FBI’s New York cybercrime branch, there have been a series of coronavirus-related phishing scams in which cybercriminals attempt to spread malware or steal personal information.²³

Lastly, opportunities for illicit financial flows have been heightened by the huge increase in foreign aid that was mobilized by developed economies and international aid organizations in 2020. Given that historically, aid inflows have been illicitly diverted, it is important for major bilateral donors such as the United States, the United Kingdom and European Union states, as well as multilateral institutions such as the International Monetary Fund, to make improved transparency, accountability and anticorruption provisions a greater priority in the disbursement of COVID-related relief funds to developing countries.

“At a time when Africa is mobilizing resources for pandemic recovery and sustainable development, illicit financial flows are robbing the continent of \$50 billion annually.”

UN DEPUTY SECRETARY-GENERAL AMINA MOHAMMED

The response to COVID-19 by the multi-country Financial Action Task Force (FATF) emphasized the importance of risk-based supervision to identify challenges, good practices and policy responses to such new threats and vulnerabilities arising from the Covid-19 crisis, and to identify ways to increase information sharing between public sector agencies and banks by leveraging communications with

²² Richard Behar, “Organized Crime In The Time Of Corona,” Forbes.com, March 27, 2020. [Retrieved online.](#)

²³ Ibid.

larger institutions and different jurisdictional authorities on new threat information.²⁴

Post-COVID pandemic changes are likely to accelerate the long-term structural changes in the international trading system that had been underway prior to the pandemic. Slower GDP growth and domestic economic shifts within China were already having an impact on global trade before the COVID crisis struck, given that 80 percent of the volume of world trade in goods is shipped by sea, with China alone having imported 20 percent of such goods in 2019. Another important long-term shift is that, since 2013, the majority of total global traded goods have been imported by developing countries rather than the rich countries, reflecting a significant shift in the historical pattern in which developing countries long acted as suppliers of large-volume, low-value raw materials imported by developed countries, which acted as the main markets. This shift has become more pronounced as the importance of the US and Europe in global trade continue to decline relative to those economies in China and the emerging markets and developing countries and will require even greater vigilance by developing country customs departments to detect trade misinvoicing.



24 Financial Transparency Task Force, "COVID-19-related Money Laundering and Terrorist Financing: Risks and Policy Responses," May 2020. [Retrieved online.](#); Matthew L. Ekberg, "Financial crime risk management and the COVID19 Pandemic: Issues for closer international cooperation and coordination," Institute for International Finance, April 2020. [Retrieved online.](#)

Policy Recommendations for Addressing Trade Misinvoicing and Illicit Financial Flows

Customs authorities are responsible for the collection of duties and a number of other trade-related taxes from importers and exporters. As mentioned above, 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 in recent decades. For example, a 2014 survey of 34 LDCs by the World Customs Organization (WCO) found that duties and other taxes collected at their borders accounted for 45 percent of their government tax revenue.²⁵

While there is growing recognition that the task of combatting illicit financial flows requires increased coordination among tax authorities, law enforcement and financial regulatory agencies, the task of combatting trade misinvoicing is often still placed with customs authorities alone. 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 do 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, but not for exported goods. As a consequence, efforts to detect 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.²⁶ 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.²⁷

The problem of insufficient detection of trade misinvoicing by customs authorities is further compounded by the lack of adequate oversight by customs authorities in many of the world's growing number 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 the limited customs procedures inside FTZs, along with insufficient integration and utilization of information technology, resulted in the lack of requisite data concerning cargoes inside the zones which rendered customs agencies' risk management controls "virtually useless".²⁸

There is also a tension between countries' commitments to comply with the WTO's Trade Facili-

25 World Trade Organization, "World Trade Report 2015: Speeding Up Trade – Benefits and Challenges of Implementing the WTO Trade Facilitation Agreement," Geneva, 2015. [Retrieved online.](#)

26 Kunio Mikuriya, "Capital flight in trade payment," The Global Governance Project, November 22, 2018. [Retrieved online.](#)

27 African Union Commission, "Domestic Resource Mobilization: Fighting Against Corruption and Illicit Financial Flows," Addis Ababa, September 5, 2019. [Retrieved online.](#)

28 Kenji Omi, "'Extraterritoriality' of Free Zones: The Necessity for Enhanced Customs Involvement," World Customs Organization Research Paper No. 47, September 2019. [Retrieved online.](#); 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. [Available online.](#)

tation Agreement (TFA), which seeks to speed up the movement of goods across borders, and their commitments to the World Customs Organization (WCO) and its protocols which advocate for countries to adopt a comprehensive and effective valuation control program involving controls being carried out at three stages: preclearance, at the time of customs clearance and post-clearance. These agreements/policies/protocols can be viewed as working against each other, as one works to speed up the trade process and one requires it to slow down, which presents challenges for countries that have committed to both.

Despite this overall 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. Since trade misinvoicing activity results in a massive loss of trade-related tax revenues, these provisions are especially relevant. In particular, the TFA's Article 3.9(b), which addresses 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. To help reduce the problem of trade misinvoicing in developing countries, much more political and financial support is needed to assist developing countries in strengthening and scaling up this process of information exchange between countries and their customs authorities (see recommendation regarding blockchain technology below).

At the national level

Make trade misinvoicing illegal

Among the many constraints faced by customs agencies, the largest may be the fact that in many countries the act of falsifying trade invoices is not criminalized. Therefore, one of the most important steps countries can take is to adopt legislation that clearly criminalizes trade misinvoicing and ensure that the associated penalties are substantial enough to serve as an effective deterrent.

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 role of customs agencies must be strengthened with adequate legislation, investigative capacities and financial and human resources.²⁹

“Fighting against trade misinvoicing would require a sufficient mandate and resources to match for custom authorities to monitor over-invoicing, under-invoicing and irregularities in both export and import declarations.”

29 African Union Commission, 2019.

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

Governments should take steps to establish greater cross-agency communication, coordination and enhanced information exchange among multiple government agencies. International experts at the Organization for Economic Cooperation and Development (OECD),³⁰ the World Bank, the Financial Action Task Force (FATF) and the Egmont Group³¹ have advocated that the different government agencies including customs authorities, financial intelligence units, revenue authorities, and law enforcement authorities take a more collaborative approach to working with one another to share information regarding financial and trade data, and to conduct mutual risk assessments in order to more effectively combat financial crimes like trade misinvoicing, tax evasion, grand corruption, and transnational crime. Additionally, governments must proactively reach out to raise awareness and strengthen cooperation between authorities and private sector entities involved in international trade such as banks and financial institutions, transport companies, importers and exporters, accountants and auditors, etc. Enhanced cooperation, information sharing, and unified interdiction strategies among all of these actors are needed.

+ Implement trade misinvoicing risk assessment tools

Governments should invest in equipping customs authorities with strengthened IT and data technologies to build capacity. While this report has used the macro-level “partner-country method” to make estimates of the trade misinvoicing problem at the global level, there is also a promising micro-level approach called the “price-filter method” which involves customs officials comparing the declared prices of goods on invoices with recent global average prices of those goods. Such a process can enable customs officials to quickly identify potentially fraudulent values declared on individual invoices that have been submitted by importers and exporters and take immediate steps to flag such invoices for further investigation—and while the goods are still in the port.³² This approach requires that customs authorities have access to accurate and recent price data for the goods being shipped, and GFI has developed such a price-filtering tool called GFTrade, a proprietary risk assessment application which has been designed specifically for strengthening the capacities of customs officials to identify and stop trade misinvoicing in real time.³³ The GFTrade system uses the most recent official trade data from 62 of the world’s largest trading countries including China, the United States, EU28 and Japan to get the most recent average prevailing prices and provides the ability to search for goods values based on thousands of Harmonized System (HS) codes. Price-filtering tools such as GFTrade are essential in assisting governments with identifying and stopping potential trade misinvoicing before it happens, and thereby maximizing domestic resource mobilization efforts.

30 Organization for Economic Cooperation and Development, “Effective Inter-Agency Co-operation in Fighting Tax Crimes and Other Financial Crimes - Third Edition,” Paris, 2017. [Retrieved online.](#)

31 Financial Action Task Force and Egmont Group, December 2020.

32 Giles Carbonnier and Rahul Mehrotra, “Abnormal pricing in international commodity trade: Empirical evidence from Switzerland,” Discussion Paper No. R4D-IFF-WP01-2019, The Graduate Institute of International and Development Studies, 2019. [Retrieved online.](#); United Nations Conference on Trade and Development, “Economic Development in Africa Report 2020: Tackling Illicit Financial Flows for Sustainable Development in Africa,” Geneva, 2020. [Retrieved online.](#); World Customs Organization, 2018.

33 Global Financial Integrity, “GFTrade: Trade Misinvoicing Risk Assessment.” [Retrieved online.](#); See also, Lionel Bassega, “Using Tech To Help Banks Stop The Bad Guys,” Global Financial Integrity, November 24, 2020. [Available online.](#)

The WCO has also recommended that customs authorities be given access to certain financial information of traders, particularly their recent foreign currency transactions, and be given clear mandates to examine if purchases and payments tend to match with the prevailing market values of traded goods and with declared values on invoices.³⁴

Governments should also consider adopting other risk assessment tools, such as MOSES (Mineral Output Statistical Evaluation System), which was jointly developed by ASYCUDA, UNCTAD's trade documents exchange system, and the Zambian government. MOSES is designed as "a multi-purpose and multi-stakeholder framework that monitors mineral resources throughout the entire value chain," from the mines to the borders.³⁵ The system focuses on mineral production reporting and export permit controls and provides a mechanism which helps to reduce the complexity of compliance as well as the cost of doing business between mining companies and the government. It allows mining companies to submit their monthly mineral production reports electronically instead of travelling to the capital Lusaka to file them in person.

Importantly, it also helps improve the ability of the government to monitor and regulate operations due to the accessibility of the information from a single database. Since its implementation in 2017, UNCTAD reported that the system helped the Zambian government to recover around US\$1 million in unpaid export dues from mining companies in 2018, which is small relative to the estimated levels of total trade misinvoicing, but the system shows promise if it can be fully scaled-up. The MOSES system has also shown it can facilitate trade at the same time by: minimizing the duplication of information; simplifying procedures for obtaining import and export permits, leading to a 66 percent increase in export permits; more accurately grading the quality of minerals; producing consistent statistics to be used for informed decision making; delivering export and import statistics for more reliable planning; and helping Zambia begin to collect non-mineral related royalties.³⁶

Strengthen customs oversight of Free Trade Zones (FTZs)

Governments should also 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.³⁷ As of August 2020, 171 states had signaled their intention to apply the SAFE Framework, but the degree of actual implementation remains unclear.³⁸

Establish National Trade Facilitation Committees

If they have not already done so, governments should take steps to establish National Trade Facilitation Committees (NTFCs), as called for in the WTO's Trade Facilitation Agreement (TFA). However, for some developing countries, the cost of establishing an NTFC has been

34 World Customs Organization, 2018, page 144.

35 UNCTAD Mineral Output Statistical Evaluation System (MOSES). [Retrieved online.](#)

36 Felix Thompson, "African governments warned over commodities misinvoicing 'red flags'," *Global Trade Review*, July 10, 2020. [Retrieved online.](#); United Nations Conference on Trade and Development (UNCTAD), "Economic Development in Africa Report 2020: Tackling Illicit Financial Flows for Sustainable Development in Africa," Geneva, 2020. [Retrieved online.](#)

37 World Customs Organization, "SAFE Framework of Standards 2018 edition," Brussels, June 2018. [Retrieved online.](#)

38 World Customs Organization, "Members who have expressed their intention to implement the WCO Framework of Standards to Secure and Facilitate Global Trade," Brussels, August 5, 2020. [Retrieved online.](#)

prohibitive. A 2014 study by United Nations Conference on Trade and Development (UNCTAD) found adequate financing for NFTCs was available in only 18 percent of advanced economies, 36 percent of developing countries and 21 percent of the least-developed countries (LDCs).³⁹ 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, more public financing is needed. Where countries cannot afford to adequately finance their NFTCs, additional donor aid should be mobilized by bilateral and multilateral donor agencies.

“Governments with access to transaction-level trade data can also implement a price-filter analysis, [...] which compares the value/price on a customs invoice to past prices or the free market price, to distinguish between normal and abnormal pricing. Global Financial Integrity has [...] developed its ‘GFTrade’ tool based on the interquartile range price-filter method, which provides direct feedback to customs officials.”

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At the international level

In addition to the national level steps listed above, GFI also recommends governments use their diplomatic clout to support a number of policy initiatives that require international cooperation in order to curtail the problem of trade misinvoicing in particular, and IFFs in general. Of particular importance are international efforts to increase transparency in the global financial system, including measures related to reducing the secrecy of tax havens, offshore centers, the degree of anonymity given to shell companies and to supporting increased international 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

Much greater international cooperation is needed among the customs and tax authorities of trading partners in order to make trade transactions more transparent and enable these authorities to regularly exchange more financial information and trade documents electronically across international borders. Among the various measures included in the WTO’s 2013 Trade Facilitation Agreement (TFA), cross-border paperless trade measures remain the least implemented trade facilitation measures among most economies.

However, one example of successful cross-border information exchange is the Framework

³⁹ United Nations Conference on Trade and Development, “National Trade Facilitation Bodies in the World,” New York and Geneva, 2014. [Retrieved online.](#)

Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, which is designed to accelerate the implementation of digital trade facilitation measures for trade among partner countries. The agreement was adopted by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in 2016. Designed as an inclusive instrument accessible to countries at all levels of development to increase their capacity to engage in cross-border paperless trade, the agreement commits countries to the full digitalization of trade processes and enables the seamless electronic exchange and legal recognition of trade-related data and documents across borders, rather than only between stakeholders located in the same country. It is projected to reduce trade misinvoicing activity as well as reduce transaction time and costs while increasing regulatory compliance.⁴⁰ The agreement should serve as a model for other regions.

In another example, the WCO and the United Nations Office on Drugs and Crime (UNODC) established a joint Container Control Programme, which creates 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.⁴¹ However, as of 2018, only 54 countries have adopted this system. GFI recommends more countries adopt the Container Control Programme. The WCO also recommends that countries establish a clarified legal basis and/or develop administrative arrangements for the exchange of information between and among customs administrations in partner countries for the purposes of strengthening 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.

Explore the use of distributed ledger technology to identify trade misinvoicing

There is a growing interest in how distributed ledger technologies, such as “blockchain,” could be applied in international trade, specifically how such technologies might affect trade finance, customs procedures, and documenting the true origin of goods being shipped. Critically, blockchain—which permits an automatic exchange of data which is secure and immutable—could be used to assist customs authorities to improve detection of trade misinvoicing and TBML. In this way, customs departments could share transaction data—including goods valuations—with their trading partner customs department in real time so pricing anomalies can be more easily detected. GFI calls on the WTO and other stakeholders to investigate this technology for a possible solution to the misinvoicing problem.

“Multinational companies regularly evade taxes in countries where they operate, especially in developing countries, through trade misinvoicing, among other schemes.”

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40 Asia-Pacific Research and Training Network on Trade, “Impact of implementation of digital trade facilitation on trade costs,” ART-NeT Working Paper No. 174, 2018. [Retrieved online.](#)

41 UNODC-WCO Global Container Control Programme. [Retrieved online.](#)

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Annex

What is trade misinvoicing?

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

Trade misinvoicing is a well-established practice of illicitly moving wealth across international borders by hiding it within the regular international commercial trading system. This is done when importers and exporters deliberately falsify the declared value of goods on the customs invoices they submit to customs officials when shipping or receiving goods. Trade misinvoicing is done by either underpricing or overpricing the stated value of the goods being shipped.

“Of the roughly US\$836 billion in capital flight from Africa between 2000 to 2015, it is estimated that between 34 and 59 percent of this comes from trade misinvoicing, or deliberately misreporting the value, volume, or commodity traded.”

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The World Trade Organization (WTO) estimated that after falling by 5.3 percent in 2020 because of the Covid crisis, the volume of total global merchandise trade is expected to increase by 8.0 in 2021 and is projected to increase by 4.0 percent in 2022.⁴² According to the United Nations Office on Drugs and Crime (UNODC) and the World Customs Organization (WCO), about 90 percent of all trade is conducted via maritime containers, of which more than 500 million are shipped yearly in the trade supply chain. And of this amount, less than 2 percent are inspected each year to verify the accuracy of customs invoices, providing an easily accessible channel for illicit activity.⁴³ If importers and exporters believe that their shipping containers are unlikely to be physically inspected by authorities, then they may be more willing to falsify the values declared on their invoices submitted to customs authorities in order to engage in trade misinvoicing activities. The very low level of physical inspections of containers also suggests that as the total volume of global trade has increased in recent decades, the opportunities for trade misinvoicing have increased as well.⁴⁴

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. Graphic 6 (next page) 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.

42 World Trade Organization (WTO), “World trade primed for strong but uneven recovery after COVID-19 pandemic shock.” [Retrieved online.](#)

43 United Nations Office on Drugs and Crime (UNODC) and the World Customs Organization (WCO), “UNODC-WCO Global Container Protection Programme.” [Retrieved online.](#)

44 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. [Retrieved online.](#)



GFI methodology for analyzing trade misinvoicing

In this report, GFI examined the most recent international trade data officially reported by governments to the United Nations in order to estimate the magnitude of trade misinvoicing activity within the international commercial trading system—one of the largest components of measurable illicit financial flows (IFFs). We analyzed the trade data for 134 developing countries for which there is sufficient data available in the United Nations Comtrade database. We examined the bilateral trade data for each of the 134 developing countries in two ways: looking at their trade with a set of 36 advanced economies as well as their trade with all of their global trading partners for each year over the ten-year period of 2009-2018.

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.⁴⁵ GFI uses such official data to undertake a “partner-country” analysis, meaning a comparison of what any set of two countries reported about their trade with each other in a given year, and GFI identifies any mismatches, or “value gaps” in the officially reported data. For example, in examining Brazil’s bilateral trade with China, if Brazil reported paying US\$5 million for lightbulbs imported from China in 2016, but China reported exporting only US\$3 million in lightbulbs to Brazil in 2016, this would represent a discrepancy or “value gap” of US\$2 million in the bilateral trade between these two trading partners for this particular product in that year.

While there are reasons to normally expect some minor degree of a discrepancies in the reported international trade data between any two countries in a given year, GFI believes the majority of the value gaps identified are indicative of trade misinvoicing activity. In this case, the US\$2 million gap identified is likely to have been caused by a combination of misinvoicing activity by traders in both Brazil and China, who under-invoiced or over-invoiced goods when declaring the values on official

⁴⁵ 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 updated 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. The data in this report reflects the UN Comtrade data as downloaded in May 2021.

invoices submitted to their respective customs agencies. Most importantly, these gaps represent lost tax revenue, i.e., some portion of this \$2 million represents the value of the trade that should have been taxed properly, but was lost by tax authorities in both countries.

If analyzing the value gap from Brazil’s perspective, this would reflect a case of import over-invoicing by Brazil. 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 in bilateral trade, this report focuses primarily on the overall global 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 customized program—as has been outlined in previous IFF Update reports—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: “orphaned,” “lost” and “others”. The near universal use of harmonized product codes (or “HS” codes) at the six-digit level by countries using the United Nations system enables countries to keep track of which goods are being imported and exported around the world.

Based on UN Comtrade data reported in product detail using HS codes, GFI first takes the step of eliminating 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 Brazil if it had reported a value for imported lightbulbs from China in 2016, while China had reported no exports of lightbulbs to Brazil in 2016. In this case, this record by Brazil of the import from China is only half of the transaction, and if not matched with a corresponding record by China as an export to Brazil, then the record is classified as an “orphan” (a record of an import without any corresponding record of an exporter) and is eliminated from our analysis.

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, using the same sample case above, GFI would eliminate a record of China reporting a value for exported lightbulbs to Brazil in 2016, if Brazil did not report a value for any imports of lightbulbs from China that year. In this case, this record by China of the export to Brazil is only half of the transaction, and if not matched with a corresponding record by Brazil as an import from China, then record is classified as “lost” (a record of an export without any corresponding record of an importer) and is eliminated from our analysis.

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 Brazil or China listed zero for the value, listed zero for the volume or listed zero for the quantity of the transaction. Once these three filters are applied, and all

of the “orphaned,” “lost” and “others” records are eliminated, GFI uses the remaining sets of records, called “corresponding values,” as the data upon which value gaps or mismatches 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 between any two countries in a given year. 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 confusion resulting from the process 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. Therefore, re-exports and transit-trade can sometimes lead to some goods being mistakenly recorded 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, subsequent 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 more cost efficient for shipping lines to unload and reload goods onto different ships for different legs 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 HS code level of commodity detail. This helps to clarify the origin of exports and final destination of imports that transit through Hong Kong as re-exports and supplements the level of detail in UN Comtrade data, enabling 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, while reporting the value of their exports using the “free on board” (FOB) valuation.⁴⁶ To address these differences and enable direct comparisons of import and export values, all import values must first be converted into 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 considerable 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 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.⁴⁷ 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.⁴⁸

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 adopted the OECD's approach by including 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 associate export prices) biased downward CEPII's estimated CIF/FOB margins.

46 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.

47 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. [Retrieved online.](#)

48 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. [Retrieved online.](#)

» **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.⁴⁹

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 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, particularly by multinational corporations. An additional factor is that the pricing of services is much less uniform and 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 detected 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. These techniques are increasingly leveraged as the volume of trade increases, as they are less ex-

49 See for example, Gaulier and Zignago, 2010; Arie Ten Cate, “Modelling the reporting discrepancies in bilateral data,” CPB Memorandum 179, CPB Netherlands Bureau for Economic Policy Analysis, April 2007. [Retrieved online.](#)

pensive 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.

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 overall magnitude of the trade misinvoicing problem at the international level—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. 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 potential scale of the trade-related IFFs problem. GFI’s order of magnitude estimates of the value of trade misinvoicing underscore it is a major global challenge that must inform policy responses at the national and international levels.



Tables

TABLE 1

The Sums of all Value Gaps Identified in Trade Between 134 Developing Countries and 36 Advanced Economies, 2009-2018, in USD Millions

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
551,217	679,789	792,990	752,290	795,197	747,973	702,456	682,253	744,586	835,040

TABLE 2

The Ten Largest Value Gaps Identified Among the 134 Developing Countries' Trade with the 36 Advanced Economies in 2018, and as Averages over 2009-2018, in USD Billions

	2018		2009-2018 Average	
1	China	305.0	China	250.2
2	Poland	62.3	Poland	47.7
3	India	38.9	Mexico	35.4
4	Russia	32.6	India	30.7
5	Malaysia	30.7	Russia	30.5
6	Turkey	29.9	Malaysia	27.9
7	Thailand	28.3	Thailand	26.5
8	Hungary	26.4	Turkey	25.4
9	Vietnam	25.8	Brazil	22.7
10	Mexico	25.4	Hungary	20.7

TABLE 3

The Ten Largest Value Gaps Identified Within Trade Between 134 Developing Countries and 36 Advanced Economies as a Percent of Total Trade in 2018, and as Averages, over 2009-2018

	2018		2009-2018 Average	
1	Gambia	45.0	Sierra Leone	42.6
2	Malawi	36.6	Gambia	42.4
3	Suriname	31.9	Comoros	31.2
4	Kyrgyzstan	30.6	Togo	29.0
5	Belize	29.2	Malawi	28.5
6	Qatar	28.6	Maldives	27.7
7	Maldives	27.9	Mali	26.9
8	Botswana	27.0	Zimbabwe	25.9
9	Azerbaijan	26.2	Azerbaijan	25.7
10	Zambia	26.0	Burundi	25.4

TABLE 4

The Sums of all Value Gaps Identified in Trade Between 134 Developing Countries and All Global Trading Partners, 2009-2018, in USD Billions

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
934.1	1,208.1	1,438.1	1,426.6	1,550.8	1,465.2	1,386.2	1,321.0	1,452.1	1,626.9

TABLE 5

The Ten Largest Value Gaps Identified in Developing Countries' Trade with All Global Trade Partners, in 2018 and as Averages over 2009-2018, Ranked by Size in USD Billions

	2018		2009-2018 Average	
1	China	546.4	China	445.3
2	India	84.9	India	67.5
3	Poland	81.2	Russia	63.7
4	Malaysia	71.4	Poland	61.1
5	Russia	70.3	Malaysia	60.8
6	Thailand	69.9	Thailand	60.5
7	Vietnam	56.3	Mexico	47.2
8	Turkey	50.7	Brazil	45.5
9	Indonesia	48.3	Turkey	44.2
10	Brazil	45.5	Indonesia	40.2

TABLE 6

The Ten Largest Value Gaps Identified in Developing Countries' Trade with All Global Trade Partners, in 2018 and as Averages over 2009-2018, as a Percent of Total Trade

	2018		2009-2018 Average	
1	Gambia	58.1	Gambia	51.9
2	Suriname	30.7	Sierra Leone	35.4
3	Congo	29.2	Togo	29.2
4	Ghana	28.8	Ghana	26.4
5	Malawi	28.5	Philippines	26.1
6	Kyrgyzstan	26.3	Tanzania	25.9
7	Tanzania	26.3	Malawi	25.8
8	Comoros	26.2	Mauritania	25.7
9	Azerbaijan	26.1	Congo	25.3
10	Benin	25.9	Burundi	25.0

TABLE 7

Countries with the Ten Largest Value Gaps Identified in Trade with the 36 Advanced Economies as a Percent of Value Gaps in Trade with All Global Trading Partners, in 2018 and Average over 2009-2018

	2018		2009-2018 Average	
1	Aruba	100	Cabo Verde	98.8
2	Cabo Verde	100	Sao Tome and Principe	98.4
3	Sao Tome and Principe	94.1	Bahamas	97.0
4	Bahamas	93.2	Aruba	86.9
5	Antigua and Barbuda	90.5	Tonga	86.4
6	Saint Lucia	81.5	Saint Kitts and Nevis	82.2
7	Poland	76.7	Antigua and Barbuda	78.3
8	Saint Vincent and the Grenadines	75.5	Poland	78.2
9	Tunisia	74.2	Samoa	77.9
10	Barbados	73.8	Tunisia	76.0

TABLE A

*The Sums of the Value Gaps Identified in Trade Between 134 Developing Countries and 36 Advanced Economies, 2009-2018, in USD Millions**

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Afghanistan	2	6	52	N/A	N/A	N/A	6	6	N/A	13	14
2	Albania	556	627	737	708	674	593	595	642	495	605	623
3	Algeria	5,432	6,857	6,874	6,360	7,117	6,900	4,996	4,366	4,256	N/A	5,906
4	Angola	1,212	1,308	888	1,373	1,807	1,692	1,285	1,151	797	738	1,225
5	Antigua and Barbuda	38	28	24	23	28	62	28	27	59	46	36
6	Argentina	4,251	5,528	6,604	6,227	6,482	5,709	5,581	4,567	5,621	5,350	5,592
7	Armenia	161	191	229	215	205	189	151	160	179	199	188
8	Aruba	81	79	93	86	103	100	84	72	69	79	85
9	Azerbaijan	1,178	824	1,254	2,192	1,590	1,702	1,237	775	1,058	1,436	1,325

39	Dominica	18	13	N/A	12	N/A	N/A	N/A	N/A	N/A	N/A	14
40	Dominican Republic	1,232	1,572	1,880	1,794	1,797	2,196	1,958	1,808	2,501	2,882	1,962
41	Ecuador	1,518	1,981	2,320	1,550	2,529	2,779	2,109	1,663	2,193	2,282	2,092
42	Egypt	4,846	5,560	6,392	4,897	5,155	6,743	5,763	4,797	5,539	6,374	5,607
43	El Salvador	655	645	816	865	1,083	1,070	981	834	911	1,155	901
44	Ethiopia	260	370	376	374	500	402	524	441	663	461	437
45	Fiji	192	143	170	178	290	319	306	190	256	278	232
46	Gabon	451	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	451
47	Gambia	24	32	21	22	23	36	30	25	35	13	26
48	Georgia	277	351	462	469	526	575	459	499	444	520	458
49	Ghana	928	1,126	2,194	1,735	1,534	1,443	2,029	1,365	2,277	1,778	1,641
50	Guatemala	1,397	1,648	1,892	1,883	2,057	2,066	1,991	1,767	2,104	2,200	1,900
51	Guinea	N/A	N/A	N/A	N/A	264	243	188	282	N/A	N/A	244
52	Guyana	172	174	218	270	213	222	216	182	129	219	201
53	Honduras	696	778	1,030	1,050	N/A	919	929	898	1,220	1,518	1,004
54	Hungary	14,168	17,078	18,834	19,338	20,869	22,757	21,698	22,344	23,383	26,398	20,687
55	India	24,562	24,716	34,097	30,432	32,366	29,628	28,567	29,245	34,395	38,889	30,690
56	Indonesia	13,064	18,921	22,776	21,939	21,095	20,232	17,495	17,111	19,076	21,163	19,287
57	Iran	N/A	3,643	3,711	N/A	2,131	2,012	1,904	2,208	2,835	1,968	2,551
58	Iraq	N/A	N/A	N/A	N/A	N/A	36	N/A	N/A	N/A	N/A	36
59	Jamaica	446	508	441	426	496	453	407	390	474	578	462
60	Jordan	956	998	1,134	784	1,399	1,399	1,231	1,024	1,288	1,079	1,129
61	Kazakhstan	2,605	2,692	3,166	3,786	3,204	2,949	2,034	1,817	1,699	2,496	2,645
62	Kenya	792	1,016	N/A	N/A	1,090	N/A	1,122	862	1,094	1,156	1,019
63	Kiribati	3	3	1	1	1	3	3	1	N/A	N/A	2
64	Kuwait	N/A	2,428	2,082	N/A	3,051	2,541	2,382	2,357	2,722	2,360	2,490
65	Kyrgyzstan	48	87	138	308	301	362	199	114	178	108	184
66	Laos	N/A	54	109	55	110	93	77	101	115	102	91
67	Lebanon	1,632	1,739	1,736	1,477	1,896	1,948	1,704	1,792	1,975	1,688	1,759
68	Lesotho	N/A	24	27	29	21	56	39	38	45	N/A	35

69	Libya	1,350	2,471	N/A	N/A	N/A	N/A	N/A	772	N/A	1,175	1,442
70	Madagascar	288	278	337	238	328	391	320	372	567	643	376
71	Malawi	133	166	189	189	179	189	152	155	263	248	186
72	Malaysia	22,146	28,541	31,971	29,759	27,258	29,157	26,807	24,593	28,223	30,723	27,918
73	Maldives	30	78	122	99	107	125	129	120	111	160	108
74	Mali	N/A	244	166	213	N/A	N/A	N/A	246	289	N/A	232
75	Mauritania	38	91	168	383	233	189	179	191	143	127	174
76	Mauritius	447	509	512	486	520	461	359	431	508	473	471
77	Mexico	36,841	43,294	50,218	50,833	51,239	22,710	22,359	25,557	25,149	25,411	35,361
78	Moldova	216	230	316	272	288	309	274	274	344	427	295
79	Mongolia	N/A	N/A	N/A	N/A	327	212	190	147	160	223	210
80	Morocco	4,787	4,884	5,868	5,323	6,027	6,228	6,253	6,615	7,506	8,222	6,171
81	Mozambique	151	137	339	293	298	394	N/A	102	60	109	209
82	Myanmar	N/A	392	556	439	1,118	1,925	1,378	962	1,256	1,405	1,048
83	Namibia	307	353	293	303	212	247	190	169	285	152	251
84	Nepal	67	73	73	63	75	93	143	90	82	N/A	84
85	Nicaragua	228	310	371	437	400	666	709	701	781	813	542
86	Niger	94	86	89	78	144	67	65	60	75	52	81
87	Nigeria	2,481	2,221	6,865	6,491	4,455	2,589	2,574	1,934	2,015	1,731	3,336
88	North Macedonia	493	576	765	724	818	973	857	907	704	1,296	811
89	Oman	1,446	1,981	1,736	1,041	2,141	1,176	1,813	1,393	929	881	1,454
90	Pakistan	2,763	3,278	3,825	2,694	3,500	3,782	3,600	3,757	4,107	4,445	3,575
91	Panama	890	981	1,102	878	848	1,090	620	678	1,241	N/A	925
92	Papua New Guinea	N/A	N/A	873	607	N/A	N/A	N/A	N/A	N/A	N/A	740
93	Paraguay	272	408	647	498	642	690	636	545	665	654	566
94	Peru	3,171	3,757	4,895	4,584	4,586	4,072	3,770	3,567	4,442	4,788	4,163
95	Philippines	9,822	9,851	10,807	11,073	10,207	11,770	11,010	9,012	12,753	14,488	11,079
96	Poland	32,217	39,495	45,480	43,887	48,548	51,500	48,089	49,885	55,805	62,289	47,720
97	Qatar	N/A	2,050	N/A	85	2,684	2,386	2,210	1,574	2,574	2,698	2,033
98	Romania	8,507	10,189	12,788	11,414	12,864	13,282	12,253	13,150	14,607	15,905	12,496

99	Russia	23,266	29,689	38,290	35,787	37,957	35,333	22,971	21,342	27,835	32,586	30,506
100	Rwanda	33	31	40	54	66	65	52	50	62	65	52
101	Saint Kitts and Nevis	27	26	21	18	22	25	25	26	24	N/A	24
102	Saint Lucia	33	39	36	33	39	38	41	36	51	58	40
103	Saint Vincent and the Grenadines	19	18	18	15	18	15	16	14	15	16	16
104	Samoa	14	21	25	16	22	29	19	19	26	29	22
105	Sao Tome and Principe	14	13	15	14	16	20	16	16	13	14	15
106	Saudi Arabia	9,155	10,670	12,545	13,141	13,966	13,981	12,875	10,836	9,963	10,278	11,741
107	Senegal	481	559	788	738	886	724	581	537	583	739	662
108	Seychelles	N/A	44	74	95	101	68	48	93	83	62	74
109	Sierra Leone	N/A	N/A	N/A	N/A	N/A	56	75	187	52	38	82
110	Solomon Islands	13	N/A	18	9	10	11	26	26	39	43	22
111	South Africa	10,113	8,911	10,629	9,569	9,057	10,731	8,264	9,739	11,814	11,014	9,984
112	Sri Lanka	1,512	1,678	2,000	1,786	1,368	1,885	1,861	1,725	2,055	N/A	1,763
113	Suriname	110	112	122	152	146	154	145	146	371	358	182
114	Swaziland	21	15	25	33	78	69	45	48	32	29	39
115	Syrian Arab Republic	1,311	1,324	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,318
116	Tanzania	521	600	718	723	640	667	585	675	341	414	588
117	Thailand	24,079	28,059	30,628	28,778	26,333	24,587	23,029	23,133	27,974	28,330	26,493
118	Timor-Leste	N/A	N/A	N/A	N/A	18	N/A	N/A	N/A	12	N/A	15
119	Togo	169	133	176	748	731	479	262	164	174	219	326
120	Tonga	12	10	17	11	10	12	N/A	N/A	N/A	N/A	12
121	Trinidad and Tobago	1,860	1,248	1,859	1,604	1,311	1,616	1,138	N/A	N/A	N/A	1,519
122	Tunisia	4,259	5,078	5,182	4,827	4,994	5,112	4,143	3,836	4,106	4,142	4,568
123	Turkey	18,750	22,141	26,361	23,940	25,966	26,469	24,684	25,898	29,740	29,893	25,384
124	Uganda	252	265	326	282	291	272	250	200	292	280	271
125	Ukraine	3,961	4,981	6,477	6,198	6,114	4,925	3,706	4,048	5,263	6,183	5,186

126	UAE	N/A	N/A	N/A	15,813	11,175	12,558	12,689	13,527	15,432	12,870	13,437
127	Uruguay	534	707	848	868	1,038	875	848	796	862	834	821
128	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	507	642	575
129	Vanuatu	24	19	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
130	Venezuela	2,652	2,730	3,824	3,389	2,505	N/A	N/A	N/A	N/A	N/A	3,020
131	Vietnam	8,531	10,020	13,264	2,523	15,717	18,185	17,744	20,720	25,074	25,811	15,759
132	Yemen	393	545	576	474	330	438	91	N/A	N/A	2	356
133	Zambia	103	112	134	182	379	199	203	183	140	210	185
134	Zimbabwe	114	111	170	113	129	137	131	77	59	66	111
Total		551,217	679,789	792,990	752,290	795,197	747,973	702,456	682,253	744,586	835,040	728,379

*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 134 Developing Countries and 36 Advanced Economies, 2009-2018, Ranked by Size, in USD Millions

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	China	China	China	China	China	China	China	China	China	China	China
2	Mexico	Mexico	Mexico	Mexico	Mexico	Poland	Poland	Poland	Poland	Poland	Poland
3	Poland	Poland	Poland	Poland	Poland	Russia	India	India	India	India	Mexico
4	India	Russia	Russia	Russia	Russia	India	Malaysia	Turkey	Turkey	Russia	India
5	Thailand	Malaysia	India	India	India	Malaysia	Turkey	Mexico	Malaysia	Malaysia	Russia
6	Russia	Thailand	Malaysia	Malaysia	Brazil	Turkey	Thailand	Malaysia	Thailand	Turkey	Malaysia
7	Malaysia	India	Thailand	Thailand	Malaysia	Brazil	Russia	Thailand	Russia	Thailand	Thailand
8	Turkey	Brazil	Brazil	Brazil	Thailand	Thailand	Mexico	Hungary	Mexico	Hungary	Turkey
9	Brazil	Turkey	Turkey	Turkey	Turkey	Hungary	Hungary	Russia	Vietnam	Vietnam	Brazil
10	Hungary	Indonesia	Indonesia	Indonesia	Indonesia	Mexico	Brazil	Vietnam	Hungary	Mexico	Hungary

TABLE C

The Total Value Gaps Identified Between 135 Developing Countries and 36 Advanced Economies, 2009-2018, as a Percent of Total Trade

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Afghanistan	6.2	8.6	27.7	N/A	N/A	N/A	26.8	14.0	N/A	24.2	16.7
2	Albania	17.9	18.6	18.3	18.7	16.5	20.6	19.7	19.1	18.8	18.9	18.7
3	Algeria	20.7	22.6	20.4	18.6	19.2	17.4	18.2	19.0	18.7	N/A	19.4
4	Angola	19.1	19.2	17.3	19.3	18.8	20.3	18.4	20.1	13.7	12.7	18.5
5	Antigua and Barbuda	24.1	24.0	22.3	19.7	19.2	37.0	7.7	17.6	23.9	18.1	21.7
6	Argentina	17.8	17.2	16.3	16.5	17.5	17.7	17.7	15.3	18.7	18.8	17.2
7	Armenia	20.9	22.4	21.2	20.1	18.3	16.9	18.8	20.9	16.9	16.8	19.6
8	Aruba	17.0	16.6	16.2	15.7	15.4	13.5	16.7	17.5	15.6	17.2	16.0
9	Azerbaijan	35.0	26.8	25.3	30.3	19.5	23.1	25.3	20.3	25.9	26.2	25.7
10	Bahamas	24.1	23.6	23.3	26.7	30.0	30.8	28.5	21.5	17.9	16.8	25.2
11	Bahrain	23.3	16.7	24.0	19.5	17.0	21.2	20.8	20.9	20.0	19.8	20.4
12	Bangladesh	15.7	15.1	13.5	13.0	14.4	N/A	14.0	N/A	N/A	N/A	14.3
13	Barbados	20.5	22.9	19.8	18.9	17.9	17.5	22.8	19.5	19.2	20.7	19.9
14	Belarus	18.6	18.1	16.9	17.1	18.3	17.9	17.9	18.2	17.1	18.2	17.8
15	Belize	23.3	18.3	14.0	16.2	17.5	17.3	19.4	17.9	20.9	29.2	18.3
16	Benin	33.5	19.3	13.0	35.2	25.8	21.9	17.1	21.5	19.9	20.1	23.0
17	Bhutan	21.5	22.9	24.4	25.6	N/A	N/A	N/A	N/A	N/A	N/A	23.6
18	Bolivia	23.8	23.0	22.9	23.8	25.5	16.9	24.6	22.4	22.8	19.3	22.9
19	Bosnia and Herzegovina	18.2	17.4	16.8	16.5	16.7	17.5	16.6	17.5	17.2	17.3	17.2
20	Botswana	17.0	14.5	6.6	24.4	21.5	18.0	28.4	23.9	16.9	27.0	19.0
21	Brazil	18.0	18.7	17.8	17.7	18.1	17.5	17.9	16.3	20.3	19.3	18.0
22	Brunei	15.0	10.6	11.6	15.8	9.3	12.7	13.6	14.3	19.6	13.2	13.6
23	Bulgaria	19.7	19.3	16.7	17.1	17.6	17.4	17.7	18.9	17.1	17.5	17.9
24	Burkina Faso	23.2	23.6	23.5	11.6	11.7	24.0	14.2	11.6	10.4	10.6	17.1
25	Burundi	29.5	18.9	18.6	32.4	26.8	34.6	23.3	17.1	27.8	23.1	25.4
26	Cabo Verde	21.4	24.3	23.0	25.6	20.4	16.7	20.8	19.4	18.6	19.7	21.1

27	Cambodia	14.3	14.3	16.1	17.2	18.4	17.0	15.7	17.2	13.6	15.8	16.0
28	Cameroon	24.4	19.0	21.2	20.3	23.6	23.9	26.3	27.2	28.0	N/A	23.8
29	Central African Republic	22.2	19.9	4.6	29.0	19.9	32.4	21.8	19.9	14.3	19.7	20.4
30	Chile	7.8	14.4	13.6	14.3	15.0	14.2	14.3	14.8	17.9	17.7	14.0
31	China	20.0	20.7	20.5	20.2	20.8	19.7	20.2	20.0	21.8	21.9	20.4
32	Colombia	18.9	18.3	18.0	18.1	16.5	16.3	18.6	18.1	20.3	20.9	18.1
33	Comoros	31.1	31.0	22.4	31.4	27.4	28.6	32.1	34.6	42.0	16.9	31.2
34	Congo	31.4	19.7	22.5	25.7	18.0	21.8	26.5	21.6	16.9	22.8	22.7
35	Costa Rica	29.4	19.4	20.4	23.1	21.0	20.4	19.2	18.5	23.0	22.1	21.6
36	Cote d'Ivoire	23.7	20.6	19.3	17.5	16.1	18.1	17.9	17.1	22.3	24.2	19.2
37	Croatia	18.0	18.1	16.7	17.0	17.7	15.6	16.3	16.2	11.6	16.4	16.4
38	Djibouti	36.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	36.5
39	Dominica	22.8	23.6	N/A	22.2	N/A	N/A	N/A	N/A	N/A	N/A	22.9
40	Dominican Republic	16.7	17.6	18.5	17.0	15.2	16.6	16.6	16.8	18.9	20.1	17.1
41	Ecuador	17.4	17.6	17.8	17.3	18.8	18.2	16.1	16.5	20.0	18.4	17.7
42	Egypt	20.3	19.1	20.0	20.3	18.5	19.5	19.8	17.8	21.7	20.6	19.7
43	El Salvador	16.2	13.8	14.3	15.8	17.6	17.4	16.5	15.0	15.7	18.6	15.8
44	Ethiopia	23.6	15.4	31.9	17.0	24.9	30.6	24.2	25.5	22.3	21.3	23.9
45	Fiji	19.3	22.8	18.5	17.0	23.2	16.5	20.0	16.9	24.8	21.6	19.9
46	Gabon	17.9	13.9	13.5	20.3	15.9	17.4	21.8	15.1	19.4	16.7	17.2
47	Gambia	21.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21.9
48	Georgia	39.1	42.2	55.4	29.6	38.9	46.9	36.8	46.9	46.1	45.0	42.4
49	Ghana	23.3	20.3	20.0	18.4	19.3	20.2	21.1	22.5	21.0	21.2	20.7
50	Guatemala	27.2	24.8	27.4	21.8	18.0	18.3	28.8	25.4	29.3	23.5	24.6
51	Guinea	18.3	18.9	16.8	17.1	18.8	17.3	17.5	17.1	21.3	19.6	18.1
52	Guyana	N/A	N/A	N/A	N/A	15.5	20.1	23.3	24.7	N/A	N/A	20.9
53	Honduras	20.0	17.9	16.4	19.9	17.5	21.0	22.2	15.0	11.2	18.6	17.9
54	Hungary	17.3	14.4	14.7	14.4	N/A	12.8	13.0	14.4	17.3	18.6	14.8
55	India	18.5	19.4	17.9	18.4	18.8	19.3	19.3	19.1	18.4	19.0	18.8

56	Indonesia	21.4	19.6	19.8	19.5	19.9	18.0	18.5	19.5	20.0	19.6	19.6
57	Iran	20.0	19.3	19.3	18.6	18.3	17.7	17.6	17.7	19.1	18.3	18.6
58	Iraq	N/A	23.8	23.4	N/A	24.4	22.4	23.1	22.2	25.0	23.8	23.5
59	Jamaica	N/A	N/A	N/A	N/A	N/A	45.7	N/A	N/A	N/A	N/A	45.7
60	Jordan	19.0	20.5	14.3	15.6	19.6	15.6	17.1	17.4	17.7	17.5	17.4
61	Kazakhstan	20.4	19.0	19.2	18.0	19.2	18.4	18.2	16.2	20.9	17.5	18.8
62	Kenya	23.7	21.9	20.8	23.0	20.9	21.4	19.4	20.2	20.9	21.4	21.4
63	Kiribati	21.1	23.0	N/A	N/A	21.8	N/A	21.5	18.7	23.1	23.4	21.6
64	Kuwait	18.2	22.5	26.7	25.1	16.4	16.8	20.3	13.8	N/A	N/A	20.0
65	Kyrgyzstan	N/A	23.0	21.2	N/A	23.9	21.1	21.5	21.8	21.9	19.4	22.0
66	Laos	22.5	25.0	21.8	27.2	26.1	28.0	23.9	19.1	24.3	30.6	24.2
67	Lebanon	N/A	19.8	25.9	19.3	18.4	20.0	18.8	22.1	21.3	17.9	20.7
68	Lesotho	22.5	22.3	20.1	18.3	20.1	21.4	21.4	22.5	21.7	18.7	21.1
69	Libya	N/A	12.6	8.3	9.6	11.7	23.2	15.4	12.4	14.4	N/A	13.5
70	Madagascar	20.3	23.4	N/A	N/A	N/A	N/A	N/A	15.5	N/A	15.4	19.7
71	Malawi	19.7	21.2	23.7	24.2	19.6	19.6	17.0	18.8	21.5	22.4	20.6
72	Malaysia	20.9	27.0	29.8	30.9	30.3	29.8	24.0	24.7	39.5	36.6	28.5
73	Maldives	20.6	21.2	21.3	20.6	19.7	21.0	20.9	20.4	21.7	21.8	20.8
74	Mali	30.6	27.2	29.1	25.3	28.4	27.4	29.7	26.9	25.1	27.9	27.7
75	Mauritania	N/A	32.6	29.5	25.7	N/A	N/A	N/A	21.5	25.5	N/A	26.9
76	Mauritius	25.1	16.4	20.1	23.6	19.3	23.7	23.9	24.8	23.1	17.1	22.2
77	Mexico	19.0	21.4	18.2	17.6	18.0	16.2	15.5	18.1	19.8	18.5	18.2
78	Moldova	15.6	15.8	15.9	15.6	15.3	13.9	13.6	14.9	14.3	13.7	15.0
79	Mongolia	18.9	17.1	18.3	16.6	15.9	16.1	16.5	16.8	18.0	19.1	17.1
80	Morocco	N/A	N/A	N/A	N/A	20.7	20.7	22.0	20.9	16.8	17.0	20.2
81	Mozambique	20.7	19.5	19.3	19.0	19.6	19.3	19.7	19.4	19.5	18.9	19.6
82	Myanmar	24.7	21.8	24.1	27.7	19.8	22.6	N/A	15.5	16.5	20.9	21.6
83	Namibia	N/A	22.6	22.9	16.0	27.9	34.1	26.7	17.1	24.7	21.4	24.0
84	Nepal	21.1	18.5	13.9	24.2	16.9	19.2	21.5	18.4	21.3	21.7	19.4
85	Nicaragua	21.1	18.4	19.9	18.2	16.4	19.7	23.6	16.0	14.7	N/A	18.7
86	Niger	13.6	14.1	12.2	13.5	12.8	15.8	16.7	15.4	15.7	15.1	14.4

87	Nigeria	28.3	28.1	17.2	34.6	26.2	16.2	14.2	11.5	33.2	10.5	23.3
88	North Macedonia	15.0	10.8	31.0	34.6	21.1	16.6	19.4	19.8	18.5	17.1	20.7
89	Oman	17.2	16.1	16.1	15.1	15.2	15.7	15.2	14.9	16.3	15.9	15.8
90	Pakistan	20.0	21.7	19.6	20.2	21.5	21.5	19.9	21.1	21.8	19.9	20.8
91	Panama	18.5	19.8	20.3	19.8	20.1	20.1	19.1	19.2	19.0	20.3	19.5
92	Papua New Guinea	19.9	18.4	16.6	20.5	13.5	19.8	12.6	13.7	19.0	N/A	17.1
93	Paraguay	N/A	N/A	18.6	16.6	N/A	N/A	N/A	N/A	N/A	N/A	17.6
94	Peru	17.0	13.5	16.8	16.0	15.7	17.4	19.1	18.7	19.4	20.5	17.1
95	Philippines	15.7	14.7	15.4	15.5	14.8	14.2	14.4	14.0	17.2	17.0	15.1
96	Poland	30.1	27.7	26.8	25.9	24.2	26.3	25.6	20.0	22.4	23.7	25.4
97	Qatar	18.5	18.9	18.4	19.3	19.1	19.0	19.3	19.3	19.3	18.6	19.0
98	Romania	N/A	21.4	N/A	13.3	21.1	21.8	17.7	19.8	26.2	28.6	20.2
99	Russia	17.9	18.2	18.3	17.9	18.0	17.0	17.5	17.5	17.4	16.4	17.7
100	Rwanda	21.7	21.1	20.8	19.9	19.9	20.6	20.3	19.8	21.3	21.6	20.6
101	Saint Kitts and Nevis	20.7	18.9	18.2	22.2	24.8	25.0	17.2	17.3	19.1	21.6	20.4
102	Saint Lucia	24.3	23.8	22.7	20.5	23.6	22.2	22.2	23.1	20.8	N/A	22.6
103	Saint Vincent and the Grenadines	19.9	22.1	21.8	13.0	7.9	9.2	12.2	10.9	14.3	13.9	14.6
104	Samoa	23.3	21.2	21.6	20.0	21.9	19.3	20.7	18.3	21.3	20.9	20.8
105	Sao Tome and Principe	11.8	13.0	17.4	24.5	23.9	26.2	16.0	17.2	21.4	18.7	19.0
106	Saudi Arabia	27.7	24.4	22.4	22.3	22.9	23.4	23.8	25.3	19.5	21.2	23.5
107	Senegal	24.1	24.2	22.9	22.3	21.8	20.8	20.6	21.0	21.3	20.6	22.1
108	Seychelles	22.5	22.4	24.7	23.2	27.4	23.0	21.1	19.1	18.0	18.4	22.4
109	Sierra Leone	N/A	12.1	18.9	21.3	18.4	14.7	12.0	20.4	17.2	12.0	16.9
110	Solomon Islands	N/A	N/A	N/A	N/A	N/A	21.2	40.6	79.4	29.3	22.4	42.6
111	South Africa	27.4	N/A	29.1	11.8	20.9	17.7	23.4	25.9	22.7	25.3	22.4
112	Sri Lanka	21.6	18.8	19.0	19.7	18.8	17.9	18.3	18.8	20.7	21.5	19.3
113	Suriname	20.2	19.9	18.3	19.1	13.7	16.4	16.5	16.9	18.5	N/A	17.7

114	Swaziland	30.0	21.4	21.8	22.9	22.4	22.3	26.0	19.3	33.6	31.9	24.4
115	Syria	23.5	19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21.5
116	Tanzania	30.4	25.7	25.3	20.3	24.1	26.4	26.3	26.2	19.1	23.7	24.8
117	Thailand	20.2	20.4	19.2	18.5	17.3	17.1	17.7	17.8	20.4	18.7	18.7
118	Timor-Leste	N/A	N/A	N/A	N/A	24.5	N/A	N/A	N/A	20.8	N/A	22.7
119	Togo	27.4	24.7	18.9	59.4	53.4	42.4	15.1	8.8	11.1	8.0	29.0
120	Tonga	22.5	19.8	25.8	19.9	17.9	18.4	N/A	N/A	N/A	N/A	20.7
121	Trinidad and Tobago	31.3	25.4	22.8	24.5	23.8	25.0	20.6	N/A	N/A	N/A	24.8
122	Tunisia	20.8	21.1	20.8	20.9	20.5	21.4	20.7	20.1	21.0	19.6	20.8
123	Turkey	18.8	18.0	17.1	17.4	17.3	17.1	17.4	17.7	18.9	18.2	17.8
124	Uganda	25.9	25.0	25.3	25.8	23.3	21.3	21.5	17.9	22.9	21.8	23.2
125	Ukraine	21.4	21.1	18.9	19.9	19.4	18.2	18.8	18.5	20.4	20.8	19.6
126	UAE	N/A	N/A	N/A	20.8	22.5	22.9	23.9	21.4	21.5	17.9	22.2
127	Uruguay	21.6	20.9	19.9	20.8	21.8	20.6	20.7	22.3	22.6	24.0	21.2
128	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21.2	17.7	21.2
129	Vanuatu	22.7	19.7	15.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19.4
130	Venezuela	23.7	23.7	27.6	25.1	21.6	N/A	N/A	N/A	N/A	N/A	24.4
131	Vietnam	17.6	17.5	17.6	13.9	15.5	16.0	15.5	15.6	17.6	16.0	16.3
132	Yemen	20.4	21.7	29.3	21.7	19.4	18.9	18.5	N/A	N/A	10.2	21.4
133	Zambia	21.6	19.2	19.5	24.8	35.8	19.5	16.1	25.8	24.9	26.0	23.0
134	Zimbabwe	28.6	16.4	24.6	12.8	17.1	37.7	45.3	32.2	18.3	8.0	25.9

TABLE D

*The Countries with the Top Ten Largest Value Gaps Identified in Trade Between 134 Developing Countries and 36 Advanced Economies, 2009-2018 as a Percent of Total Trade**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Georgia	Georgia	Georgia	Togo	Togo	Georgia	Zimbabwe	Solomon Islands	Georgia	Georgia	Jamaica
2	Djibouti	Mauritania	Ethiopia	Benin	Georgia	Jamaica	Solomon Islands	Georgia	Comoros	Malaysia	Solomon Islands
3	Azerbaijan	Comoros	North Macedonia	Nigeria	Zambia	Togo	Georgia	Comoros	Malaysia	Swaziland	Georgia
4	Benin	Nigeria	Malaysia	North Macedonia	Malaysia	Zimbabwe	Comoros	Zimbabwe	Swaziland	Laos	Djibouti
5	Congo	Poland	Mauritania	Burundi	Bahamas	Antigua and Barbuda	Mali	Cameroon	Nigeria	Belize	Comoros
6	Trinidad and Tobago	Mali	Yemen	Comoros	Mali	Burundi	Guatemala	Mali	Guatemala	Romania	Togo
7	Comoros	Malaysia	South Africa	Malaysia	Namibia	Namibia	Bahamas	Tanzania	Solomon Islands	Mali	Malaysia
8	Mali	Azerbaijan	Mali	Azerbaijan	Comoros	Central African Republic	Botswana	South Africa	Cameroon	Botswana	Mali
9	Tanzania	Tanzania	Afghanistan	Georgia	Seychelles	Bahamas	Afghanistan	Zambia	Burundi	Azerbaijan	Mauritania
10	Poland	Trinidad and Tobago	Venezuela	Central African Republic	Burundi	Ethiopia	Namibia	Ethiopia	Romania	Zambia	Zimbabwe

*Only includes countries for which there was data for at least 5 of the 10 years examined.

TABLE E

The Sums of the Value Gaps Identified in Trade Between 134 Developing Countries and All of their Global Trading Partners, 2009-2018 in USD Millions

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Afghanistan	60	159	391	43	19	51	250	176	N/A	485	182
2	Albania	755	934	1,075	1,037	1,011	807	864	960	711	883	904
3	Algeria	8,643	9,829	9,586	9,649	11,324	11,599	9,534	7,612	8,204	N/A	9,553
4	Angola	1,539	1,656	1,328	1,697	2,962	2,309	2,808	1,975	1,651	2,072	2,000
5	Antigua and Barbuda	47	38	30	29	69	68	36	35	65	51	47
6	Argentina	11,801	14,479	17,351	15,132	16,643	13,454	12,703	11,718	13,885	13,093	14,026
7	Armenia	383	461	461	437	477	471	451	547	676	737	510

8	Aruba	108	108	111	99	127	116	92	79	69	79	99
9	Azerbaijan	2,778	3,226	4,032	5,700	4,230	4,329	3,030	1,979	3,453	4,923	3,768
10	Bahamas	526	537	804	831	1,028	990	820	469	507	395	690
11	Bahrain	1,389	1,414	1,900	2,295	2,837	3,406	2,598	2,399	2,694	3,208	2,414
12	Bangladesh	5,212	6,840	8,734	7,647	9,348	N/A	11,871	N/A	N/A	N/A	8,275
13	Barbados	224	200	240	304	299	223	218	141	146	160	216
14	Belarus	2,708	3,476	4,138	9,567	9,701	6,770	5,590	5,370	6,222	6,543	6,008
15	Belize	107	128	106	92	88	87	130	83	121	181	112
16	Benin	832	677	719	878	946	792	828	548	857	935	801
17	Bhutan	77	117	154	132	N/A	N/A	N/A	N/A	N/A	N/A	120
18	Bolivia	1,130	1,590	1,813	2,174	2,486	2,103	2,067	1,801	1,926	1,986	1,908
19	Bosnia and Herzegovina	1,471	1,589	1,889	1,335	1,851	2,069	1,686	1,756	1,896	2,303	1,784
20	Botswana	379	676	1,230	838	658	1,163	899	744	557	1,617	876
21	Brazil	34,562	47,358	54,956	51,777	54,670	48,908	40,532	34,797	42,038	45,534	45,513
22	Brunei Darussalam	996	637	1,377	1,428	1,281	1,244	1,448	952	1,069	1,248	1,168
23	Bulgaria	5,356	5,981	6,878	6,861	7,829	8,317	7,259	7,729	8,367	9,516	7,409
24	Burkina Faso	295	290	529	544	820	790	470	608	554	541	544
25	Burundi	42	50	60	89	121	102	70	78	99	116	83
26	Cape Verde	93	116	144	119	100	67	75	84	79	103	98
27	Cambodia	1,235	1,793	2,373	2,348	3,042	2,976	3,402	4,581	3,738	4,887	3,037
28	Cameroon	891	1,037	1,066	1,310	1,722	2,019	1,788	1,388	1,632	N/A	1,428
29	Central African Republic	18	20	14	18	13	26	22	11	22	20	18
30	Chile	5,425	13,705	15,419	15,278	15,990	14,257	12,936	13,494	15,951	17,969	14,042
31	China	2,90,692	3,90,278	4,60,468	4,55,205	4,86,531	4,71,287	4,71,958	4,37,854	4,42,869	5,46,353	4,45,350
32	Colombia	7,095	8,559	11,285	11,675	11,506	10,303	10,061	8,423	10,001	11,397	10,030
33	Comoros	16	20	18	13	9	28	30	69	41	45	29
34	Congo	1,529	1,324	1,687	1,595	1,062	1,062	1,050	520	572	880	1,128
35	Costa Rica	3,109	3,039	3,702	3,737	3,662	3,582	3,214	3,103	3,906	3,808	3,486
36	Cote d'Ivoire	2,377	2,389	2,530	2,684	2,345	2,607	2,758	2,694	3,827	3,687	2,790
37	Croatia	4,129	4,241	4,959	4,439	4,896	4,988	4,619	4,778	3,020	6,364	4,643

38	Djibouti	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50
39	Dominica	33	22	N/A	18	N/A	N/A	N/A	N/A	N/A	N/A	24
40	Dominican Republic	1,756	2,306	2,853	2,665	2,698	3,074	2,902	2,671	3,543	4,138	2,860
41	Ecuador	2,951	3,982	4,736	3,811	5,176	5,652	4,546	3,767	4,950	5,745	4,532
42	Egypt	8,278	11,133	12,643	9,452	11,450	14,156	12,906	11,117	12,376	14,646	11,816
43	El Salvador	1,212	1,341	1,626	1,644	1,891	1,792	1,760	1,632	1,967	2,261	1,713
44	Ethiopia	718	785	809	1,122	1,339	1,685	1,888	1,796	1,977	1,659	1,378
45	Fiji	233	195	243	245	406	525	430	326	392	433	343
46	Gabon	790	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	790
47	Gambia	42	70	97	150	62	87	109	50	123	53	84
48	Georgia	745	980	1,325	1,501	1,661	1,631	1,426	1,423	1,462	1,605	1,376
49	Ghana	1,926	2,118	4,223	4,533	4,870	3,839	4,117	4,393	4,419	4,935	3,937
50	Guatemala	2,541	2,901	3,308	3,339	3,425	3,458	3,649	3,313	3,827	3,820	3,358
51	Guinea	N/A	N/A	N/A	N/A	553	626	555	667	N/A	N/A	600
52	Guyana	255	296	354	457	410	361	346	271	210	375	333
53	Honduras	1,256	1,403	1,720	1,927	N/A	1,612	1,624	1,616	2,016	2,574	1,750
54	Hungary	18,629	22,155	25,181	26,683	28,145	30,335	28,423	29,521	31,340	35,875	27,629
55	India	47,086	52,248	72,346	68,520	74,721	68,145	67,089	65,969	73,959	84,854	67,494
56	Indonesia	24,124	37,546	44,626	44,449	44,776	42,818	36,582	36,457	42,684	48,273	40,233
57	Iran	N/A	10,500	11,506	N/A	9,827	11,223	9,837	10,458	11,214	9,899	10,558
58	Iraq	N/A	N/A	N/A	N/A	N/A	874	N/A	N/A	N/A	N/A	874
59	Jamaica	689	829	792	740	841	702	674	628	743	890	753
60	Jordan	2,095	2,570	2,947	2,656	3,895	4,128	3,640	3,164	3,465	3,057	3,162
61	Kazakhstan	6,609	5,616	7,278	12,087	10,698	10,007	8,110	7,315	8,256	9,099	8,508
62	Kenya	2,059	2,720	N/A	N/A	3,592	N/A	4,120	4,192	4,072	4,487	3,606
63	Kiribati	4	5	2	4	3	8	5	4	N/A	N/A	4
64	Kuwait	N/A	4,436	4,356	N/A	6,338	6,137	5,941	5,278	6,302	6,767	5,694
65	Kyrgyzstan	674	800	1,053	1,303	1,423	1,508	1,487	1,727	1,917	1,895	1,379
66	Laos	N/A	423	757	433	789	824	921	871	1,133	1,503	851
67	Lebanon	2,750	3,096	3,122	2,720	3,870	3,921	3,506	3,449	3,751	3,448	3,363
68	Lesotho	0	221	359	263	274	274	211	276	410	N/A	254

69	Libya	2,529	3,750	N/A	N/A	N/A	N/A	N/A	1,242	N/A	1,971	2,373
70	Madagascar	581	507	641	516	660	793	717	806	1,276	1,268	776
71	Malawi	415	381	504	511	521	486	459	465	567	579	489
72	Malaysia	41,236	56,233	64,419	65,623	67,680	63,704	61,561	54,436	61,280	71,366	60,754
73	Maldives	82	128	208	184	219	240	276	315	298	417	237
74	Mali	N/A	570	537	501	N/A	N/A	N/A	1,152	738	N/A	699
75	Mauritania	54	368	586	767	476	435	350	402	473	476	439
76	Mauritius	1,015	1,001	976	935	1,310	1,065	908	990	1,073	1,096	1,037
77	Mexico	48,364	58,020	67,719	68,909	68,804	29,637	29,340	32,844	32,938	35,877	47,245
78	Moldova	606	708	920	885	985	991	820	893	1,096	1,310	921
79	Mongolia	N/A	N/A	N/A	N/A	1,194	949	882	971	1,085	1,166	1,041
80	Morocco	6,515	6,970	8,503	7,886	8,871	8,849	9,041	9,297	10,570	11,728	8,823
81	Mozambique	532	545	1,310	1,222	1,309	1,792	N/A	659	451	892	968
82	Myanmar	N/A	1,320	1,640	1,460	2,270	4,923	4,717	4,093	5,092	6,049	3,507
83	Namibia	419	1,171	1,446	1,311	1,169	1,212	1,338	822	1,156	708	1,075
84	Nepal	654	723	924	1,184	1,105	1,240	982	1,195	1,208	N/A	1,024
85	Nicaragua	552	698	849	980	984	1,222	1,277	1,343	1,580	1,583	1,107
86	Niger	188	340	132	213	329	234	224	156	133	187	214
87	Nigeria	4,558	5,421	12,545	11,326	9,531	6,203	6,782	4,126	5,117	5,047	7,065
88	North Macedonia	856	1,027	1,338	1,193	1,337	1,494	1,342	1,429	1,033	1,911	1,296
89	Oman	2,529	3,222	4,760	4,094	6,642	5,562	5,097	5,327	5,564	5,417	4,821
90	Pakistan	5,666	7,405	8,641	6,837	9,141	9,164	9,121	9,681	9,426	10,357	8,544
91	Panama	2,525	2,891	3,476	2,802	2,266	2,341	1,998	1,853	2,880	N/A	2,559
92	Papua New Guinea	N/A	N/A	1,329	933	N/A	N/A	N/A	N/A	N/A	N/A	1,131
93	Paraguay	1,104	1,594	2,228	1,791	2,097	2,141	1,853	1,792	2,317	2,305	1,922
94	Peru	5,908	7,856	9,248	9,404	9,687	8,578	7,932	7,444	9,345	10,792	8,619
95	Philippines	18,085	20,253	21,886	23,624	22,830	24,898	24,813	21,969	28,830	31,567	23,876
96	Poland	40,447	49,525	58,083	56,885	63,101	65,839	60,867	63,852	71,611	81,210	61,142
97	Qatar	N/A	3,887	N/A	890	6,147	5,139	4,373	3,344	4,720	4,547	4,131
98	Romania	12,572	14,960	19,054	17,235	18,775	19,685	18,026	18,994	21,219	23,679	18,420

99	Russia	43,247	55,831	70,982	77,114	79,873	73,399	53,155	49,955	62,751	70,294	63,660
100	Rwanda	92	109	110	162	205	179	215	214	231	335	185
101	Saint Kitts and Nevis	33	34	27	23	28	29	32	28	26	N/A	29
102	Saint Lucia	47	56	55	100	67	75	65	45	61	71	64
103	Saint Vincent and the Grenadines	42	43	41	35	33	103	31	22	20	21	39
104	Samoa	15	27	30	17	25	32	29	35	36	44	29
105	Sao Tome and Principe	14	13	15	14	17	20	16	17	13	15	15
106	Saudi Arabia	17,254	21,807	25,969	28,446	29,139	31,616	29,490	25,289	26,012	26,764	26,178
107	Senegal	856	1,058	1,405	1,416	1,472	1,540	1,368	1,548	2,002	1,842	1,451
108	Seychelles	N/A	59	97	127	141	106	102	159	143	124	118
109	Sierra Leone	N/A	N/A	N/A	N/A	N/A	101	114	236	133	109	138
110	Solomon Islands	20	N/A	34	23	13	19	47	48	137	137	53
111	South Africa	17,451	16,841	21,710	19,730	20,493	23,630	17,436	20,311	24,608	22,142	20,435
112	Sri Lanka	2,650	3,464	4,398	4,208	3,345	4,622	4,855	4,265	5,026	N/A	4,093
113	Suriname	145	197	295	337	365	250	280	190	433	524	302
114	Swaziland	49	289	646	325	344	253	232	173	171	193	267
115	Syrua	3,605	3,802	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,703
116	Tanzania	1,384	1,714	1,896	1,983	2,331	3,580	3,034	3,159	2,241	2,558	2,388
117	Thailand	44,566	55,495	64,969	63,664	64,448	62,111	57,538	56,388	65,769	69,855	60,480
118	Timor-Leste	N/A	N/A	N/A	N/A	67	N/A	N/A	N/A	78	N/A	72
119	Togo	365	292	646	1,659	1,379	1,302	1,103	1,209	1,361	1,167	1,048
120	Tonga	13	12	21	12	11	14	N/A	N/A	N/A	N/A	14
121	Trinidad and Tobago	2,703	2,234	3,409	2,898	2,814	2,887	2,028	N/A	N/A	N/A	2,710
122	Tunisia	5,599	6,421	6,604	6,416	6,522	6,710	5,409	5,283	5,497	5,579	6,004
123	Turkey	30,978	38,551	45,287	42,277	46,942	47,883	44,211	44,530	50,831	50,690	44,218
124	Uganda	638	634	686	721	839	764	862	839	819	1,018	782
125	Ukraine	11,236	13,517	17,826	16,888	16,651	13,120	9,825	10,186	13,283	14,670	13,720
126	United Arab Emirates	N/A	N/A	N/A	34,514	30,398	34,566	31,822	34,206	38,883	36,381	34,396

127	Uruguay	1,696	2,139	2,613	2,884	2,691	2,694	2,121	2,088	2,397	2,505	2,383
128	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,801	3,348	3,074
129	Vanuatu	33	26	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29
130	Venezuela	5,403	5,863	8,010	7,911	6,716	N/A	N/A	N/A	N/A	N/A	6,781
131	Vietnam	18,073	23,365	30,156	8,101	33,593	37,570	38,122	44,620	53,315	56,309	34,322
132	Yemen	1,098	1,504	1,894	2,042	2,067	1,799	754	N/A	N/A	86	1,406
133	Zambia	686	854	1,123	1,705	2,019	1,652	1,064	1,434	1,324	1,448	1,331
134	Zimbabwe	614	751	1,409	979	1,450	937	799	720	683	788	913
Total		934,130	1,208,137	1,438,112	1,426,587	1,550,775	1,465,151	1,386,227	1,320,995	1,452,093	1,626,939	1,380,915

TABLE F

The Top Ten Value Gaps Identified in Trade Between 134 Developing Countries and All of their Trading Partners, 2009-2018 Ranked by Size, in USD Millions

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	China	China	China	China	China	China	China	China	China	China	China
2	Mexico	Mexico	India	Russia	Russia	Russia	India	India	India	India	India
3	India	Malaysia	Russia	Mexico	India	India	Malaysia	Poland	Poland	Poland	Russia
4	Thailand	Russia	Mexico	India	Mexico	Poland	Poland	Thailand	Thailand	Malaysia	Poland
5	Russia	Thailand	Thailand	Malaysia	Malaysia	Malaysia	Thailand	Malaysia	Russia	Russia	Malaysia
6	Malaysia	India	Malaysia	Thailand	Thailand	Thailand	Russia	Russia	Malaysia	Thailand	Thailand
7	Poland	Poland	Poland	Poland	Poland	Brazil	Turkey	Vietnam	Vietnam	Vietnam	Mexico
8	Brazil	Brazil	Brazil	Brazil	Brazil	Turkey	Brazil	Turkey	Turkey	Turkey	Brazil
9	Turkey	Turkey	Turkey	Indonesia	Turkey	Indonesia	Vietnam	Indonesia	Indonesia	Indonesia	Turkey
10	Indonesia	Indonesia	Indonesia	Turkey	Indonesia	Vietnam	Indonesia	Brazil	Brazil	Brazil	Indonesia

TABLE G*The Total Value Gaps Identified in Trade Between 134 Developing Countries and All of their Trading Partners, 2009-2018 as a Percent of Total Trade*

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Afghanistan	11.7	13.6	19.6	26.0	7.6	21.7	22.3	15.3	N/A	22.9	17.9
2	Albania	18.2	19.7	19.3	19.4	17.6	21.2	20.4	20.3	21.3	19.9	19.7
3	Algeria	21.2	22.2	19.8	18.3	18.7	18.7	20.3	18.8	20.1	N/A	19.8
4	Angola	19.4	19.5	18.0	19.3	20.2	18.0	21.7	21.5	16.4	15.5	19.0
5	Antigua and Barbuda	22.2	23.5	20.4	18.1	18.4	30.2	8.8	16.5	23.5	17.9	19.9
6	Argentina	15.6	14.3	14.3	13.7	14.7	14.0	14.7	13.9	16.0	16.2	14.7
7	Armenia	21.4	21.1	18.7	17.9	16.4	16.1	18.0	20.1	20.0	18.1	18.8
8	Aruba	18.2	19.3	17.3	16.4	15.9	14.2	16.9	18.2	15.6	17.2	16.9
9	Azerbaijan	24.3	24.5	25.8	27.5	21.6	23.3	26.2	18.8	24.4	26.1	24.2
10	Bahamas	24.2	23.4	23.4	26.9	30.0	30.9	25.9	21.0	17.9	16.7	24
11	Bahrain	22.5	18.0	21.4	18.3	19.1	20.3	20.4	19.5	19.2	20.3	19.9
12	Bangladesh	18.0	17.2	17.2	16.0	17.6	N/A	18.0	N/A	N/A	N/A	17.3
13	Barbados	21.6	19.2	17.1	23.8	20.4	16.9	20.6	17.5	18.7	20.6	19.6
14	Belarus	18.3	18.2	15.3	21.2	20.0	16.8	17.9	16.7	16.0	14.8	17.5
15	Belize	21.2	19.3	14.6	16.1	16.1	16.4	19.7	18.2	20.6	25.9	18.8
16	Benin	33.6	20.9	16.3	27.6	22.9	16.2	22.7	19.3	21.9	25.9	22.7
17	Bhutan	22.7	25.1	24.3	27.2	N/A	N/A	N/A	N/A	N/A	N/A	24.8
18	Bolivia	21.1	20.8	19.2	19.2	20	16.3	19.1	17.3	18.3	17.8	18.9
19	Bosnia and Herzegovina	16.7	15.7	15.4	14.5	15.3	16.2	15.7	16.0	15.9	16.3	15.7
20	Botswana	17.6	16.4	19.9	19.7	16.0	21.3	21.2	17.1	14.7	17.4	18.1
21	Brazil	17.1	17.7	17.2	16.7	17.2	16.7	16.7	15.9	19.1	19.3	17.3
22	Brunei Darussalam	20.2	11.5	14.2	14.9	12.7	11.6	19.3	17.7	17.6	14.4	15.4
23	Bulgaria	19.2	18.3	16.4	16.6	16.9	17.1	17.4	18.1	17.2	17.4	17.5
24	Burkina Faso	25.1	22.9	32	20.1	24.4	22.8	19.5	21.9	18.3	17.4	22.4
25	Burundi	28.0	24.2	21.7	32.3	26.4	25.1	20.3	20.6	26.1	25.6	25.0
26	Cabo Verde	21.4	24.3	22.9	25.2	20.4	16.7	20.8	19.4	18.6	19.7	21.0

27	Cambodia	19.7	22.3	21.7	20.2	20.6	18.5	17.4	19.4	15.0	16.2	19.1
28	Cameroon	25.0	18.9	21.5	17.4	19.7	20.3	23.0	25.9	25.1	N/A	21.9
29	Central African Republic	19.3	17.3	4.9	22.3	17.8	29.1	24.4	20.0	16.9	19.1	19.1
30	Chile	7.8	14.5	14.0	14.4	15.1	14.8	14.6	16.2	17.7	17.9	14.7
31	China	20.7	21.4	21.4	21.7	22.0	21.1	21.7	21.1	22.0	22.0	21.5
32	Colombia	17.3	17.0	16.3	17.1	16.6	16.4	18.2	17.7	19.3	19.7	17.6
33	Comoros	22.8	24.3	19.0	27.1	25.9	23.8	19.5	35.0	26.3	26.2	25.0
34	Congo	30.2	24.0	22.8	27.1	20.8	24.9	29.0	22.4	23.0	29.2	25.3
35	Costa Rica	26.7	19.2	19.6	22.5	19.4	18.7	18.1	17.8	20.4	20.3	20.3
36	Cote d'Ivoire	24.1	21.1	18.5	20.9	18.4	18.8	18.9	18.9	23.1	22.9	20.6
37	Croatia	18.2	18.0	17.3	17.1	17.9	16.7	17.1	16.6	12.1	17.0	16.8
38	Djibouti	29.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29.1
39	Dominica	25.2	17.5	N/A	15.8	N/A	N/A	N/A	N/A	N/A	N/A	19.5
40	Dominican Republic	17.1	17.9	19	17.3	16.4	17.4	17.4	17.1	18.3	20.4	17.8
41	Ecuador	15.3	16.6	17.0	16.6	18.0	18.0	17.0	17.1	19.6	19.6	17.5
42	Egypt	18.8	19.6	19.8	18.2	19.9	20	19.5	18.4	22.3	20.5	19.7
43	El Salvador	14.8	14.3	14.4	15.2	16.9	15.4	14.9	14.2	15.6	16.8	15.2
44	Ethiopia	20.7	20.7	17.8	17.8	21.1	20.2	21.5	20.3	23.6	21.8	20.6
45	Fiji	18.0	14.8	14.7	20.4	16.3	21.2	22.1	17.4	20.2	17.8	18.3
46	Gabon	24.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24.4
47	Gambia	53.2	47.7	64.5	65.6	44.1	46.5	43.9	37.9	57.3	58.1	51.9
48	Georgia	19.8	19.2	19.2	18.9	19.3	19.0	19.5	19.0	19.1	18.1	19.1
49	Ghana	30.3	26.2	27.3	24.3	25.6	18.1	26.3	29.2	28.2	28.8	26.4
50	Guatemala	17.7	17.1	15.7	16.1	16.8	15.9	16.7	16.3	18.3	17.3	16.8
51	Guinea	N/A	N/A	N/A	N/A	18.8	21.9	25.6	27.9	N/A	N/A	23.5
52	Guyana	20.5	17.8	17.1	21.8	20.1	18.9	21.8	16.8	12.8	20.5	18.8
53	Honduras	17.7	15.2	14.8	16.0	N/A	13.9	13.8	14.7	16.3	18.6	15.7
54	Hungary	18	18.6	17.5	18.1	18.2	18.8	18.9	18.9	18.4	19.1	18.5
55	India	21.1	20.3	20.2	20.4	20.2	18.4	19.1	19.7	19.5	19.6	19.8
56	Indonesia	20.3	19.1	19.0	19.0	18.5	18.2	17.9	18.1	19.5	18.9	18.8

57	Iran	N/A	25.6	24.5	N/A	22.7	21.8	23.6	23.9	22.3	22.5	23.4
58	Iraq	N/A	N/A	N/A	N/A	N/A	18.6	N/A	N/A	N/A	N/A	18.6
59	Jamaica	18.9	20.7	15.9	16.1	19.0	15.9	18.8	19.0	20.1	19.7	18.4
60	Jordan	19.6	20.9	20.9	21.3	21.4	20.5	20.9	19.2	21.2	19.2	20.5
61	Kazakhstan	18.9	19.1	19.1	20.2	19.2	19.1	20.4	20.9	20.0	19.1	19.6
62	Kenya	21.5	23.6	N/A	N/A	21.6	N/A	23.1	24.5	23.6	24.1	23.1
63	Kiribati	20.5	16.8	7.4	19.1	18.0	15.0	14.7	12.0	N/A	N/A	15.4
64	Kuwait	N/A	23.1	21.8	N/A	22.4	21.3	21.5	20.7	21.9	21.7	21.8
65	Kyrgyzstan	17.1	17.9	19.0	20.1	20.4	22.4	26.2	29.9	28.1	26.3	22.8
66	Laos	N/A	15.1	20.4	12.5	16.2	14.2	17.9	19.5	14.6	16.9	16.4
67	Lebanon	22.7	21.6	20.2	19.2	21.1	21.9	22.1	22.6	22.2	19.7	21.3
68	Lesotho	12.4	17.8	21.2	17.0	16.6	18.4	13.0	14.7	19.1	N/A	16.7
69	Libya	19.8	23.1	N/A	N/A	N/A	N/A	N/A	13.6	N/A	13.2	17.4
70	Madagascar	21.3	23.1	24.0	23.4	19.8	19.3	19.2	20.0	24.1	22.8	21.7
71	Malawi	22.9	21.8	26.0	28.4	24.8	28.2	24.9	24.8	27.7	28.5	25.8
72	Malaysia	20.0	20.8	20.8	21.3	21.0	20.3	21.1	20.3	21.5	21.5	20.8
73	Maldives	24.3	23.8	25.7	22.9	25.0	23.1	24.8	24.6	22.0	24.0	24.0
74	Mali	N/A	27.4	24.8	16.4	N/A	N/A	N/A	30.5	22.2	N/A	24.3
75	Mauritania	28.3	30.4	34.7	24.8	19.6	21.4	23.4	24.1	27.6	22.2	25.7
76	Mauritius	24.7	21.9	16.9	19.3	22.4	16.8	17.7	19.1	19.2	18.9	19.7
77	Mexico	16.5	16.7	16.7	16.4	15.9	14.9	14.5	15.5	15.4	15.5	15.8
78	Moldova	16.5	16.9	16.6	17.1	16.9	17.2	16.9	17.9	18.8	19.1	17.4
79	Mongolia	N/A	N/A	N/A	N/A	16.8	17.3	20.3	18.6	17.3	14.6	17.5
80	Morocco	20.9	19.7	18.9	18.5	19.7	19.1	19.8	19.2	19.7	19.5	19.5
81	Mozambique	16.3	17.2	23.3	23.9	17.6	21.6	N/A	19.3	14.8	22.4	19.6
82	Myanmar	N/A	21.0	18.7	16.9	18.8	25.3	24.2	20.0	23.8	24.4	21.4
83	Namibia	20.4	18.2	19.6	19.6	18.4	17.4	21.9	16.7	19.6	14.4	18.6
84	Nepal	26.1	20.4	21.1	23.4	19.8	17.8	18.7	18.5	15.9	N/A	20.2
85	Nicaragua	15.6	15.6	14.1	14.5	14.5	15.5	15.5	14.9	16.3	16.3	15.3
86	Niger	26.6	42.2	19.4	27.9	22.8	23.2	21.4	17.6	16.4	16.6	23.4
87	Nigeria	16.9	15.1	27.9	27.6	22.9	16.3	19.8	17.9	18.3	18.9	20.2

116	Tanzania	27.0	25.7	23.3	19.7	22.3	32.8	28.1	30.9	23.2	26.3	25.9
117	Thailand	20.5	20.4	20.2	19.6	19.4	19.0	19.4	19.1	20.4	19.3	19.7
118	Timor-Leste	N/A	N/A	N/A	N/A	22.9	N/A	N/A	N/A	24.2	N/A	23.6
119	Togo	23.0	18.6	21.1	41.3	38.4	34.8	29.5	30.0	33.6	22.3	29.2
120	Tonga	21.0	17.1	20.2	19.1	16.7	14.4	N/A	N/A	N/A	N/A	18.1
121	Trinidad and Tobago	28.4	22.9	23.2	23.3	25.4	23.5	21.0	N/A	N/A	N/A	24.0
122	Tunisia	21.1	20.9	20.5	21.1	20.7	21.2	20.3	20.1	20.7	20.0	20.7
123	Turkey	19.8	19.0	18.0	18.1	18.1	18.0	18.2	18.6	19.6	18.5	18.6
124	Uganda	24.2	21.7	22.8	22.2	20.1	20.5	19.7	19.8	18.3	20.4	21.0
125	Ukraine	19.4	17.7	16.4	16.9	17.1	16.7	17.4	17.4	20.1	20.0	17.9
126	UAE	N/A	N/A	N/A	20.4	21.9	23.0	23.1	22.1	21.5	19.2	21.6
127	Uruguay	17.3	16.6	16.3	16.8	15.7	16.9	16.4	17.3	18.6	18.5	17.0
128	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22.4	19.4	20.9
129	Vanuatu	22.5	18.3	17.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19.4
130	Venezuela	20.5	23.3	24.2	23.4	23.4	N/A	N/A	N/A	N/A	N/A	23.0
131	Vietnam	17.4	18.1	18.0	16.5	15.8	15.8	16.2	16.7	17.7	16.4	16.9
132	Yemen	20.4	23.9	25.3	22.6	21.5	19.8	21.6	N/A	N/A	13.4	21.1
133	Zambia	20.1	20.8	21.9	25.5	25.5	24.0	19.6	20.6	24.1	22.9	22.5
134	Zimbabwe	22.6	20.2	25.1	19.5	27.5	21.2	19.4	18.1	17.7	16.5	20.8

TABLE H

*The Countries with the Ten Largest Value Gaps Identified in Trade Between 134 Developing Countries and All of their Trading Partners, 2009-2018 as a Percent of Total Trade**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Gambia	Sierra Leone	Gambia	Gambia	Gambia
2	Benin	Niger	Mauritania	Togo	Togo	St Vincent & Grenadines	Sierra Leone	Gambia	Togo	Suriname	Sierra Leone
3	Ghana	Mauritania	Burkina Faso	Burundi	Bahamas	Togo	Togo	Comoros	Sierra Leone	Congo	Togo
4	Congo	Mali	Swaziland	Malawi	Zimbabwe	Tanzania	Congo	Tanzania	Suriname	Ghana	Ghana
5	Philippines	Philippines	Solomon Islands	Philippines	Suriname	Bahamas	Tanzania	Mali	Ghana	Malawi	Philippines
6	Trinidad & Tobago	Ghana	Nigeria	Niger	Burundi	Antigua & Barbuda	Philippines	Togo	Kyrgyzstan	Kyrgyzstan	Tanzania
7	Mauritania	Tanzania	Philippines	Nigeria	Philippines	C.A.R.	Ghana	Kyrgyzstan	Malawi	Tanzania	Malawi
8	Burundi	Iran	Ghana	Benin	Comoros	Malawi	Kyrgyzstan	Ghana	Mauritania	Comoros	Mauritania
9	Sao Tome & Principe	Azerbaijan	Malawi	Azerbaijan	Ghana	Philippines	Azerbaijan	Cameron	Comoros	Azerbaijan	Congo
10	Suriname	Sao Tome & Principe	Azerbaijan	Comoros	Zambia	Myanmar	Bahamas	Sao Tome & Principe	Burundi	Benin	Burundi

*Only includes countries for which there was data for at least 5 of the 10 years examined.

TABLE I

The Countries with Total Value Gaps Identified in Trade with the 36 Advanced Economies as a Percent of Total Value Gaps in Trade with All Global Trading Partners, in 2018 and Average over 2009-2018, ranked by 2018 Averages

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Aruba	75	73	84	87	81	86	92	91	100	100	87
2	Cabo Verde	99	100	100	95	100	99	98	98	100	100	99
3	Sao Tome and Principe	100	100	100	100	97	100	100	97	97	94	98
4	Bahamas	97	98	98	98	99	98	95	98	96	93	97
5	Antigua and Barbuda	81	73	81	80	41	90	79	77	92	91	78
6	Saint Lucia	70	69	65	33	57	51	63	80	84	82	65
7	Poland	80	80	78	77	77	78	79	78	78	77	78

8	Saint Vincent and the Grenadines	45	41	43	44	54	14	50	67	73	76	51
9	Barbados	54	71	50	34	37	50	62	74	74	74	58
10	Hungary	76	77	75	72	74	75	76	76	75	74	75
11	Tunisia	76	79	78	75	77	76	77	73	75	74	76
12	Belize	73	65	66	59	60	71	56	64	54	72	64
13	Mexico	76	75	74	74	74	77	76	78	76	71	75
14	Dominican Republic	70	68	66	67	67	71	67	68	71	70	68
15	Morocco	73	70	69	68	68	70	69	71	71	70	70
16	Albania	74	67	69	68	67	73	69	67	70	69	69
17	North Macedonia	58	56	57	61	61	65	64	63	68	68	62
18	Suriname	76	57	42	45	40	62	52	77	86	68	60
19	Romania	68	68	67	66	69	67	68	69	69	67	68
20	Costa Rica	66	58	60	65	65	67	63	61	66	66	64
21	Croatia	68	67	61	64	64	62	65	69	67	66	65
22	Jamaica	65	61	56	58	59	64	60	62	64	65	61
23	Fiji	83	73	70	73	71	61	71	58	65	64	69
24	Samoa	90	78	83	93	89	90	65	56	72	64	78
25	Central African Republic	68	69	88	86	65	85	62	72	48	60	70
26	Libya	53	66	N/A	N/A	N/A	N/A	N/A	62	N/A	60	60
27	Honduras	55	55	60	54	N/A	57	57	56	61	59	57
28	Qatar	N/A	53	N/A	10	44	46	51	47	55	59	45
29	Turkey	61	57	58	57	55	55	56	58	59	59	57
30	Bulgaria	60	60	58	59	61	59	60	61	58	58	59
31	Cote d'Ivoire	61	61	56	46	52	56	55	50	51	58	55
32	Guatemala	55	57	57	56	60	60	55	53	55	58	57
33	Guyana	67	59	61	59	52	61	62	67	62	58	61
34	Bosnia and Herzegovina	54	55	55	55	55	56	56	60	61	57	56
35	China	63	60	59	56	55	53	53	56	55	56	57

36	El Salvador	54	48	50	53	57	60	56	51	46	51	53
37	Madagascar	50	55	53	46	50	49	45	46	44	51	49
38	Nicaragua	41	44	44	45	41	54	56	52	49	51	48
39	Colombia	50	49	51	45	48	50	52	51	53	50	50
40	Congo	44	34	52	77	65	67	68	77	52	50	59
41	Seychelles	N/A	75	76	75	72	64	47	58	58	50	64
42	South Africa	58	53	49	48	44	45	47	48	48	50	49
43	Lebanon	59	56	56	54	49	50	49	52	53	49	53
44	Brazil	52	51	49	51	50	51	51	48	49	48	50
45	India	52	47	47	44	43	43	43	44	47	46	46
46	Philippines	54	49	49	47	45	47	44	41	44	46	47
47	Russia	54	53	54	46	48	48	43	43	44	46	48
48	Vietnam	47	43	44	31	47	48	47	46	47	46	45
49	Chile	50	49	47	46	47	46	47	44	46	45	47
50	Botswana	77	15	5	14	17	8	8	14	7	44	21
51	Egypt	59	50	51	52	45	48	45	43	45	44	48
52	Indonesia	54	50	51	49	47	47	48	47	45	44	48
53	Peru	54	48	53	49	47	47	48	48	48	44	49
54	Malawi	32	43	37	37	34	39	33	33	46	43	38
55	Malaysia	54	51	50	45	40	46	44	45	46	43	46
56	Mauritius	44	51	52	52	40	43	40	44	47	43	46
57	Pakistan	49	44	44	39	38	41	39	39	44	43	42
58	Ukraine	35	37	36	37	37	38	38	40	40	42	38
59	Argentina	36	38	38	41	39	42	44	39	40	41	40
60	Cambodia	35	29	33	38	39	41	41	41	39	41	38
61	Thailand	54	51	47	45	41	40	40	41	43	41	44
62	Ecuador	51	50	49	41	49	49	46	44	44	40	46
63	Senegal	56	53	56	52	60	47	42	35	29	40	47
64	Maldives	37	61	59	54	49	52	47	38	37	38	47
65	Saudi Arabia	53	49	48	46	48	44	44	43	38	38	45
66	Angola	79	79	67	81	61	73	46	58	48	36	63

67	Ghana	48	53	52	38	32	38	49	31	52	36	43
68	Jordan	46	39	38	30	36	34	34	32	37	35	36
69	Kuwait	N/A	55	48	N/A	48	41	40	45	43	35	44
70	Sierra Leone	N/A	N/A	N/A	N/A	N/A	55	66	79	39	35	55
71	United Arab Emirates	N/A	N/A	N/A	46	37	36	40	40	40	35	39
72	Nigeria	54	41	55	57	47	42	38	47	39	34	45
73	Brunei Darussalam	40	53	47	59	38	42	31	35	35	33	41
74	Moldova	36	32	34	31	29	31	33	31	31	33	32
75	Uruguay	31	33	32	30	39	33	40	38	36	33	35
76	Georgia	37	36	35	31	32	35	32	35	30	32	34
77	Bahrain	49	42	46	38	31	40	35	38	39	31	39
78	Burkina Faso	38	42	26	27	22	53	39	26	27	31	33
79	Solomon Islands	67	N/A	54	38	72	58	55	54	28	31	51
80	Bolivia	34	39	44	48	49	43	47	45	37	30	42
81	Azerbaijan	42	26	31	38	38	39	41	39	31	29	35
82	Ethiopia	36	47	46	33	37	24	28	25	34	28	34
83	Niger	50	25	68	36	44	29	29	38	56	28	40
84	Paraguay	25	26	29	28	31	32	34	30	29	28	29
85	Armenia	42	42	50	49	43	40	33	29	26	27	38
86	Kazakhstan	39	48	44	31	30	29	25	25	21	27	32
87	Mauritania	70	25	29	50	49	43	51	48	30	27	42
88	Uganda	39	42	47	39	35	36	29	24	36	27	35
89	Kenya	38	37	N/A	N/A	30	N/A	27	21	27	26	30
90	Gambia	57	46	21	14	37	41	28	49	28	25	35
91	Belarus	49	42	50	21	21	25	22	20	19	24	29
92	Burundi	66	30	43	29	25	43	33	22	24	23	34
93	Myanmar	N/A	30	34	30	49	39	29	24	25	23	31
94	Comoros	63	48	63	69	91	43	37	21	46	21	50
95	Namibia	73	30	20	23	18	20	14	21	25	21	27
96	Iran	N/A	35	32	N/A	22	18	19	21	25	20	24

97	Mongolia	N/A	N/A	N/A	N/A	27	22	22	15	15	19	20
98	Rwanda	36	28	36	33	32	36	24	24	27	19	30
99	Togo	46	46	27	45	53	37	24	14	13	19	32
100	Uzbekistan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18	19	19
101	Oman	57	61	36	25	32	21	36	26	17	16	33
102	Tanzania	38	35	38	36	27	19	19	21	15	16	27
103	Swaziland	43	5	4	10	23	27	19	28	19	15	19
104	Zambia	15	13	12	11	19	12	19	13	11	15	14
105	Benin	35	36	37	32	28	34	23	24	14	14	28
106	Mozambique	28	25	26	24	23	22		16	13	12	21
107	Zimbabwe	19	15	12	12	9	15	16	11	9	8	12
108	Laos		13	14	13	14	11	8	12	10	7	11
109	Kyrgyzstan	7	11	13	24	21	24	13	7	9	6	14
110	Afghanistan	3	4	13	N/A	N/A	N/A	3	3	N/A	3	5
111	Yemen	36	36	30	23	16	24	12	N/A	N/A	3	23
112	Algeria	63	70	72	66	63	59	52	57	52		62
113	Bangladesh	49	47	39	43	42	N/A	42	N/A	N/A	N/A	44
114	Bhutan	4	5	8	4	N/A	N/A	N/A	N/A	N/A	N/A	5
115	Cameroon	65	68	61	57	68	57	52	53	57		60
116	Djibouti	66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	66
117	Dominica	53	60	N/A	67	N/A	N/A	N/A	N/A	N/A	N/A	60
118	Gabon	57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	57
119	Guinea	N/A	N/A	N/A	N/A	48	39	34	42	N/A	N/A	41
120	Iraq	N/A	N/A	N/A	N/A	N/A	4	N/A	N/A	N/A	N/A	4
121	Kiribati	62	61	40	15	36	41	46	19	N/A	N/A	40
122	Lesotho	N/A	11	7	11	8	21	18	14	11	N/A	13
123	Mali	N/A	43	31	43	N/A	N/A	N/A	21	39	N/A	35
124	Nepal	10	10	8	5	7	8	15	8	7	N/A	9
125	Panama	35	34	32	31	37	47	31	37	43	N/A	36
126	Papua New Guinea	N/A	N/A	66	65	N/A	N/A	N/A	N/A	N/A	N/A	65
127	Saint Kitts and Nevis	80	76	76	81	79	85	79	94	91	N/A	82

128	Sri Lanka	57	48	45	42	41	41	38	40	41	N/A	44
129	Syria	36	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	36
130	Timor-Leste	N/A	N/A	N/A	N/A	27	N/A	N/A	N/A	15	N/A	21
131	Tonga	91	84	83	86	87	87	N/A	N/A	N/A	N/A	86
132	Trinidad and Tobago	69	56	55	55	47	56	56	N/A	N/A	N/A	56
133	Vanuatu	73	72	59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	68
134	Venezuela	49	47	48	43	37	N/A	N/A	N/A	N/A	N/A	45

TABLE J

*Countries with the Ten Largest Value Gaps Identified in Trade with the 36 Advanced Economies as a Percent of Value Gaps in Trade with All Global Trading Partners, 2009-2018 as a Percent of Total Trade**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
1	Sao Tome & Principe	Cabo Verde	Cabo Verde	Sao Tome & Principe	Cabo Verde	Sao Tome & Principe	Sao Tome & Principe	Bahamas	Aruba	Aruba	Cabo Verde
2	Cabo Verde	Sao Tome & Principe	Sao Tome & Principe	Bahamas	Bahamas	Cabo Verde	Cabo Verde	Cabo Verde	Cabo Verde	Cabo Verde	Sao Tome & Principe
3	Bahamas	Bahamas	Bahamas	Cabo Verde	Sao Tome & Principe	Bahamas	Bahamas	Sao Tome & Principe	Sao Tome & Principe	Sao Tome & Principe	Bahamas
4	Tonga	Tonga	Central African Republic	Samoa	Comoros	Antigua and Barbuda	Aruba	St. Kitts & Nevis	Bahamas	Bahamas	Aruba
5	Samoa	Poland	Aruba	Aruba	Samoa	Samoa	Poland	Aruba	Antigua & Barbuda	Antigua & Barbuda	Tonga
6	Fiji	Tunisia	Tonga	Tonga	Tonga	Tonga	St. Kitts & Nevis	St. Lucia	St. Kitts & Nevis	St. Lucia	St. Kitts & Nevis
7	Antigua & Barbuda	Angola	Samoa	Central African Republic	Aruba	Aruba	Antigua & Barbuda	Sierra Leone	Suriname	Poland	Antigua & Barbuda
8	St. Kitts & Nevis	Samoa	Antigua & Barbuda	St. Kitts & Nevis	St. Kitts & Nevis	Central African Republic	Tunisia	Poland	Saint Lucia	St. Vincent & the Grenadines	Poland
9	Poland	Hungary	Tunisia	Angola	Poland	St. Kitts & Nevis	Hungary	Mexico	Poland	Tunisia	Samoa
10	Angola	St. Kitts & Nevis	Poland	Antigua & Barbuda	Tunisia	Poland	Mexico	Congo	Mexico	Barbados	Tunisia

**Only includes countries for which there was data for at least 5 of the 10 years examined.*

TABLE K

Geographical Breakdown by Major World Regions, According to International Monetary Fund Classifications

134 Developing Countries					36 Advanced Economies
Africa (38)	Developing Asia (25)	Developing Europe (19)	Middle East/ North Africa (21)	Western Hemisphere (31)	36 Advanced Economies (36)
Angola	Bangladesh	Albania	Afghanistan	Antigua and Barbuda	Australia
Benin	Bhutan	Armenia	Algeria	Argentina	Austria
Botswana	Brunei Darussalam	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	Guatemala	Israel
Guinea	Philippines	Turkey	Saudi Arabia	Guyana	Italy
Kenya	Samoa	Ukraine	Syria	Honduras	Japan
Lesotho	Solomon Islands	Uzbekistan	Tunisia	Jamaica	Korea
Madagascar	Sri Lanka		UAE	Mexico	Latvia
Malawi	Thailand		Yemen	Nicaragua	Lithuania
Mali	Timor-Leste			Panama	Luxembourg

134 Developing Countries				36 Advanced Economies	
Africa (38)	Developing Asia (25)		Western Hemisphere (31)	36 Advanced Economies (36)	
Mauritius	Tonga		Paraguay	Malta	
Mozambique	Vanuatu		Peru	Netherlands	
Namibia	Vietnam		St. Kitts and Nevis	New Zealand	
Niger			St. Lucia	Norway	
Nigeria			St. Vincent and the Grenadines	Portugal	
Rwanda			Suriname	San Marino	
Sao Tome and Principe			Trinidad and Tobago	Singapore	
Senegal			Uruguay	Slovak Republic	
Seychelles			Venezuela	Slovenia	
Sierra Leone				Spain	
South Africa				Sweden	
Tanzania				Switzerland	
Togo				United Kingdom	
Uganda				United States	
Zambia					
Zimbabwe					