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Illicit financial flows between China and developing countries in Asia and Africa

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Question

What is the impact of different forms of Chinese illicit finance (i.e. finance traveling into, through or out of China) on developing countries in Asia and Africa?

Contents

1. Summary

This review provides a summary of the evidence on Illicit Financial Flows (IFFs) between China and developing countries in Africa and Asia. Specifically, it looks at the evidence on how IFFs to and from China impact on developing countries, as well as on the drivers of IFFs and of how flows are facilitated. The review draws upon a combination of academic and grey literature sources, though it is not exhaustive and only draws upon English language sources.

IFFs have attracted significant international attention in recent years, due to large estimates of their global value and concern regarding the impact of those flows on developing countries. However, as pointed out in a recent K4D paper on IFFs in North Africa "large uncertainties" regarding the magnitude of flows remain (Price, 2019).

There is still no consensus definition of IFFs, with an ongoing debate on whether legal tax avoidance measures should be included. However, a frequently used definition, and the one employed for the purposes of this report, comes from the IMF: IFFs "refer to the movement of money across borders that is illegal in its source (e.g. corruption, smuggling), its transfer (e.g. tax evasion), or its use (e.g. terrorist financing)."

IFFs involving China have attracted particular attention, due to estimates suggesting it is responsible for the largest IFFs by value globally. However, little has been published to date specifically on IFFs between China and developing countries. This paper attempts to help address this gap.

Section 2 provides some background information on the debates and uncertainties around IFFs, including conceptual issues, difficulties in measuring these flows and their potential impacts, as well as attempts to quantify China's overall IFFs. Section 3 focuses on trade-related IFFs between China and developing countries in Asia and Africa. Discrepancies indicative of potential IFFs are identified using trade data from 2018 and an attempt is made to determine the scale of the revenue consequences of trade mis-invoicing for China's developing country partners. Section 4 considers IFFs-related to corrupt business practices, focusing largely on Chinese investment in Africa. Section 5 moves on to consider IFFs that relate to the trade in illegal products, including illegal narcotics, human trafficking, the illegal arms trade, the illegal wildlife trade, the illegal organ trade and the trade in counterfeit products. Finally, Section 6 discusses enabling environment factors relevant to IFFs between China and developing countries.

Key findings:

IFFs related to the trade in legitimate products

- Finding 1: **Discrepancies in trade figures between China and developing countries are large, with a value gap of $162 billion in 2017 - 18% of trade value** (GFI, 2020). This is indicative of high risk of trade-related IFFs – since a key cause of such discrepancies is trade mis-invoicing. However, it is important to recognise that the value gap figure will not exactly match trade-related IFFs, since other factors can cause such discrepancies (e.g. clerical errors or complex patterns of re-export) and certain IFFs will not show up in such aggregate data (e.g. where exporter and import collude in mis-invoicing ("double-invoice faking"). Such estimates are likely fairly inaccurate, and it is difficult to know whether they are biased upwards or downwards relative to the true figure for IFF flows.

- Finding 2: Discrepancies in China's trade with Asian and African partners are indicative of net Chinese over-invoicing of exports (which implies net IFF outflows from partner countries to China) and/or partner country under-invoicing of imports (which implies net IFF outflows from China to partner countries). Value gap analysis of Chinese imports is indicative of net partner country under-invoicing of exports (which implies net IFF outflows from partner countries to China) and/or Chinese over-invoicing of imports (which implies net IFF outflows from China to the partner countries).
- Finding 3: From aggregated trade data alone the net direction of IFF flows between China and developing countries cannot be determined. However, **analysis of the pattern of discrepancies, combined with evidence from qualitative research and relevant criminal cases, is indicative of an IFF outflow from China linked to under-invoicing of manufacturing imports from China. IFFs may then flow back to China through under-invoicing of natural resources exports** (potentially through transfer mispricing), such as oil in Angola, diamonds in South Africa and jade in Myanmar. **Alternatively, funds may be used to buy contraband such as illegal wildlife products and narcotics, which are smuggled back to China.**
- Finding 4: Whilst much has sometimes been made of claims that there are net outflows of trade-related IFFs from developing countries, our analysis suggests that the net flow of IFFs between China and developing countries is of secondary importance to the role that trade-related IFFs flowing in both directions play in generating revenue losses and facilitating criminal activity.
- Finding 5: **Trade-related IFFs likely have a significant and negative impact on government revenue for China's developing country partners.** This occurs both through lost tariff revenue through under-invoiced imports and losses in corporation tax and other revenue through under-invoicing of exports to mask profit.

  Estimates of the tariff impact are inevitably imprecise, but may give a rough sense of the scale of the issue. **Lost tariff revenue from under-invoicing of Chinese imports in 2018 could plausibly have been around $690 million for India, $488 million for Pakistan and $306 million for Myanmar, whilst Bangladesh may have lost around $804 million in 2015. Ghana may have lost $391 million in 2018, Kenya may have lost $80 million in 2016 and South Africa may have lost $720 million per annum from 2010-2013.**

  Revenue losses from under-invoicing of exports are harder to estimate, but may be large. For example, an upper-bound for the revenue impact of under-invoicing of Angolan petroleum exports to China is around $1.9 billion in 2018 or 10% of total government revenue. The revenue loss for Myanmar related to illegal smuggling of jade to China could be on a similarly large in a country with very limited revenue collection capability.

IFFs related to the trade in illegal products

- Finding 6: **IFFs between China and developing countries in Asia are enablers of the $426-625 billion per year international narcotics trade**. This likely involves: (1) payments for synthetic precursors manufactured in China that are illegally smuggled to narcotic producing developing countries in Asia; and (2) payments for opioids and other narcotics smuggled into China either for Chinese domestic consumption or for onwards transit.
- Finding 7: **IFFs between China and developing African countries are enablers of the world's $7-23 billion per year illegal trade in wildlife**. China is the largest market globally for illegal wildlife products and illegally harvested hardwoods.

- Finding 8: **Human trafficking from Northeast and Southeast Asia to China and from China to other Asian countries is a serious problem. Large IFFs likely result occur in the form of payments to traffickers.**
- Finding 9: **China is the world's leading supplier of counterfeit goods to the developing world, likely creating significant IFF flows.** Counterfeit goods can have a negative revenue impact for developing countries, whilst **counterfeited cigarettes and medicine pose significant public health risks in developing countries**.
- Finding 10: **Feiqian, a traditional form of Chinese banking similar to hawala[1], combined with trade mis-invoicing, likely facilitates IFFs linked to all these forms of criminality**.

2. Background information

Defining IFFs

There is no universally accepted definition of IFFs. For the purposes of this report the IMF definition of IFFs is used: " the movement of money across borders that is illegal in its source (e.g. corruption, smuggling), its transfer (e.g. tax evasion), or its use (e.g. terrorist financing)." For a review of debates around defining IFFs, including the potential to include legal tax avoidance, see Price (2019).

Important motivations for IFFs include:

- Illegal source:
    - Extraction of excess profit achieved through "unequal contracts", often as a result of bribes (UNECA, 2015)
    - Money laundering of criminal enterprise earnings
- Illegal transfer:
    - Tax evasion (whether under-invoicing of exports to reduce profits in order to evade corporation and income tax or under-invoicing of imports to reduce customs duties) and illegal exploitation of subsidy regimes
    - Abusive transfer pricing (i.e. trade between linked corporations that does not apply "arm's-length principles")
    - Currency regulation evasion (e.g. over invoicing of imports in order to transfer money abroad illegally)
- Illegal use:
    - Terrorist financing
    - Financing the drugs trade

There are also numerous channels for the movement of funds across borders, including:

- Bulk cash smuggling
- Shell corporations and financial instruments
- Informal value transfer systems
- Trade mis-invoicing and "same invoice faking"

[1] A traditional system of transferring money used in Arab countries and South Asia, whereby the money is paid to an agent who then instructs an associate in the relevant country or area to pay the final recipient.

Measuring and estimating IFFs

There is a consensus that global IFF flows are substantial (GFI, 2020; UNECA, 2015). Commonly used methods to measure IFFs include (UNECA, 2015, p. 90):

- **Balance of Payments approaches:**
    - **The World Bank residual method:** This estimates IFFs as the difference between the balance of payments' source of funds (external debt and foreign direct investment) and use of funds (current account deficit and reserves).
    - **The hot money method:** The hot money narrow-method estimates a country's net IFFs using balance of payments data. It utilises the fact that a country's balance of payments theoretically represents an accounting identity, such that the capital and current account balance out. In reality this is seldom precisely the case, and a term called 'net errors and omissions' is added in to return balance. This term captures flows that are not included in official data, and are therefore taken as a measure of IFFs. This method is generally considered to represent a very conservative estimate.
- **Trade mispricing approaches (mirror trade analysis/"value-gap analysis"):** this assesses IFFs by looking for deliberate overvaluing or undervaluing of invoices to disguise the movement of money. This method only captures trade mis-invoicing – the over- or under-reporting of import or export volumes by an exporter or importer – and cannot account for "same invoice faking" (where both importer and exporter collude to create matching fake invoices). However, it also captures artefacts such as different practices between countries for product categorisation and discrepancies resulting from complex supply chains in which goods are exported to one country and then re-exported to a final destination.
- **Composite models.** These combine models balance of payments and trade-based measures.

No one measure is without flaws (see Price, 2019), which explains why composite models are often described as preferable for generating estimates of IFFs (Fontana, 2010). However, composite measures can lead to double-counting, which is itself problematic. In summary, any attempt to quantify IFFs is inherently imprecise and even the margin of error of estimates is difficult to determine. They should therefore be taken as indicative of order of magnitude only.

Risk factors influencing IFFs

UNECA (2015) lists various factors that make many developing countries particularly vulnerable to IFFs. This includes:

- Weak rule of law, including corruption and conflict, as well as a lack of expertise on IFFs and low enforcement capacity within the relevant agencies (e.g. customs, police, etc.)
- A poor business environment, which makes it easier to make money illegally than through the formal economy
- Complex regulatory environments, which can create incentives for IFFs (e.g. export subsidies, tax incentive regimes for FDI, currency controls, etc.) or create weaknesses which make it easier for funds to flow illicitly across borders (e.g. provisions of some double-taxation agreements)
- The existence of financial secrecy jurisdictions and/or tax havens, and inadequate regimes for disclosure of beneficial ownership. Financial secrecy jurisdictions put in place an elaborate framework to attract financial resources irrespective of their provenance,

whereas tax havens mainly aim to exploit differences in tax rates across different jurisdictions.
- Strong incentives due to high levels of inequality, often linked to extractive industry wealth.

Economic and developmental impacts of IFFs

The potential economic and development impact of IFFs are varied and generally negative (see Price, 2019 for further discussion). Key issues include:

- Encouraging corruption and making it harder to recover the proceeds of corruption. This weakens the rule of law and can negatively impact on economic development.
- Negatively impacting on public services due to reduced government revenue, which can in turn heighten inequality, and undermine government legitimacy, the achievement of development outcomes and long-term economic growth.
- Enabling circumvention of capital controls designed to prevent capital flight, which may undermine long-term economic growth
- Enabling other forms of criminal activity, such as the narcotics trade, counterfeiting, people smuggling, the illegal trade in wildlife, which can impact negatively on human security and the ecology

Estimates of China's global IFFs

China's balance of payments' 'net errors and omissions' term for 2018 was equal to negative 160 billion. This implies a net IFF outflow of $160 billion or 1.2% of China's GDP. For comparison the UK's 'net errors and omissions' imply net IFF inflows of $26 billion or 0.9% of the UK's GDP, whilst India's data suggests a net inflow of $1.3 billion or 0.05% of its GDP (IMF, 2020b). GFI (2020) estimates a larger figure of $458 billion IFFs for China in 2017, using the trade value-gap method.

3. Trade-related IFFs between China and developing countries in Asia and Africa

According to GFI (2020), over half of China's 2017 trade value gap, $296 billion, related to $1.67 trillion of trade with the 36 most advanced economies. This leaves a $162 billion value gap related to $779 billion of trade with other countries (mainly emerging and developing countries). This suggests that China's trade value gap is proportionally smaller with the advanced economies (17.7% of trade) compared with other countries (21% of trade).

The Brookings Institute (Signé et al, 2020) use value gap analysis to argue that between 1980 and 2018 China was by far the largest destination for IFF outflows from Africa, receiving $226 billion in outflows over this period. 85% of this relates to trade between 2010 and 2018 reflecting the huge increase in Chinese trade with Africa in recent years. They suggest illicit outflows from Africa to China remained below 15% of trade value from 2006 and 2010, increased from 2010-2014 up to a peak of 26%, before declining to an average of 14% from 2015 to 2018. Brookings tie the spike in IFFs as a proportion of trade after 2010 to the impact of a huge Chinese stimulus package, introduced after the 2008 financial crisis, which led to an increase in corruption in China (Li and Mayraz, 2015). They suggest that the reduction from 2014 onwards may reflect the impact of President Xi Jinping's high-profile anti-corruption drive.

Unfortunately, the estimates provided by Brookings are based on some very questionable assumptions. Notably they assume that differences between Chinese export figures to Africa and partner country import figures reflect entirely import under-invoicing, and therefore IFF inflows to Africa, when in reality it could also reflect export over-invoicing by China and therefore IFF outflows from Africa. Similarly they assume that whenever African partner estimates of exports to China are less than Chinese estimate of import it reflects export under-invoicing by African partners and therefore IFF outflows, whereas it could also be Chinese import over-invoicing and therefore IFF inflows to Africa. Whilst it is plausible that their interpretation is correct more often than it is not, the real picture is likely to be far more complex than they suggest, rendering the estimates they provide of aggregate IFF outflows from Africa to China very dubious. Reasonable estimates of the direction of trade-related IFF flows between Africa and China could only be derived by comparing registered import and export prices with prevailing international rates (in order to determine whether discrepancies reflect misreporting by the exporter, importer or both). This analysis does not appear to have been conducted to date.

See: Figure 1: Illicit financial flows between China and Africa 1998-2018 (Brookings Institute), Source: Signé et al. (2020, p.11), https://www.brookings.edu/wp-content/uploads/2020/02/Illicit-financial-flows-in-Africa.pdf

Whilst still requiring caution, analysis of trade data can give a sense of the level of risk of trade-mis-invoicing related IFFs between two trade partners, and help identify particular products that are likely linked to IFFs. It is also possible to use trade data to give a sense of the potential impact on tariff revenue of IFFs, though it can only be used to upper and lower bounds, rather than to provide an accurate point estimate.

The sub-sections below analyse in more detail the evidence from such analysis on trade-related IFFs between China and developing countries in Asia and Africa. A combination of data from available GFI country-level reports and new analysis conducted for the purposes of this report are utilised. The new analysis focused on 2018 data between China and a selection of 12 African and six Asian countries and utilised a simplified version of the GFI methodology (see Box 1).

Box 1: methodology for identifying trade value-gaps

The new analysis conducted for this report broadly aligns with the value-gap methodology utilised by GFI. For each partner the methodology involved:

- Compared comparing Chinese and partner HS 6-digit level trade data using data from COMTRADE and WITS
- Excluded "orphaned" and "lost" products (HS-codes where either China or the partner recorded zero trade) from further analysis
- Excluded products labelled 'other' (HS999999) from further analysis
- Any lines where the value of recorded exports from the source country exceeded recorded imports in the receiving country were classified as potential over-invoiced exports or under-invoiced imports'
- Any lines where the value of recorded exports from the source country was less than recorded imports in the receiving country were classified as potential 'under-invoiced exports or over-invoiced imports'

Unlike the full GFI methodology, no adjustment is made for the fact that importing countries often report value including freight, whilst exporting countries tend to exclude freight costs. Nor are 'shrinkage adjustments' applied, a method GFI utilises to reduce outlier effects. These omissions reflect time constraints for the current assignment.

There are multiple reasons why discrepancies in trade figures may occur. This includes clerical errors and differences in procedure for classifying products, which may have nothing to do with IFFs. The lack of adjustment for transport costs, adds in additional error, likely leading to some over-estimation of IFF inflows to China related to imports, and an under-estimation of inflows related to Chinese exports. These value-gap measures also do not capture any 'same-invoice faking' (where the exporter and importer collude to produce identical fake invoices) and smuggling (i.e. trade in legal goods that is conducted entirely without reporting to the relevant customs agencies). Importantly, not only are estimates imprecise, but (because true IFF flows are largely unobservable) it is unclear whether such estimates are biased systematically upwards or downwards.

As a result of all these issues, the estimates provided here (like any quantitative estimates of IFFs), should be treated with caution. They provide some sense of the orders of magnitude of trade-related IFFs and can be used to derive estimates of the potential consequences of these flows for government revenue in developing countries. It also provides some leads regarding particular products where Chinese trade is likely tied to large IFFs.

This analysis suggests that Chinese exports to developing countries are characterised by either under-invoicing of imports in the partner country or over-invoicing of exports in China. In contrast, Chinese imports from its developing country partners appear to be characterised by either under-invoicing of exports in the partner country or over-invoicing of imports in China. To reiterate, it cannot be determined whether this is associated with net outflows or inflows of IFFs to China. However, it seems likely that there is a net outflow of IFFs associated with Chinese exports to developing countries (mainly through under-invoicing in partner countries of Chinese manufactured goods), combined with a net inflow of IFFs to China associated with imports from developing partners (mainly through under-invoicing in partner countries of natural resource exports).

Chinese exports to Africa appear to represent a particular risk for IFFs. Trade discrepancies suggestive of either over-invoiced Chinese exports or under-invoiced partner imports ($ million) represent 75% of the registered value of Chinese exports in 2018 to the selected African partners analysed, whilst trade discrepancies indicative of either under-invoicing of Chinese exports or over invoicing of partner imports represent 56% of trade value. These figures are much bigger than the equivalents for China's trade with the Asian partners we analysed (33% and 20% of trade value respectively).

Tariff evasion is closely linked to IFFs. GFI (2015b) used trade data for the period 2008-2012 to identify a "robust relationship between high tariff rates and high levels of [potential trade mis-invoicing] IFFs." This reflects the greater incentives for trade mis-invoicing for tariff-avoidance purposes in the face of high tariff rates. This highlights the fact that IFFs are likely to be a particular problem in relation to China's trade with the poorest countries, which tend to rely disproportionally on tariff revenue (Teltscher, 2000).

For a few of China's developing country partners we conducted further analysis to estimate the likely customs revenue consequences of the discrepancies identified. For both African and Asian partners these results suggest potentially large losses in revenue for China's developing country partners, both through lost tariff revenue through under-invoiced imports and losses in

corporation tax and other revenue through the use of under-invoicing of exports to mask profit. The importance of that loss likely varies depending on the size of the country involved and the effectiveness of its overall revenue system: for example, we estimate that the upper bound for tariff losses for India from under-invoicing of imports from China is around 0.25% of total government revenue, whereas for Bangladesh the upper bound is almost 7% of government revenue (in both cases the most likely figure for tariff losses is significantly smaller, probably 0.1% and 4% of government revenue specifically).

For Chinese imports from African countries discrepancies suggestive of either under-invoiced partner exports or over-invoiced Chinese imports are large (30% of Chinese estimates of trade value), but there are very limited discrepancies suggestive of either over-invoiced partner exports or under-invoiced Chinese imports (1% of trade value). The figures for China's imports from Asia are more balanced (35% and 23% respectively). These differences seem likely to reflect the very high proportion of African partners' exports to China that involve natural resources, often resources which have been extracted by Chinese companies . This likely create stronger incentives for under-reporting of value at the point of export (to minimise tax liabilities) and lower incentives for under-invoicing of value at the point of import.

However, part of the pattern of import discrepancies observed is likely the result of over-invoicing of imports on arrival in China. Under Chinese law Chinese nationals can only purchase $50,000 of foreign exchange per year and a range of other controls make it difficult to move wealth out of China (Russolillo, 2019). However, despite legal sanctions, wealthy Chinese businesspeople have strong incentives to evade controls. This may partly reflect a drive to diversify portfolios, but fear of conviction and asset confiscation on corruption allegations – whether real or politically motivated – also likely plays a significant role (Gunter, 2017).

Over-invoicing of imports (and under-invoicing of exports) represents an important mechanism used by such individuals to move wealth out of China (Cheung & Qian, 2010). Goods that are "high-value " and hard to value are particularly attractive for Chinese looking to move funds out of the country (GFI, 2017). Such products include diamonds, art and antiquities, as well as real estate.

Whilst illicit Chinese capital flight is likely mainly focused on acquiring assets in regimes considered stable, such as Europe and the US (BBC 2016), trade-related fraud involving developing countries likely has lower risk of detection and IFFs from China destined for investment in developed countries may still therefore flow through developing countries first.

China's exports to African developing countries

Table 1 presents data from X source on China's exports to 12 Sub-Saharan African countries and the associated value gaps. For 8 out of 12, China's estimates of exports were higher than the partner country's estimate of imports. At HS 6-digit level the value of discrepancies indicative of either over-invoicing of goods on departure or under-invoicing on arrival (75% of trade value) were greater than for discrepancies indicative of either under-invoicing on departure or over-invoicing on arrival (56% of trade value). The most plausible explanation for this is a pattern of widespread under-invoicing and misrepresentation of the HS-code of products on arrival, in order to minimise import tariff liability. If this is correct it suggests that Chinese exports to Africa are associated with net IFF outflows.

Ghana provides an interesting case study. China's estimate of exports to Ghana are over twice Ghana's estimates of imports ($4.8 billion compared to $2.3 billion). At HS-6 digit level, discrepancies potentially indicative of under-invoicing of imports add up to $3.9 billion, 81% of the value of China's exports to Ghana. This is the highest out of the 12 African countries examined, and aligns with evidence from GFI (2020) suggesting that in 2017 Ghana trade value gap was the second highest out of 168 developing countries assessed.

Discrepancies are spread across a wide range of products, with the largest discrepancy relating to used clothing (HS 630900), where barely any imports were registered by Ghana, but $126 million of exports to Ghana were recorded by China. This sits alongside a broader pattern of discrepancies in relation to Ghanaian clothing and textile imports from China, with over $642 million less clothing and textile imports registered than China registered exports. It seems likely that a substantial portion of this relates to deliberate customs fraud, motivated by the drive to avoid high duties (20% compared to Ghana's average weighted tariff of just over 10%) in a low margin sector. Seizure data suggests that a substantial portion of textile imports from China are also likely counterfeit (OCED, 2018). Indeed, the seriousness of the problem of under-invoicing and counterfeiting in textile imports was recognised by the Ghanaian Government in the 2019 budget when they extended their anti-smuggling "tax stamp" system to the sector (Deloitte, 2018).

An indication of the significance of this for the Ghanaian Government comes from GFI's (2014) estimate that over the period 2002-11 annual customs revenue losses from trade mis-invoicing equalled 11% of total government revenue. Given that China provides 15-20% of Ghana's imports this suggests revenue losses from mis-invoicing of Chinese imports of around 1.6-2.2% of government revenue. A simple estimate using 2018 data suggests even greater impact. Based on Ghana's overall weighted average tariff rate of 10% and the $2.4 billion net value gap, the 2018 trade discrepancies suggest that the range of possible tariff consequences of trade mis-invoicing was between $146 million of additional revenue and $391 million of revenue losses, with a plausible estimate being around $240 million of net losses. The latter figure represents around 3% of Ghana's total government revenue of $8 billion in 2018, and 60% of Ghana's shortfall in receipts relative to budgeted revenue in 2018 (Ghana Ministry of Finance, 2019). Even allowing for a large margin of error, this suggests that the revenue impact is likely significant in Ghana.

The picture that emerges from this analysis largely aligns with previous research. GFI (2018a) found that in Nigeria imports from China are "particularly prone" to revenue risks. The report identifies vehicle imports from China as a key risk, potentially reflecting the relatively high tariff rates applied, whilst noting that apparent under-invoicing and consequent revenue losses from Chinese imports relate to "many goods" (GFI, 2018). For Uganda in 2016, GFI (2018b) identify $50 million per year of under-invoicing (15% of trade value) and $26 million of over-invoicing (8% of trade value) of imports from China. GFI (2018c) also report high risk of revenue loss in Kenya, with under-invoicing of Chinese imports creating an estimated $80 million in revenue losses 2016. This represents 38% of all revenue losses identified from under-invoicing, reflecting the high value of imports from China rather than a high tariff revenue loss to trade ratio.

The 2018 data for South Africa is striking because discrepancies indicative of under-invoicing and of over-invoicing of imports are both large (more than $12 billion each). A GFI (2018d) report provides some evidence that a substantial proportion of this likely does reflect customs fraud. Unusually, the research benefited from access to a multi-year South African Revenue Service database, which enabled identification of individual transactions where the unit cost of imports was significantly higher or lower than the median unit cost for that line. This is indicative of under-invoicing and over-invoicing respectively and potentially captures forms of trade-related IFFs that are invisible in aggregated data (e.g. double-invoice faking). Overall, their analysis reveals a pattern of under-invoicing of relatively low value import commodities, such as plastics, and of products facing high effective tariff rates, combined with over-valuation of high-value goods (such as vehicles), potentially reflecting money laundering and capital flight.

GFI (2018d) showed that 82% of imports from China by value were priced below the median price for their relevant product line, and 52% by value were 'very under-priced' (below the 25th percentile price for that product line). The average effective tariff rate on 'very under-priced' imports from China was 12.2%, significantly higher than the 8.5% average tariff on imports from China, providing further evidence that tariff evasion underlies observed discrepancies. Even assuming that the scale of under-invoicing from China was no greater than for others, based on GFI's (2018d) data it **is plausible that in the period 2010-14 South Africa may have suffered**

$720 million in lost government revenue per year (including both tariff and other tax losses) from under-invoicing of Chinese imports (15% of South Africa's imports come from China and the report estimates total revenue losses from under-invoicing of imports of $4.8 billion a year). This represents 0.9% of South Africa's $86 billion (1.2 trillion Rand) of total government revenue in 2018 (IMF, 2020a). In reality this could be an under-estimate, since the correlation between under-pricing and the effective tariff rate was much stronger for China than for developed countries.

Even in countries where our analysis implies that the scale of mis-invoicing is comparatively small, more anecdotal evidence suggests it can be a serious problem. One example concerns Namibia, where discrepancies indicative of possible under-invoicing of imports added up to just $183 million, the lowest level in our sample in both absolute terms and as a proportion of trade volume (at 57%). However, in December 2017 a Chinese businessman and a local customs official were arrested and charged with customs fraud: they had declared R213 million ($12 million) of imports of rags, whilst actually importing clothing and remitting payments exceeding R3.1-billion ($170 million) (Grobler, 2019). The scale of this single case suggests that the true scale of import under-invoicing may be greater than it appears from the data, possibly reflecting 'double invoice faking' which does not show up obviously in trade figures

Table 1: Chinese exports to Africa

		Angola	Cote d'Ivoire	Ghana	Madagascar	Mozambique	Mauritius	Namibia	Tanzania	Uganda	South Africa	Zambia	Zimbabwe
Total Trade	China Figures ($ million)	2,235	1,890	4,822	1,016	1,869	808	319	3,591	706	16,337	969	446
	Partner Figures ($ million)	2,307	1,642	2,273	824	799	936	439	1,771	1,184	17,087	1,291	358
	Discrepancy total trade figures ($ million)	-72	248	2,549	192	1,070	-128	-120	1,820	-478	-750	-322	88
Analysis at HS 6-digit level	Over-invoiced Chinese exports/under-invoiced partner imports ($ million)	1,621	1,220	3,911	624	1,268	483	183	2,721	486	12,606	712	286
	Over-invoiced Chinese exports/under-invoiced partner imports (% trade value)	73%	65%	81%	61%	68%	60%	57%	76%	69%	77%	73%	64%
	Under-invoiced Chinese exports/over-invoiced partner imports ($ million)	1,272	737	1,466	359	460	505	129	1,009	613	12,305	678	140
	Under-invoiced Chinese exports/over-invoiced partner imports (% trade value)	57%	39%	30%	35%	25%	63%	40%	28%	87%	75%	70%	31%
	Gross 'value gap'	2,893	1,957	5,377	983	1,728	988	312	3,730	1,099	24,911	1,390	426
	Gross 'value gap' (% of trade value)	129%	104%	112%	97%	92%	122%	98%	104%	156%	152%	143%	96%

Source: analysis utilises data for 2018 extracted from UN's COMTRADE (reproduced with permission) and the World Bank's World Integrated Trade Solution (WITS) databases (licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0)

China's exports to Asian developing countries

Table 2, below, presents data on China's exports to eight Asian developing countries. For five out of the eight countries Chinese estimates of exports were greater than the partner country's estimates of imports. At HS 6-digit level the value of discrepancies indicative of either over-invoicing of goods on departure or under-invoicing on arrival (37% of trade value) were greater than for discrepancies indicative of either under-invoicing on departure or over-invoicing on arrival (21% of trade value). As with Chinese exports to African partners, this pattern likely largely reflects widespread under-invoicing and misrepresentation of the HS-code of products on arrival, in order to minimise import tariff liability. If this is correct it suggests that Chinese exports to Asian developing country partners are associated with net IFF outflows from China.

Chinese trade with India is an important case study given the huge volume of trade (almost $77 billion of Chinese exports in 2018). GFI (2019a) report that in 2016 two thirds of India's imports assessed as potential sources of revenue loss were from China, with Chinese electrical machinery (HS 85) imports assessed as particularly high-risk. Our analysis of 2018 trade data at HS-6-digit level suggest under-invoicing of $19.9 billion of imports (26% of declared Chinese exports) and over-invoicing of $15.5 billion (20% of declared Chinese exports). This suggests significant trade mis-invoicing could be taking place. This largely reflecting the scale of imports from China; GFI (2019a) notes that for India trade discrepancies as a share of trade value are lower for China than for many of its other partners.

GFI's (2019a) estimate that India lost $9 billion of revenue from under-invoicing of imports in 2016, suggests that under-invoicing of imports from China alone could be creating billions of dollars of revenue losses annually. We estimated potential revenue losses for 2018 by assessing the tariff value of both positive and negative discrepancies at HS 6-digit level (with tariff rates estimated using India's UNCTAD-method weighted ad valorem equivalent effective tariff, as published through the WITS trade and tariff database). Our calculations suggest that in the worst-case the loss could have been $1.7 billion, though a more plausible loss is probably around $690 million. This represents just 0.9% of the value of Chinese exports to India and 0.1% of Indian government revenue (IMF, 2019b).

Estimates of the tariff cost for Pakistan reveal a similar pattern, but are proportionally more significant. Based on our analysis, in the worst case the Pakistani Government may have suffered $744 million of tariff losses from trade mis-invoicing of Chinese imports. However, **based on the data it seems most plausible that Pakistan lost somewhere in the region of $488 million of tariff revenue from mis-invoicing of Chinese imports**, i.e. 3% of the value of Chinese exports. For comparison, total Pakistani customs revenue in FY2018 /19 was 685 billion Pakistani rupees ($4.4 billion) and total Pakistani Government revenue (excluding grants) was 4,901 billion Pakistani rupees ($31 billion), meaning that **lost revenue from Chinese imports was plausibly around 12% of total customs receipts and 1.5% of total Pakistani government revenue** (IMF, 2019c).

For Myanmar at HS 6-digit level there are $6.4 billion of discrepancies indicative of possible under-invoicing of imports, of which $866 million of relate to mobile telephones (HS 851712) and $216 million to motorcycles with small engines (HS 871120). The latter is striking because it aligns with a 2013 claim by a Burmese politician that over 80% of Myanmar's four million motorbikes were illegally imported (GFI, 2015a). **Based on Myanmar's tariff schedule these discrepancies suggest a worst-case tariff loss to Myanmar of around $433 million, with a likely loss of around $306 million. This is the equivalent of 75% of Myanmar's customs revenue collection or 2.5% of total government revenue for FY2018/19** (IMF, 2019a). This is striking given the IMF's emphasis on Myanmar's weak revenue to GDP ratio and the importance

of the country increasing revenue mobilisation. As always, these figures do not take account of the revenue impact of smuggling, where the goods are never registered by customs authorities. This is likely to be a particular issue for Myanmar since smuggling with China is "especially prevalent" (GFI, 2015a), reflecting the porous borders and weak government control in many remote areas.

Estimates of tariff losses for Bangladesh are the most worrying of all. For 2015 (the most recent available data) in the worst-case cost tariff losses could have been around $1.4 billion, and **a plausible figure for Bangladeshi tariff losses in 2015 is around $804 million. This is the equivalent of 4% of Bangladesh's total government revenue** (excluding grants) in FY2015 (IMF, 2017).

In contrast, GFI's estimates of lost revenue for Indonesia in 2016 from under-invoicing of imports from China are small. They identify Chinese imports of plastics (HS 39) and vehicles (HS 87) as being particular issues, and estimate that trade mis-invoicing of imports from China could have caused a loss of $80 million of customs revenue, the largest out of any of Indonesia's trade partners (GFI, 2019b), but just 0.2% of the value of China's exports to Indonesia.

Table 2: Chinese exports to Asia

		Afghanistan[2]	India	The Maldives	Myanmar[3]	Pakistan	Kyrgyzstan	Bangladesh[4]	Nepal[5]
Total Trade	China Figures ($ million)	668	76,881	397	10,568	16,967	5,547	13,895	967
	Partner Figures ($ million)	1,166	73,605	488	6,223	14,486	1,942	10,349	1,267
	Discrepancy total trade figures ($ million)	-498	3,276	-91	4,345	2,481	3,605	3,546	-300
Analysis at HS 6-digit level	Over-invoiced Chinese exports/under-invoiced partner imports ($ million)	97	19,875	130	6,440	5,904	4,450	7,581	497
	Over-invoiced Chinese exports/under-invoiced partner imports (% trade value)	15%	26%	33%	61%	35%	80%	55%	51%
	Under-invoiced Chinese exports/over-invoiced partner imports ($ million)	430	15,535	211	2,239	3,484	697	3,497	654
	Under-invoiced Chinese exports/over-invoiced partner imports (% trade value)	64%	20%	53%	21%	21%	13%	25%	68%
	Gross 'value gap'	527	35410	341	8679	9388	5147	11078	1151
	Gross 'value gap' (% of trade value)	79%	46%	86%	82%	55%	93%	80%	119%
Tariff impact from import under-invoicing	Worst case' ($ million)	N/K.	-1,781	N/K.	-433	-744	N/K.	1,369	N/K.
	Likely value ($ million)	N/K.	-690	N/K.	-306	-488	N/K.	-804	N/K.
	Best case' ($ million)	N/K.	1,091	N/K.	127	256	N/K.	564	N/K.

Source: analysis utilises data for 2018 extracted from UN's COMTRADE (reproduced with permission) and the World Bank's World Integrated Trade Solution (WITS) databases (licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0)

[2] Afghan data used HS2012 classification, whilst China used the newer HS 2017 classification, which reduces the comparability of this data.
[3] Revenue impact estimates for Myanmar utilise 'simple average' estimates, reflecting the absence of 'weighted average' rates on WITS.
[4] 2015 data – last available.
[5] 2017 data – last available.

China's imports from African countries

Table 3, below, presents data on China's imports from twelve African developing countries. For every one of them Chinese estimates of imports were greater than the partner country's estimates of exports. Analysis at HS 6-digit level provides little evidence for significant over-invoicing of exports leaving partner countries (or under-invoicing of imports arriving in China), with the exception of Namibia. The scale of under-invoicing of exports (or over-invoicing of imports arriving in China) is much greater (averaging 37% of China's estimates of trade value), but varies hugely across partner countries both in absolute terms (from $15 million for Uganda to over $10 billion for South Africa) and as a proportion of trade value trade value (from 8% for Namibia to 68% for Zambia).

Below we consider three particularly striking discrepancies identified, related to: (1) Angolan crude oil; (2) South African diamonds; and (3) Zambian copper.

Angolan crude oil

Around 10% of China's $239 billion of crude oil imports come from Angola and around 64% of Angola's oil exports go to China. There is a huge discrepancy related to Angolan crude oil (HS 270900), with Chinese estimates of imports $2.7 billion greater than Angolan estimates of exports in 2018, with a further $350 million of discrepancies related to two other oil-related trade lines. This is responsible for the vast majority of the $3.4 billion net trade value gap in China's imports from Angola. Whilst the size of discrepancies varies, the same pattern holds over the period 2014-2018 with cumulative discrepancies of almost $9 billion.

Whilst the causes of these discrepancies are inevitably hard to determine, the data is consistent with a common pattern by which under-invoicing of Africa's natural resource exports is utilised by corporations in order to hide profits (and therefore tax liabilities) locally whilst shifting those profits abroad (LeBlanc, 2014). As UNECA notes, such practices are often linked to "unequal contracts", in which large companies bribe government officials to secure natural resource concessions on very favourable terms, and then use of export under-invoicing to extract the excess profit.

If this is in fact the case, then the observed discrepancies represent a net IFF outflow from Angola to China. The extent of Chinese involvement in Angola's oil sector lends additional plausibility to this interpretation of the observed discrepancies. For example, China’s Sinopec has formed a 50:50 joint venture with Angola's state oil company, which has a 50% interest in Angola's BP-operated offshore Block 18 field, as well as stakes in eight other Angolan oil fields (Vella, 2019).

The revenue impact for Angola of oil-related IFFs to China is potentially huge. Angola's petroleum production tax is levied at a rate of 20% on the value of oil produced (10% for "marginal oil fields"), and the rate of petroleum revenue tax is 50% of profits (petroleum production tax is not deductible) for foreign joint ventures (Government of Angola, 2004). **If the observed discrepancies do represent under-invoicing of oil exports from Angola, this suggests $270-540 million in lost petroleum production tax revenue and potentially up to $1.35 billion in lost petroleum revenue tax revenue for the Angolan Government.[6] This is around 10% of Angola's total government revenue in FY2018** (IMF, 2019d).

[6] Assuming companies declared all expenses, so that the discrepancy is pure margin.

Box 2: indebtedness and Chinese political influence in Angola

The Angolan case is suggestive of the potential interlinkage between IFFs and the political leverage China has in developing countries to which it is a major financier. By 2018 Angola owed $23.5 billion to China, and it borrowed a further $2 billion in October 2018 (Reuters, 2018b). This debt mainly related to infrastructure projects which supported Angola's reconstruction following the civil war, projects which are often implemented by Chinese state-owned enterprises. Angola's need to maintain access to Chinese loans would likely make it more difficult for the Angolan Government to take a firm line on tax evasion by large Chinese firms. To the extent that high levels of indebtedness to China makes developing country governments dependent on Chinese good-will, it is therefore likely to increase risks related to IFF outflows through transfer mispricing and export under-invoicing by Chinese firms.

South African diamonds

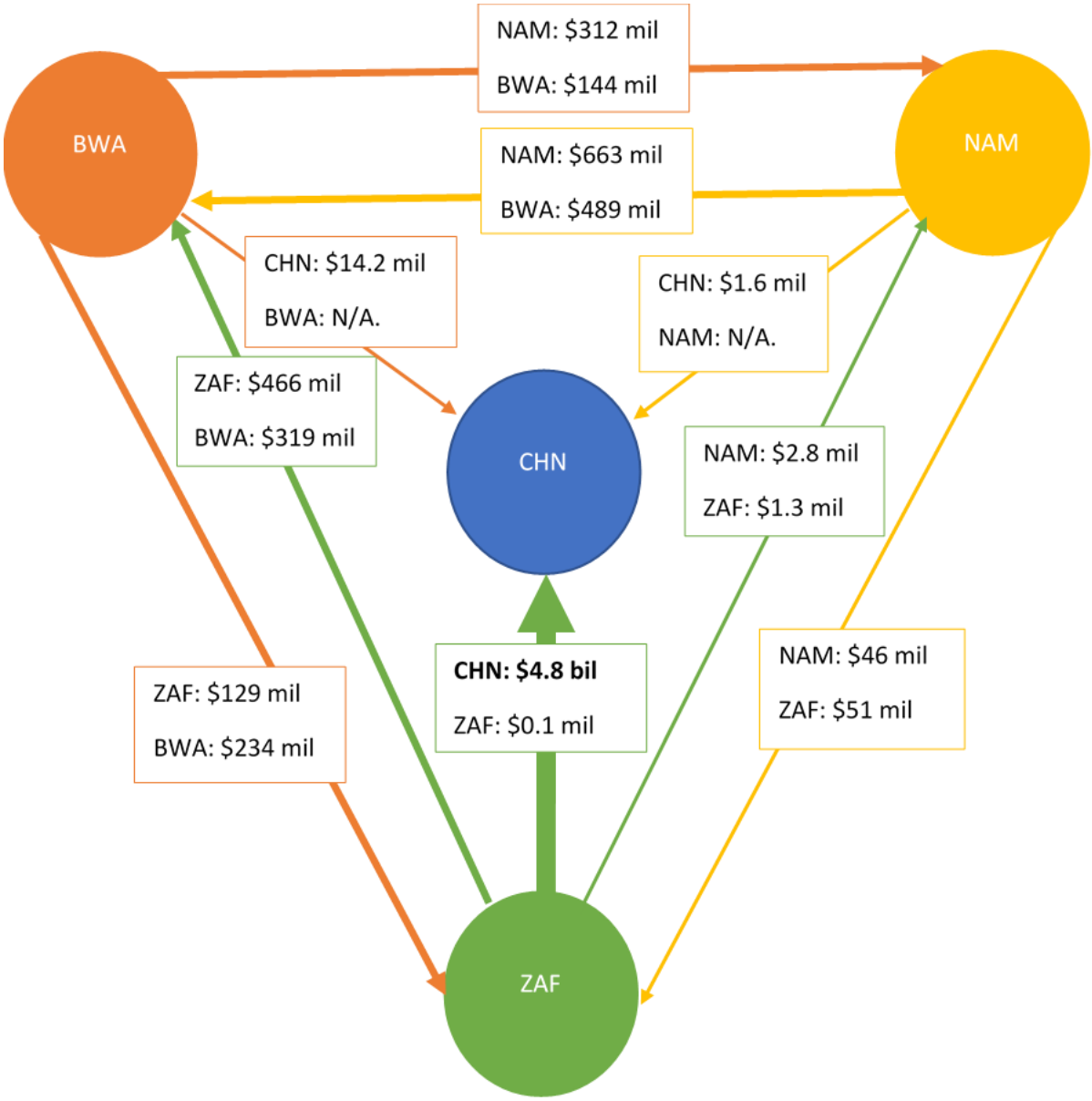
Analysis at HS 6-digit level reveals around $10.7 billion of discrepancies where Chinese estimates of imports from South Africa exceeded South African estimates of exports to China. There were just $251 million of discrepancies where South African estimates exceeded Chinese estimates.

$4.2 billion of the discrepancies relate to a single line: cut, non-industrial diamonds (HS 710239). South Africa reported just $131,000 of exports of any kind of diamond to China, whilst China reported $4.8 billion of diamond imports from South Africa. Indeed, every year between 2014 and 2018 China reported more than $3 billion of imports of diamonds from South Africa, whilst South Africa never reported more than $1.3 million.

One possibility might be that the discrepancy relates simply to misclassification of diamonds flowing through South Africa from neighbouring countries en route to China. Analysis of data on the regional diamond trade (see Figure 2 for an illustration) shows that this is not plausible: the volume of diamonds China reports importing from South Africa are more than an order of magnitude larger than the volume of diamonds being exported to South Africa by its key diamond producing neighbours, Botswana and Namibia (no trade was reported for Zimbabwe, another significant diamond producer). Whether the diamonds registered by China as imports from South Africa are actually South African diamonds or come from one of South Africa's neighbours, it is clear that the vast majority of diamonds are not being reported as exports to China by any of these countries.

Another possibility might be that the discrepancy is created by South Africa exporting to other countries, which then re-export the diamonds to China. This might lead to China registering diamond imports from South Africa, whilst South Africa registers the diamonds as exports to a third country. If this was the case one would expect to see that South Africa's overall estimates of diamond exports matched relatively closely with the overall estimates of diamond imports from South Africa registered by countries the world over. However, in fact, there is a large discrepancy: analysis of UN COMTRADE data reveals that in 2018 South Africa registered just over $2 billion of diamond exports in total, whereas 36 countries registered a grand total of over $9 billion in diamond exports from South Africa, with China reporting by far the most imports from South Africa. Even allowing for the possibility of some double counting in partner country data (due to both primary exports and some re-exports from South Africa showing up in partner country data) the sheer size of this discrepancy suggests mis-invoicing is likely occurring at scale.

Figure 2: Diamond trading within southern Africa and with China



Source: UN COMTRADE data

It is probably impossible to disentangle how much of the discrepancy relates to mis-labelling of complex trade flows and how much relates to genuine IFFs. However, the diamond industry is known to be responsible for significant IFFs and it seems likely that to a significant extent this represents under-invoicing of exports from South Africa, and therefore involves large IFF outflows from South Africa to China. This could be linked to illegal mining in South Africa and cross-border smuggling from neighbouring countries, issues acknowledge as major problems by the South African government (FATF, 2013). South Africa charges a 5% 'Diamond Export Levy' (SARS, 2019). If the discrepancy related solely to under-invoicing of diamond exports, this could therefore represent up to $210 million in lost customs revenue for South Africa. This does not account for any lost revenue through the impact of artificially reduced company profits on reduced corporation tax receipts and any impact of under-reporting of production on Resource Royalty Tax receipts.

However, some of the discrepancy may also relate to over-valuation of diamond imports in China. Over-invoicing of diamond purchases is a well-documented mechanism used in money

laundering. Diamonds are suited to money laundering because of the "very high value of the commodity and the lack of known and stable prices for diamonds which allows for the manipulation of price" (FATF, 2013). For the same reasons it represents a convenient means of moving money abroad whilst evading foreign exchange restrictions and capital controls (FATF, 2013), a likely motivation given tight limits on foreign exchange purchase for Chinese citizens.

Zambian copper

China's estimates of overall imports from the Zambia are $4.1 billion, whilst Zambia's estimates of its exports to China are just $1.3 billion. At HS-6-digit level discrepancies indicative of under-invoicing of exports on departure from Zambia (or over-invoicing of imports on arrival) add up to $2.8 billion, with just $33 million of discrepancies indicative of over-invoicing or exports (or under-invoicing of imports on arrival).

The discrepancy overwhelmingly relates to a single line: Zambia estimated $942 million of unrefined copper (HS 740200) exports to China, whilst China estimated £3.2 billion of imports from Zambia (a $2.3 billion discrepancy). This pattern shows up consistently in Zambia's trade data, but as has been pointed out by Forstater (2017), there are good reasons for thinking that most of this does not reflect genuine IFFs. For example, in 2018 Zambia reported $4.3 billion of copper exports globally, whereas other countries reported $5 billion of imports from Zambia. This represents a discrepancy of just $780 million, significantly smaller than that for China alone, indicating that a decent proportion of the discrepancy relates to China identifying as imports from Zambia copper that Zambia recorded as imports to other countries and which were then re-exported to China.

However, under-invoicing of exports likely also makes a contribution to the discrepancy. Zambia's copper industry has previously been linked to large scale tax evasion and illicit financial flows, notably in relation to allegations of transfer mispricing and misrepresentation of costs by the Swiss firm Glencore (ActionAid, 2011). Estimates of the revenue loss to Zambia from under-invoicing of copper exports (from mining companies utilising transfer mispricing) of $500 million have been reported (Readhead, 2016), though the credibility of such high estimates has been challenged (Forstater, 2017).

Diplomatic tensions have arisen between China and Zambia in relation to illegal small-scale copper mining by Chinese immigrants (Reuters, 2017). At the other end of the spectrum, large Chinese companies are major players in the Zambian copper mining industry – notably through NFC Africa, a subsidiary of the Chinese SOE China Non-ferrous Metals Company Limited (CNMC), which operates several large mines (Reuters, 2018a). In 2015 Zambia's former Minister for Mines was accused of interfering in order to secure a mining licence for Zhongui International Mining Industry Group Limited, a Chinese company (Redhead, 2016). He was convicted, but was later released from jail when he won an appeal. Whilst he was later released from jail on appeal (Lusaka Times, 2017) this case combined with the known risk of transfer-pricing in relation to Zambian copper exports, highlights the risk of Chinese mining companies (like other international firms) using bribery to secure unequal contracts and then under-invoicing exports to China to circumvent tax liabilities.

Table 3: Chinese imports from Africa

		Angola	Code d'Ivoire	Ghana	Madagascar	Mozambique	Mauritius	Namibia	Tanzania	Uganda	South Africa	Zambia	Zimbabwe
Total trade	China figures ($ million)	25,652	254	2,426	215	651	37	503	394	47	27,240	4,132	890
	Partner figures ($ million)	22,204	178	2,032	141	302	34	499	145	32	8,551	1,308	36
	Discrepancy ($ million)	3,448	76	394	74	349	3	4	249	15	18,689	2,824	854
Trade value gap (HS 6-digit)	Under-invoiced partner exports/over-invoiced Chinese imports ($ million)	3,426	98	344	81	399	18	41	134	15	10,654	2,796	477
	Under-invoiced partner exports/over-invoiced Chinese imports (% trade value)	13%	39%	14%	38%	61%	49%	8%	34%	32%	39%	68%	54%
	Over-invoiced partner exports/under-invoiced Chinese imports ($ million)	10	21	11	10	49	17	427	51	0	251	33	0
	Over-invoiced partner exports/under-invoiced Chinese imports (% trade value)	0%	8%	0%	5%	8%	46%	85%	13%	0%	1%	1%	0%

Source: analysis utilises data for 2018 extracted from UN's COMTRADE (reproduced with permission) and the World Bank's World Integrated Trade Solution (WITS) databases (licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0)

China's imports from Asian countries

For six out of the 10 Asian countries assessed, China's estimates of its imports were greater than the partner's estimates of its exports to China. At HS 6-digit level, discrepancies indicative of potential under-invoicing at the point of departure (or over-invoicing on arrival) averaged 26% of trade value, whilst those indicative of over-invoicing at the point of departure averaged 16% of trade value.

Certain lines are particularly noteworthy. For example, Chinese estimates of diamond imports from India were $2.6 billion greater than Indian estimates of exports. This is significant both because of the size of the discrepancy, the consistency with the pattern already identified for South African diamond exports to China and because the diamond trade is known to be a major tool used in international money laundering. Indeed, FATF (2013) describes diamond over-invoicing involving India and Hong Kong, though involving the import of diamonds by India rather than exports. From the trade data alone it is impossible to know whether discrepancies relate to under- or over-valuation of products. It seems plausible that the discrepancy identified relates, at least in part, to Chinese businesspeople illegally moving funds out of China whilst avoiding foreign exchange and capital controls (see section below), and reducing domestic tax liabilities.

Another discrepancy very likely related to substantial IFFs involves Myanmar reporting $713 million less tin ore exports to China than China reports receiving, a pattern of discrepancies that began to emerge from 2013 and peaked in 2017. This aligns with the trajectory of production at the Man Maw mine near the border with China, which attracted global attention in 2015 (Reuters, 2016). Importantly, the mine, which has received substantial Chinese investment, is under the control of Myanmar's largest armed opposition group, the Wa State Army, which is on a US sanctions list for drugs trafficking. Tin from the mine is exported to China, almost certainly without the central government receiving any revenue and without inclusion in Myanmar's official trade statistics.

Box 3: Smuggling of Burmese jade to China

Jade is one of Myanmar's most important natural resources, but huge illegal smuggling of jade from Burma to China, combined with under-declaration of the price of jade to reduce tax liabilities (NGRI, 2019), means that the country is unable to make full use of this valuable resource to support economic development.

The scale of the impact is difficult to quantify due to inadequate data. However, a 2015 report by Global Witness (2015a) estimates that Myanmar's 2014 jade production should have been worth around $31 billion (almost 50% of the country's GDP). Almost all of it ends up in China??, but Chinese import data from 2014 showed only $12 billion of jade imports. Global Witness (2015a) quotes estimates from industry sources that "50%-80% of jade is smuggled straight over the Myanmar-China border" to avoid taxes. The Natural Resource Governance Institute (2019) estimates that the Burmese Government only collected revenue on 2-5% of jade production in 2014/15 and suggests that unrealistically high official tax rates on jade mining contribute to the problem by creating huge incentives to avoid payment, including through bribery of state officials .

Global Witness (2015a) claims illegal jade mining and cross-border smuggling both feeds on and "fuels corruption" in Myanmar. Both senior Burmese military figures and armed opposition groups have huge stakes in jade mining and smuggling. The connection between jade mining and criminality should be clear from the fact that fifty of Burma's jade mines are reported to be under the control of Wei Hsueh Kang, a financier of the Wa State Army who has also been described as the "architect of the methamphetamine epidemic" in Southeast Asia. Indeed, as well as the profitability of jade, figures such as Kang are attracted to jade mining because it provides an opportunity for "laundering drugs money through official gems emporiums" by "bidding on their own jade at artificially inflated prices" (Global Witness, 2015b).

China's official data on jade imports (under HS7103) from Myanmar fell precipitously from 2014, from $12 billion in 2014, to $1.6 billion in 2015, and then down to just $48 million in 2016. In 2018 it stood at just $90 million. This likely reflects a moratorium placed on jade production by the Burmese Government, which came to an end in late 2018 (Global Witness, 2018). However, illegal mining is believed to have continued at scale throughout this period (Beech, 2017), so it is likely that large-scale smuggling continued throughout that period

but is largely unrecorded in official trade statistics. Indeed, Chinese media reported $56.5 million of sales in March 2019 through a single jade market in Yunnan Province (Thomas, 2019).

Chinese online payment systems such as Alipay and WeChat Pay, and e-commerce platforms such as TaoBao, are believed to play a key role in the illegal trade and therefore to contribute to loss of income for the Burmese Government (Thomas, 2019). In addition, illegal Chinese investment in Burmese jade mines is understood to be very significant, with Global Witness (2015a) estimating that 70% of financing for the major mining initiatives comes from China.

Other discrepancies that stand out include Vietnam reporting $7.1 billion fewer mobile phone exports to China than China reports receiving, an extreme instance of a consistent pattern of apparent under-invoicing on departure (or over-invoicing on arrival) that has shown up for this trade line every year since 2009 with an accumulated discrepancy of over $12 billion. For India, there is also a discrepancy of $1.5 billion for petroleum-related exports to China, indicative of either over-invoicing on departure or under-invoicing on arrival. This is a fairly consistent pattern since 2010, with over $6.7 billion of net discrepancy over this period. This discrepancy potentially reflects tariff evasion; if the discrepancies represent under-invoicing of imports, the tariff loss for China would have been around $336 million over this period.

Table 4: Chinese imports from Asia

		Afghanistan	Indonesia	India	Cambodia	The Maldives	Myanmar	Pakistan	Thailand	Vietnam	Kyrgyzstan
Trade figures	China figures ($ million)	24	34,155	18,850	1,377	7	4,719	2,180	44,919	64,087	54
	Africa figures ($ million)	28	27,127	16,366	1,717	0	5,560	1,754	30,157	41,366	61
	Discrepancy total trade figures ($ million)	-4	7,028	2,484	-340	7	-841	426	14762	22,721	-7
Trade value gap (HS 6-digit)	Under-invoiced partner exports/over-invoiced Chinese imports ($ million)	0	8,021	6,790	315	1	1,636	596	17,866	20,848	16
	Under-invoiced partner exports/over-invoiced Chinese imports (% trade value)	0%	23%	36%	23%	14%	35%	27%	40%	33%	30%
	Over-invoiced partner exports/under-invoiced Chinese imports ($ million)	1	1,506	4,113	894	0	1,635	168	3,028	7,560	0
	Over-invoiced partner exports/under-invoiced Chinese imports (% trade value)	4%	4%	22%	65%	0%	35%	8%	7%	12%	0%

Source: analysis utilises data for 2018 extracted from UN's COMTRADE (reproduced with permission) and the World Bank's World Integrated Trade Solution (WITS) databases (licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0)

4. Corruption-related IFFs between China and developing country partners in Africa and Asia

Corruption and IFFs are intimately connected. Based on the IMF definition IFFs occur any time funds flow across borders that are destined to be used to pay bribes or which are the proceeds of corrupt practices.

China's FDI stocks in Africa have increased rapidly in the past fifteen years, rising from less than a billion in 2004 to over $46 billion in 2018 (China Africa Research Initiative, 2020). Between 2014 and 2018 over $18 billion of FDI flowed from China into Africa. Over 50% of China's FDI stocks in Africa are focused on mining and construction, two notoriously corruption prone sectors. A large proportion of stocks are also situated in countries with economies focused around natural resources and with poor track records for corruption, such as the DRC, Zambia, Angola and Zimbabwe. The scale of Chinese FDI in Africa means that, even if only a minority of investments involve corrupt practices, the scale of corruption-related IFF flows between China and Africa are likely large.

Frequent allegations have been made related to corrupt practices linked to Chinese FDI in Africa. Transparency International notes in a 2019 article that "several Chinese companies, including the China Energy Fund Committee, the telecommunications firm ZTE and the China Roads and Bridge Construction Company, have been accused of bribing senior government officials in Chad and Uganda, Zambia and Kenya, respectively." In March 2019 Chi Ping Patrick Ho, the CEO of the CEFC China Energy Company, was sentenced to three years in jail in the USA "for his role in a multi-year, multimillion-dollar scheme to bribe top officials of Chad and Uganda in exchange for business advantages" (US Department of Justice, 2019). In 2013 a $210 million contract between China's ZTE and the Zambian Government related to CCTV provision in Zambia's capital was terminated due to allegations of corruption, including concerns that the contract was overvalued to the tune of $100 million (IDG News Service, 2013). The US Heritage Foundation claims that another major Chinese telecommunications company, Huawei, has a "proven track record of engaging in corruption and other dodgy business dealings" in Africa (Meservey, 2018). In Algeria ZTE and Huawei were banned from public tenders after multi-billion-dollar corruption allegations.

In 2018 Zimbabwe's Government released a list of companies they allege had illegally transferred money out of the country (The Herald, 2018). 109 of the 157 companies listed were alleged to have illegally transferred money to China, with Chinese mining companies particularly prominent in the list. The most egregious case involved Chinese diamond mining company AFECC, trading as a joint venture with the Zimbabwean Government under the name Jinan Mining, which was alleged to have illegally failed to repatriate almost $333 million dollars of export proceeds, involving IFFs to "Botswana, Zambia, Sierra Leone, Mozambique, Dubai and China" (Pickles, 2019).

The combination of the large scale of Chinese FDI in Africa and the frequency of corruption allegations against Chinese firms in Africa, makes it likely that large volumes of IFFs are flowing between China and African countries. Notably this relates to profits linked to corrupt deals and bribery are being transferred out of African companies by Chinese companies. Trade-mis-invoicing – through under-invoicing of exports and illegal transfer pricing – are likely utilised for a

portion of corruption-related IFFs. However, a high portion of profits derived from corrupt practices are likely to flow through the formal banking sector.

5. IFFs related to the trade in illegal goods

Any cross-border financial flows related to the trade in illegal products and to other forms of transnational crime (such as people trafficking) are by definition IFFs. Such flows can relate to transactions inherent to such criminal enterprises (e.g. moving money internationally to pay for drugs) and can also relate to laundering of the proceeds of such crimes. This section first discusses money laundering related IFFs in the context of China, and then briefly discusses six key forms of transnational crime relevant to IFFs between China and developing countries.

Money laundering

China ranks 19th highest globally for money laundering risk on the 2019 Basel Anti-Money Laundering Index (Basel Institute on Governance, 2019), with a score of 6.59/10, a deterioration of 0.57 points from 2018. An Associated Press (2016) has described China as "emerging as an international hub for money laundering." According to the US State Department (2019) "Chinese authorities identify illegal fundraising; cross-border telecommunications fraud; weapons of mass destruction, proliferation finance, and other illicit finance activity linked to North Korea; and corruption in the banking, securities, and transportation sectors" as particular money laundering challenges.

There is little evidence on the scale of money laundering through China from developing countries, but it seems likely that the scale is substantial, since China is considered "a haven" where criminals can "safely hide money, clean it, and pump it back into the global financial system" (Associated Press, 2016).

It is also likely that IFFs flow in the opposite direction for laundering. The FATF (2020) identifies a number of jurisdictions in Africa (Ghana, Botswana, Zimbabwe and Kenya) and Asia (Pakistan, Myanmar, Mongolia and Cambodia) considered high risk for money laundering, with North Korea at an even higher risk level. In addition to these countries, many developing countries score poorly on the Basel Anti-Money Laundering Index. In Asia this includes Afghanistan (7.76) and Vietnam (7.3), whilst in Africa it includes Mozambique (8.22), Liberia (7.35), Benin (7.27) and Sierra Leone (7.2). All these countries have strong trade and investment links with China, which could be used to disguise illicit flows and enable money laundering by Chinese criminals.

Box 4: the relevance of extradition treaties to IFFs

Because IFFs are often motivated by the desire to siphon the proceeds of corrupt or criminal business dealings out of the country, there is likely to be a particular risk of IFFs flowing between countries which do not have mutual extradition treaties. As Naheem (2017) notes: "many Chinese cases of money laundering involve countries where there is no extradition agreement with China."

Amongst developing countries in Africa and Asia only those listed below currently have extradition treaties with China:

Sub-Saharan Africa	South and Southeast Asia	Central Asia
• Angola • Ethiopia • Republic of Congo (not ratified) • Kenya (not ratified) • Lesotho • Namibia • South Africa • Senegal (not ratified) • Zimbabwe (not ratified)	• Cambodia • Indonesia • Laos • Pakistan • Philippines • Sri Lanka (not ratified) • Thailand • Vietnam (not ratified)	• Afghanistan • Uzbekistan • Tajikistan • Mongolia • Kazakhstan • Kyrgyzstan

Narcotics

GFI (2017) has estimated that the global narcotics trade was worth $426-625 billion in 2014 and a substantial proportion of IFFs globally likely relate to narcotics.

The US State Department describes China as "a hub for drug and precursor chemical production and trafficking" and as a major narcotics money laundering jurisdiction (DED,2019). The drugs trade is facilitated by China's long international borders, which are often porous, enabling significant volumes of narcotics to flow across them, notably through the borders with Burma, Pakistan, Thailand and Vietnam.

Precursors are often exported to developing countries in Asia where the narcotics are actually produced. For example, Burma is a major producer of synthetic illegal drugs, but does not produce precursor chemicals, which are largely transported into Burma "by organised criminal syndicates" from China (INCSR, 2019). China is also a major source of methamphetamine and its precursors in Indonesia, the Philippines and Vietnam, and of "spice" (synthetic cannabinoids) in Uzbekistan. In 2018 15 metric tons of acetic anhydride from China were also seized in Georgia en route to Afghanistan to process heroin. IFFs between China and Africa also often relate, at least in part, to narcotics: notably in the well-publicised cases of "drugs for abalone" in South Africa.

China is also a major destination and transit point for opioids produced in Southeast and Southwest Asia (DED, 2019). Significant quantities of opiate produced in Burma are believed to be smuggled across the border into China's Yunnan Province (Chin & Zhang, 2007). Chinese drugs officials have described opium and heroin smuggling from Central Asia (including Afghanistan) into China as "limited", reflecting natural barriers and the orientation of Central Asian suppliers towards the European market. However, there is evidence that Afghan opium exports to Europe are often facilitated via IFFs utilising financial intermediaries in China, with both trade mis-invoicing and feiqian (see box) playing a role in this process (Lain et al, 2017).

Box 5: The role of feiqian

Feiqian (‘flying money’) is an ancient Chinese form of banking similar to the Islamic hawala system. Feiqian is frequently used to facilitate international transactions, but utilising a mechanism that generally ensures that funds do not need to move internationally. It is intimately connected to IFFs involving China and the developing world, and provides a linkage

between trade mis-invoicing and the trade in illegal goods. It is generally invisible, since the only records of transfers are in the books of a close-knit community of feiqian agents, though it can sometimes result in balance of payments account discrepancies between developing countries and China.

An exposé by investigative journalist John Grobler (2019) notes that feiqian "relies on the systematic under-invoicing of Chinese imports into Africa and a seamless chain of payments system in which accounts are settled through the transfer of high-end — and often illicit — goods." This includes illegal wildlife products - such as abalone, rosewood, rhino horn and ivory – and narcotics. "In brief: goods are undervalued on their import documentation; they are then sold for cash; and that undeclared cash is subsequently channelled into high-end commodities that are remitted to China to balance the feiqian books."

Grobler (2019) provides various examples of feiqian-enabled IFFs between China and Africa. This includes in Angola following the oil price collapse of 2014, when "foreign banks refused to sell US dollars to Angola until all outstanding debts had been settled." Chinese traders started converting their worthless Angolan kwanza into rosewood logs that were smuggled via Namibia to China, where they were sold for "very convertible yuan." Similarly, a case in Namibia, involved collusion between a Chinese businessman and a customs official to avoid duties by systematically under-invoicing Chinese textile imports, with feiqian utilised to resolve real balances.

Human trafficking

The US State Department (2019) reports that "China is a source, destination, and transit country for men, women, and children subjected to forced labour and sex trafficking" and accords it "Tier 3 status" for its lack of compliance with standards for preventing human trafficking. Trafficking involves IFFs as payments to traffickers and brokers flow across borders. For example, the US State Department reports that Chinese men pay up to $30,000 to brokers to secure foreign women for forced marriage, forced labour and sexual exploitation.

The volume of IFFs involved are impossible to quantify, but are likely large given the scale of the problem. According to data from China's Supreme Court 1,252 people were convicted for human trafficking related offences in China in 2018, and this is likely to represent the tip of the iceberg in terms of the total number of people trafficked. Key issues include trafficking of women from South Asia, Northeast Asia (notably Mongolia and North Korea), Southeast Asia (notably Cambodia, Burma and Lao) and Africa (notably Madagascar, Rwanda and Uganda) into China where they are coerced into forced labour or sexual exploitation, including forced marriage. Trafficking of men from these countries for forced labour also occurs, notably "migrant workers from Shan State" in Burma subjected to "forced labour on sugarcane plantations in China’s Yunnan Province" (US State Department, 2019). The State Department (2019) also references trafficking of Chinese women to Afghanistan, Azerbaijan, Thailand, South Korea and Taiwan for sexual exploitation and Chinese men and women to Brunei and Sri Lanka for forced labour. China is also a major human trafficking transit point.

The illegal arms trade

Few estimates exist regarding the scale of illegal arms smuggling from China to developing countries. Chinese-manufactured small arms are used extensively by non-state actors across

developing Asia and Africa, including in conflict hotspots such as Afghanistan (Small Arms Survey, 2013). However, it is generally difficult to determine how much relates directly to illegal smuggling from China, and how much is the result of legally exported arms being subsequently sold on or transferred to insurgents and criminal groups. For example, China's legal arms sales to Sudan appear to frequently find their way to non-state actors across Eastern Africa, but this does not involve IFFs to or from China (UNODC, 2019).

In contrast, Chinese-made weapons used by insurgents and criminal groups in Asia seems more often to be acquired through weapons smuggling from China rather than leakage from government-to-government sales. Smuggled Chinese weapons "account for the largest share of illicit weapons" in Nepal. Investigative journalists have also described the extensive use of smuggled Chinese-made weapons by armed non-state factions in Myanmar (Mizzima, 2019), as well as weapons smuggling from China through Bangladesh and on to rebel groups in India and Nepal (Bhaumik, 2014), and the use of Chinese made weapons by criminal smuggling syndicates (involved in exporting illegal wildlife products, marijuana and US dollars to China) in Nepal (Small Arms Survey, 2014). However, the volume of IFFs involved and the mechanisms deployed for transferring funds related to such illicit arms trading are unclear.

Illegal wildlife trade

The African Wildlife Foundation (2015) estimates that the total value of illicit wildlife trafficking (excluding fisheries and timber) globally is in the range $7-23 billion per year. China is likely the largest market for illegal African wildlife products, possibly receiving up to 70% of poached ivory (according to unnamed experts quoted by numerous media outlets, such as the BBC, National Geographic, the New York Times and others). In the first half of 2019, Nigerian customs officials confiscated over 50 tons of pangolin scales destined for Asia; the trade in pangolin scales is banned internationally and the animal is endangered (Oxpeckers, 2019). Large numbers of seizures occur on flights from South Africa, Kenya and Ethiopia to China (ESAAMLG, 2016) and ivory is also known to be smuggled out of Africa in container ships bound for the ivory trafficking "hub" of Shuidong in Southern China (Oxpeckers, 2017).

This illicit trade is facilitated by online trading in China, including through WeChat. Such trades often also involve trade mis-invoicing of legitimate products and the use of feiqian to facilitate international transactions, including through bribes to customs officials (Oxpeckers, 2014). For example, in South Africa feiqian facilitates a two-way illegal flow of methamphetamine into South Africa and illegally harvested abalone (a very valuable shellfish) to China (Grobler, 2019).

China is also strongly implicated in the trade in live exotic animals from developing countries. GFI (2018) reports that several of the world's largest wholesale markets for captured great apes are in China. Some of this trade relates to smuggling proper – where the animals are never registered by customs authorities – with payments through WeChat or utilising complex systems of trade mis-invoicing schemes and fei quan. However, a substantial portion involves the "C-Scam", where wild animals captured by poachers are falsely registered as having been bred in captivity. GFI (2018) reports that from "2009-2011 130 chimpanzees and 10 gorillas were exported from Guinea to China", registered as having been bred in captivity, despite the fact that Guinea has "no ape breeding facilities." For transactions of this kind international payments may be made using conventional payment mechanisms such as Western Union or bank transfers.

Remarkably, Chinese vessels are also major players in illegal fishing off West Africa, with IFFs resulting from misrepresentation of the territorial waters in which fish were caught, under-

reporting of catch volume and misreporting the types of fish caught. Illegal fishing contributes to unsustainable declines in fishery stocks, as well as loss of revenue for the relevant governments (GFI, 2017).

China is also "the primary destination for the majority of illegally-sourced timber" (GFA, 2017) and is a major processing centre for illegal timber from "Papua New Guinea, the Solomon Islands, and Indonesia" (GFA, 2011). The illegal timber trade is doubly damaging since it results both in loss of valuable habitat and natural resource for the developing countries involved and due to the loss in tax revenue from smuggling.

Trade in counterfeits

An estimated "two-thirds to three-quarters of counterfeit and pirated goods come from China" (GFA, 2011). The volume of trade in counterfeit goods between China and developing countries in Asia and Africa is unknown but is likely large.

China is the "leading supplier of counterfeit cigarettes" globally (von Lampe et al, 2012), as evidenced by the fact that 83% of fake cigarettes seized in Europe and 99% of fake cigarettes seized in the USA originated in China. Around 62% of the illicit trade in cigarettes is in the 'Asia and the Pacific' region, according to the WHO – much of this stems from China. More generally, developing countries (notably India, Pakistan and South Africa) are major markets for counterfeit cigarettes from China (GFA, 2011), often routed through other developing country transit points, such as Namibia (World Bank, 2019). This is backed up by seizure data (World Bank, 2019). As well as the reduction in tax revenues caused by cigarette smuggling, the lower tobacco prices caused by the glut of counterfeit Chinese cigarettes in developing country markets likely contribute negatively to public health outcomes both by reducing prices and because smoking counterfeit cigarettes causes "markedly greater exposure to toxic heavy metals than authentic brands" (Pappas et al, 2007).

The global counterfeit medicine industry is likely worth between $10 billion and $200 billion (Ozawa et al, 2019) and has been described by the WHO (2017) as an "important threat to public health". China is also one of the world's biggest producers of counterfeit medicine and pharmaceuticals, and much of what is produced ends up in developing countries (GFI, 2017). The majority of pharmaceutical ingredients in counterfeit medicine in West Africa originates in China, with a major Nigerian police operation in 2013 undercovering huge illicit importation of medicine from China. Similarly, an INTERPOL investigation into fake anti-malarial medicine in Southeast Asia suggested that a very high proportion of it came from China (OECD, 2018).

6. Gaps and further research

The following issues deserve further attention:

- Research on the role of feiqian in IFFs. There appears to have been little systematic analysis of how feiqian currently facilitates IFFs between China and the developing world. A deeper understanding of feiqian could help developing country governments better detect and disrupt IFFs.
- Research on the prevalence of transfer mispricing by Chinese firms operating in the natural resources sector in Africa. Chinese mining companies play an increasingly large role in resource extraction in Africa, whilst China has become arguably the key market for African minerals. Media reports and some criminal investigations, combined with certain

trade figure discrepancies, suggest that IFFs linked to transfer mispricing and other practices designed to reduce tax liabilities by Chinese mining firms may be an issue. However, further investigation would be required to determine the true scale of the problem.

- Research to improve the evidence base on the revenue impact of under-invoicing of imports. Almost all estimates of the tariff impact of trade mis-invoicing in developing countries – including those provided in this report - are based off aggregate trade data and unrealistic assumptions. Approaches that work with individual developing country customs agencies and finance ministries, to produce estimates utilising transaction-level data and comparisons to known international prices offer the potential for much more accurate estimates. GFI's (2018d) research with the South African Revenue Service provides a potential model. Such an approach also offers the potential to inform improved detection efforts by customs authorities.

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Key websites

- World Bank Open Data: http://data.worldbank.org/
- World Bank WITS: https://wits.worldbank.org/
- UN COMTRADE: https://comtrade.un.org/
- IMF country reports: https://www.imf.org/en/Countries
- Global Financial Integrity (GFI): https://gfintegrity.org/

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About this report

This report is based on 12 days of desk-based research. The K4D research helpdesk provides rapid syntheses of a selection of recent relevant literature and international expert thinking in response to specific questions relating to international development. For any enquiries, contact helpdesk@k4d.info.

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