

Illicit Financial Flows: Theory and Measurement Challenges

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This paper was prepared for UNCTAD as an input into a discussion on illicit financial flows and Sustainable Development Goals.

Summary

The theory and measurement of illicit financial flows (IFFs) is a vital challenge for the implementation of SDG targets. The challenge has a number of components. First, we have to agree on a broad definition of IFFs. We define IFFs as cross-border flows that are illegitimate because they are based on an abuse of power and cause harm to a society. This definition is deliberately broad, but we argue that it enables us to rule out significant false positive and false negative problems that beset the alternative definition based on legal violations. Moreover, our definition comes closest to the concerns motivating global discussions of IFFs. However, it does not automatically give us a list of all the important IFF flows that are relevant to policy-making. The selection of policy-relevant IFF indicators should meet three criteria: first, it must be possible to estimate the indicator using available statistics and techniques, or using feasible extensions of existing statistics; second, it must be possible to target the indicator using feasible policies to reduce what the indicator measures; and finally, the indicator must be precise enough in its measurement of damaging flows so that if policies succeed in reducing the value of the indicator, the result will be an improvement in development outcomes or prospects. Using these criteria, we need to agree on the most important flows that constitute policy-relevant IFFs. We argue that using our definition and criteria, a case can be made for the inclusion of important IFFs that are already in the policy discussion. However, a broad consensus needs to be constructed for the inclusion of particular IFFs because such a consensus does not appear to exist. Our definition and criteria may help in organizing that discussion and in limiting the range of IFFs and indicators and what exactly we mean by each of these IFFs. The most challenging task is to develop meaningful indicators for each selected IFF without significant false positives or false negatives being identified, and which satisfy the three policy-relevance conditions that we suggested. Here much work needs to be done, but our review of estimates shows that almost all the main measures that have been proposed have significant problems in terms of our criteria. We argue that some early exploratory work on a risk-based approach to measuring IFFs has been promising, though much work needs to be done to make this approach robust enough to achieve a broad consensus for each of the major types of IFFs of concern. Using this approach, we suggest a multi-level approach to identify very specific indicators targeting specific types of IFFs. Aggregating these indicators into a single indicator may have some value but is not of direct value for policy. Given the complex nature of IFFs targeting a composite aggregate indicator is likely to do more harm than good. The challenge going forward is to identify the policy-relevant IFF indicators at the micro- and meso-levels.

1. Introduction

Illicit financial flows refer to funds that are transferred across national borders in illegitimate ways. The illicit or illegitimate aspect of the transferred funds could be the way in which the funds crossed borders, for instance by evading official mechanisms of funds transfers. But funds that cross borders in perfectly legitimate ways can also be deemed to be illicit if the sources of the funds (for instance involving crime or rule-violating activities) or the uses to which the funds have been put (for instance terrorism or political corruption) are illicit, or if tax or other laws have been violated within the country. Illicit financial flows can be a part of trade-related flows (related to transfer mispricing and trade misinvoicing, as well as trade in prohibited goods), tax-related flows (that seek to evade taxes), capital flows (illegal or illegitimate transfers of capital or transfers of funds that were illegally acquired) or flows directly related to criminal or terrorist activity. Given the range of flows that can be deemed to be illicit financial flows, the challenge is to define 'illicit' in a way that is operational, and yet provide a measure relevant for capturing the concerns that are at issue. In particular, the objective of identifying and measuring illicit financial flows is to identify a number of flows that are damaging for sustainable development.

Illicit financial flows (IFFs) can obstruct sustainable development in a number of ways. The potential damage caused by these flows may include:

- a reduction of private savings and investment as a result of capital flight; a reduction in tax collection due to tax evasion or avoidance;
- the emergence of speculative asset bubbles as owners of illicit funds invest in specific assets perceived to be safe havens;
- unfair competition when smuggling practices destroy domestic industries and domestic employment;
- and damage to investor confidence when laws are not enforced or not aligned with legitimate social interests as a result of the influence of illicit financial interests.

Illicit flows can also make the enforcement of developmental policies more difficult because of the difficulty of disciplining illicit financial interests, they can lead to increased financing of criminal, terrorist and other damaging activities and they can distort politics by allowing hidden interests to influence policy-making in damaging ways. Identifying, measuring and targeting illicit flows can therefore be important for achieving sustainable development goals. However, to be effective, we have to identify and measure the flows that cause particular problems. This requires an identification of illicit flows relevant for a particular country and the identification of appropriate indicators so that the success of strategies targeting these flows can be tracked.

Given the many different types of potential illicit flows and the different processes through which these resources may be transmitted across borders, the definition of IFFs is not straightforward. A very wide range of cross-border financial flows have been deemed to be illicit, and the identification and measurement of the ones that are most relevant for policy

in particular contexts is a challenge. An inaccurate definition may result in targeting flows that policy cannot feasibly reduce over the medium-term, or more seriously, result in the targeting of flows whose reduction may actually cause harm. We will argue that the search for a simple definition of IFFs that can be used across all countries and all types of problems may be implausible given the multiplicity of problems and processes, suggesting that different types of IFFs may be more relevant in different countries and contexts. Therefore, we argue that the challenge is to achieve a consensus to identify and define a limited set of financial flows as illicit on the grounds that they clearly appear to be damaging on the basis of available theory and evidence, and which can be feasibly targeted by policy to improve development outcomes in the widest range of contexts.

We do not have sufficient evidence at this stage to reach a consensus on a comprehensive list of the most useful indicators for different contexts, let alone a single indicator that will suffice to measure IFFs across all countries. Instead, given the complexity of illicit flows, and the limits of our understanding, a reasonable strategy would be to develop a multi-level indicator system composed of indicators targeting specific illicit flows, and to test their usefulness for policy in different contexts. As our understanding of the usefulness of these indicators improves, we will be able to achieve a better consensus about which indicators that are most appropriate for particular types of contexts, countries or problems, and even to construct a composite indicator. We have considerable knowledge about the strengths and weaknesses of existing indicators, and we can select some of these indicators, or develop and strengthen them on the basis of their known weaknesses.

2. Measurement challenges and criteria

We believe the purpose of defining IFFs and identifying appropriate indicators is to assist *policy* that seeks to target IFFs as a way of accelerating or sustaining development. The most theoretically appealing definitions and measures may *not* be the most appropriate in typical policy contexts if these indicators are difficult to calculate, if they capture a range of flows that in some contexts may have uncertain effects on development outcomes, or if the measures are unlikely to be responsive to feasible policies. Our primary goal must be to minimize the chances of measurement errors, ensure that targeting the reduction of the selected measures is feasible, and that targeting these measures will help development and will not inadvertently achieve adverse outcomes. As we know from our experience with the Millennium Development Goals, the provision of indicators has a direct effect on policy (Sustainable Development Solutions Network 2015). As soon as an IFF is defined and the indicators for measuring it identified, these will become targets for policy in countries that select the IFF target as one of their Sustainable Development Goals (SDGs). These countries will design policies to reduce the measure of IFF according to the agreed indicators, and they will track their progress by looking at how the targeted indicator evolves over time in response to their policies. Choosing the right indicator therefore has to be judged in terms of this policy process.

As the SDG target is to reduce illicit financial flows, the indicators identified for measuring IFFs must measure illicit flows that are damaging for society, that are feasible to reduce, and whose reduction by policy will contribute positively to development. This may be stating the obvious, but it is important to remind ourselves why we are trying to define and measure IFFs, and that our efforts are part of the SDG process. From the SDG perspective, we believe any indicator measuring IFFs has to satisfy at least the following critical conditions:

- a) It must be possible to estimate the indicator using available statistics and techniques, or using feasible extensions of existing statistics; and
- b) It must be possible to target the indicator using feasible policies to reduce what the indicator measures; and
- c) The indicator must be precise enough in its measurement of damaging flows so that if policies succeed in reducing the value of the indicator, the result will be an improvement in development outcomes or prospects.

Meeting all three conditions (to the best degree possible) is essential to ensure that if a country measures IFFs using the selected indicators and succeeds in reducing them, the country will be better off as a result. It is important for an indicator to meet *all* three conditions to some extent, but the last one is particularly important because it is the one that is easiest to overlook. Indicators that inadvertently include many flows that are actually not damaging (the problem of false positives) or that exclude many flows that *are* damaging (the problem of false negatives) will provide measures that are weakly correlated with

development or not at all correlated. Targeting such indicators may not result in improvements in welfare. Even worse, if the false positives are flows that cannot be reduced without inflicting damage, targeting such an indicator may actually have adverse consequences. Such a measurement and tracking exercise would soon be legitimately criticized and could discredit the IFF SDG target as a whole. Unfortunately, finding indicators that actually meet these conditions is not easy. Indicators that meet one of these conditions may fail in terms of one or both of the others. For instance, an indicator that in theory measures flows that are unequivocally damaging for development may not be useful if the indicator is difficult to measure or if it identifies flows that are difficult or impossible to target with feasible policies. No indicator is likely to meet all of these conditions fully. In practice, therefore, we need to look for the best compromise indicators that satisfy all of these conditions to the greatest possible extent. It may also be that attempting to directly measure what are often hidden flows is fraught with too many potential measurement errors and a better strategy may be to identify 'risk factors' that measure the likelihood of particular flows being significant in specific contexts, as a way of indirectly estimating their magnitude and severity (Turkewitz, et al. 2018).

3. ‘Illegal’ versus ‘Illegitimate and Damaging for Sustainable Development’

3.1. ‘Illegal’ financial flows

Given the range of flows that could potentially be defined as illicit, it could be argued that a feasible definition of IFFs should simplify the problem by equating illicit flows with flows that are *illegal*. This definition would include in its remit funds that cross borders that are earned, used or transferred in ways that break specific laws, including tax laws. The merit of this definition is that it would at least allow us to identify IFFs relatively easily without having to make subjective judgements, and this could be the justification for making it the benchmark for policy (Forstater 2018; Turkewitz et al. 2018). However, while this definition does provide a definition of what is an illicit flow without reference to tests other than legality, there are significant problems from the perspective of our third criterion listed above. Will the indicators derived from this definition help to identify flows whose reduction will contribute (with a high level of confidence) to better development outcomes?

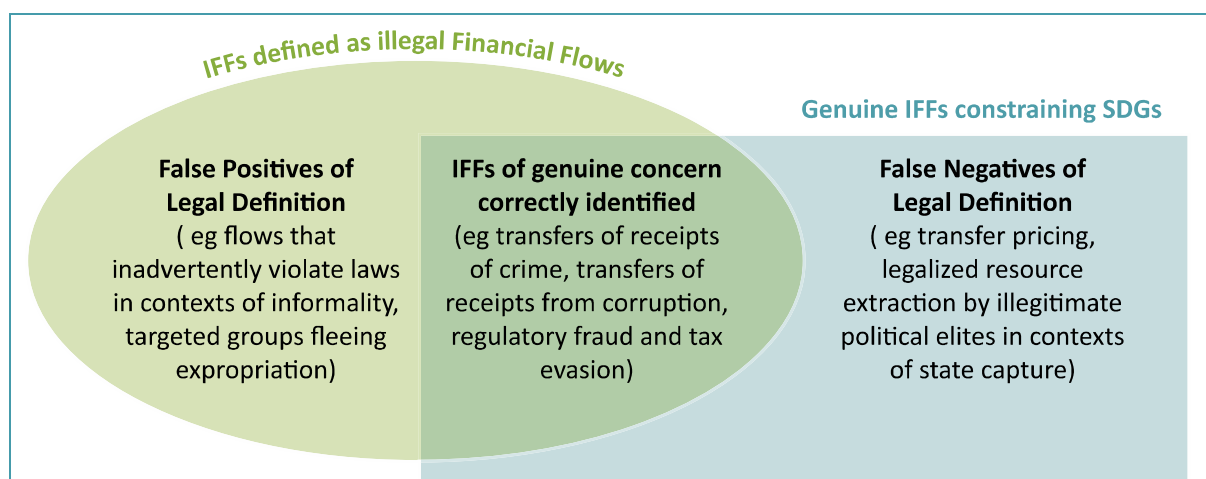
Consider the definition of IFFs as flows that break specific laws governing the earning, use or transfer of funds. This definition can generate a large number of false positives and false negatives from the perspective of sustainable development, and some of the false positives are particularly serious in that attempting to reduce them may have adverse consequences. A false positive is an identification of a flow as illicit according to a particular definition, which may actually *not* be damaging for sustaining development. For instance, there are many circumstances, particularly in developing countries, where some laws may be confusing or contradictory, and sometimes unworkable. Moreover, and partly related to this, the general level of adherence to laws is also often unavoidably low in many developing countries, which typically manifests itself in high levels of informality. In these contexts, a wide range of financial transactions may appear to have by-passed existing laws, even if they are everyday transactions in that context, and not necessarily the transactions that we want to target. Many businesses in developing countries, particularly smaller ones, may not be able to provide accounts for all their financial flows through appropriate book-keeping practices because of large elements of informality in many of their transactions. Similarly, many regulations may be difficult to adhere to if the regulations are themselves inappropriate. In these contexts, many cross-border transfers may involve funds that have inadvertently or unavoidably evaded some laws at some stage of their generation, use or transmission. In a more serious case of a false positive, the state may be captured by groups who may define laws in ways that seek to expropriate specific ethnic, political or business groups. Here the enforcement of discriminatory or predatory laws is morally questionable and moreover, the unjust expropriation of some groups is likely to positively damage development (Epstein 2005). This is why we would not normally consider capital fleeing from legal but unjust expropriation as an *illicit* capital flow. The examples discussed above

are only illustrative, but a wide range of flows of these types are not exceptional in the global context of cross-border flows. Of course, many illegal transfers will have deliberately violated useful laws and are genuinely socially harmful. Distinguishing between these cases of legal violations is critical if policy is to target the relevant flows.

Thus, all financial flows that involve some element of illegality are not necessarily unequivocally damaging for achieving SDGs in these developing country contexts. Moreover, targeting some of the false positives may have adverse outcomes. For instance, identifying flows related to the large informal sectors in developing countries as illicit is not likely to lead to a rapid formalization of these economies, making most of their financial flows legal. There is no quick way in which developing countries can achieve a rule of law and a regulatory structure that legitimate businesses can comply with *and* constrain their governments so that they cannot extract from specific groups or the entire society. If we do not believe this is rapidly achievable, then a definition of illicitness based on legality will identify a very wide range of persistent false positives, making it difficult to identify the flows that we really want to target. Even worse, the only immediate way of reducing the value of an indicator that includes these false positives would be to cut down cross-border transactions passing through the informal sector, which may have the perverse effect of constraining development in these contexts.

The legality-based definition can also generate false negatives. This means it can exclude a range of financial flows that we may wish to describe as illicit flows. For instance, some financial flows such as those involving tax avoidance or transfer pricing may be damaging to a country, particularly a developing country, even if they are entirely legal. The term illicit financial flow often refers to these types of flows in everyday usage, and also in the usage of a number of analysts engaged in policy research on illicit financial flows (UNECA 2018). There may also be a potential false negative problem if regimes in power in some countries use their control over legal processes to legally remit funds abroad that they have legally (but illegitimately) expropriated from particular business, political or ethnic groups. These transfers would be considered illicit in the discourse on illicit flows but would be excluded by a purely legal definition of IFFs.

For these reasons, a definition of illicit flows simply in terms of what is legal may not be appropriate in many contexts. Figure 1 summarizes the problem of false positives and false negatives that emerges from the legal definition of illicit financial flows. We believe that the false positives and false negatives that flow from this definition are sufficiently important (particularly the problem of false positives in the context of informality and the absence of a rule of law in many countries) that should preclude the use of this definition as the benchmark for identifying IFFs.

Figure 1: Implications of defining IFFs in terms of legality


Source: Authors

3.2. 'Illegitimate and damaging for Sustainable Development' financial flows

An alternative definition of IFFs can potentially address these problems of false positives and negatives. According to this definition, IFFs are cross-border financial flows that are *illegitimate* (irrespective of whether they are legal or not) because they benefit particular groups who *abuse their power* to engage in transactions that *damage society* (Blankenburg and Khan 2012). One of the two stipulations, namely that power has been abused and that society has been damaged, can be considered to be redundant. This is because if power has been exercised in enabling a transaction but society was not thereby harmed, it would be hard to say that power had been abused. Similarly, if society has been harmed by a transaction that benefited a group with the power to carry out this transaction, it would not be remiss to define this as a misuse of power. However, both parts of the definition are important to rule out transactions where social damage happens as a result of accidental or mistaken transactions that were not deliberate. The latter should not be counted as IFFs. This definition is harder to operationalize compared to the definition based on the violation of law, because there may indeed be a range of opinions about what constitutes damage to society or the abuse of power. But if we accept that this definition is closer to capturing the problem that motivated the discussion of illicit financial flows in the first place, we can ask whether the range of what is covered can be practically delimited to achieve a consensus on specific flows that satisfy this criterion. If the discourse on illicit flows had been primarily interested in illegal flows, the discussion would have referred to the relevant flows as illegal financial flows. The choice of the term 'illicit' was deliberate and tells us that the participants in this discussion were, and are, interested in flows that are *socially undesirable* in some sense, involve an *abuse of power*, and are therefore *illegitimate*, and not just illegal. The two approaches identify a different list of flows, and a relevant question to examine is whether the false positives and false negatives that derive from the legal definition are significant enough from the perspective of the SDGs for us to abandon or significantly modify that definition. We believe the anomalies that arise are serious enough for us to look beyond the legal definition.

The second definition of IFFs directly addresses the illegitimate financial flows that actually constrain the achievement of SDGs. This definition allows us to include in our remit some financial transactions that violate norms of legitimacy and obstruct the achievement of SDGs regardless of whether these flows are legal or illegal in particular jurisdictions. This definition is more closely aligned with what we mean by illicit financial flows in everyday discourse. This definition is different from the first in that it explicitly seeks to exclude the false positives (extra-legal transactions that may not be illegitimate if there is no way for legitimate businesses to abide by the law and add value for society) and to include some of the false negatives (legal transactions that may be harmful and therefore illegitimate) that were identified in Figure 1. However, while this definition may be closer to the everyday discourse on IFFs, at first sight it is difficult to operationalize, and the relevant indicators more difficult to identify. This is clear when we consider the complex range of financial flows that we need to include and exclude from the list of illegal flows to identify the illegitimate financial flows that actually constrain the achievement of SDGs.

There are a number of potential objections to this alternative definition of IFFs. Some of these concerns are valid but they can be addressed, particularly given the serious disadvantages of the alternative. One possible objection is that a definition of IFFs as flows that are illegitimate involves observers making subjective judgements about social damage and the abuse of power to identify the relevant damaging flows. This makes the definition hard to operationalize relative to a definition based on legal violations to identify the relevant flows (Turkewitz, et al. 2018). This is an important argument because it is clear that there is indeed no simple criterion that can be used to identify all the illegitimate flows that are damaging for the SDGs, or for society in a more general sense. The criterion of social damage cannot be applied to every cross-border flow to identify the ones that are problematic in a way that all observers would agree on. Moreover, the social damage inflicted by the financial flow would have to be illegitimate, in the sense that it benefited a specific group that was *abusing its power*, because we would not want to count as IFFs flows that were damaging because the national or world economy was in crisis, or because there were policy mistakes from the perspective of the observer.

Apart from the argument of subjectivity and operational difficulties, Maya Forstater (2018) argues that IFFs should only refer to illegal cross-border transfers because otherwise we risk undermining the respect for a rule of law. This is an important argument, but it confuses the *enforcement of law* with the achievement of a *rule of law*. A rule of law describes a system where all individuals and organizations are subject to the law, including lawmakers and law-enforcing agencies, which limits the possibility of powerful groups misusing the law for their own interest. The achievement of a rule of law is a long historical process and most developing and emerging countries are some way from getting there. The rule of law can occasionally be under threat in advanced countries too. What most countries have is *rule by law*, and in these contexts, who makes the law, and how constrained they are by law themselves, determines the content and legitimacy of the law (Khan 2018). This is why the enforcement of a law that targets and seeks to expropriate specific businesses or political parties or ethnicities is not necessarily a rule of law; and why the imposition of such laws can be both illegitimate and socially damaging rather than the reverse. We agree that moving towards a *rule of law* is a desirable objective for all countries, but enforcing every existing

law in every jurisdiction, or blocking financial flows that violate any such laws, may not be the most propitious way of advancing that cause. The alternative definition takes these challenges into account and argues that the objective of identifying and measuring IFFs is to identify and track the illegitimate financial flows that are directly affecting the achievement of SDGs in countries that may be at quite different stages of achieving a rule of law (Blankenburg and Khan 2012).

A secondary argument that Forstater makes is that if we are concerned with tax avoidance and transfer pricing, we should look at transfer pricing problems under SDG 17.1 (domestic resource mobilization) and not SDG 16.4 (illicit flows). However, tax avoidance and transfer pricing are examples of financial flows that, though they may sometimes be legal, are nevertheless identified as IFFs by some analysts. These flows *could* therefore be incorporated in our second definition but would definitely be excluded by the strictly legal definition. Whether we wish to include transfer pricing and tax avoidance even in our second definition is a separate question. We do not necessarily take a strong position on this. Whether we include tax avoidance and transfer pricing problems in our list of IFFs that constrain the achievement of SDGs in Figure 1 is a matter of achieving international consensus on this issue.

Using the second definition does *not* mean that we need to exhaustively identify the full range of flows that satisfy the definition. Rather, it provides the criterion that any flow *included* in our policy-relevant list should satisfy, but the actual list will necessarily be selective and determined through a process of discussion to reach the widest possible consensus on the inclusion of particular flows. Adopting the second definition does *not* require us to agree on the inclusion of any specific financial flow in our list of relevant IFFs. The list of flows that we should *include* in our agreed list of IFFs will depend on the degree of consensus supporting the inclusion of this particular flow. The three conditions that we referred to earlier to ensure policy relevance will further narrow the selection of the agreed list of flows. However, the second definition will also *exclude* some flows on the grounds that these flows do not necessarily cause avoidable social damage and immediately blocking these flows may itself inadvertently cause social damage.

On these grounds, we could argue that there is a case for *including* transfer pricing and tax avoidance in our definition of IFFs. However, the specific indicators used to measure and track these flows have to be plausible, they should measure flows that are the outcome of misuses of power and they should satisfy the other conditions discussed earlier. Otherwise, including measures of tax avoidance that have too many false positives may weaken support for including this category in the list of IFFs under the second definition. Note that using the second definition does not rule out the problem of false positives and false negatives. We still have to be careful in identifying the appropriate IFFs and indicators so that we are not picking up financial flows that we do not want to pick up, or excluding the ones that we do. We will see examples of these problems when we discuss specific IFFs and indicators below.

Thus, we believe there is a way of operationalizing the second definition, keeping in mind the objectives of measuring IFFs identified earlier, and the three conditions that we believe indicators of IFFs should satisfy. Instead of thinking of the second definition as an algorithm

that anyone can use to identify the full range of IFFs, we should instead think of it as a guide for a discussion to seek a broad consensus about a number of specific flows that we wish to track and control in line with the SDG target. To operationalize this approach we therefore need to specify a number of important types of financial flows that are likely to be damaging for SDGs in a variety of contexts. This will help to identify a list of important financial flows that comply with the second definition, and approximate some of the most important flows that would be included in the box labelled 'genuine IFFs constraining SDGs' in Figure 1.

The aim is *not* to identify an exhaustive list of *all* the financial flows that are illicit in terms of this definition because it is not likely that we will achieve consensus on such a list. The criticism that this definition involves making subjective judgements is therefore clearly correct. We do need to achieve a broad consensus on a list of flows and indicators that satisfy the definition and the conditions for policy relevance. The agreed upon list may therefore turn out to include only illegal flows (as suggested by Turkewitz et al.) provided they satisfy the condition of causing avoidable and therefore illegitimate social damage, and they may exclude transfer pricing and tax avoidance (as suggested by Forstater). However, they would *not* include all cross-border transactions that fail the legality test, because this would result in too many false positives to make the measure useful. At the minimum, reducing the problem of excessive false positives is the significant contribution of the second definition, and may save the IFF tracking project from becoming unworkable in developing countries. Moreover, if we move beyond their argument for a purely legal definition of IFFs, the risk factor approach suggested by Turkewitz et al. (2018) may provide a useful way of operationalizing tracking the IFFs that we agree satisfy the conditions for SDG policy-relevance.

It is important to point out that while the second definition involves making explicit subjective judgements and reaching consensus on these judgements, the alternative legal definition also makes an implicit subjective judgement of great significance. This is that an adherence to existing laws is a necessary and sufficient condition for achieving the social good, and any non-adherence to law, regardless of context or feasibility, constitutes an illicit act that the international community should target. We do not believe that this judgement will actually achieve broad acceptance because of the very significant false positives and false negatives that we have discussed. The problems of weak governance and a poor rule of law in developing countries are widely recognized in the literature. In fact, the subjectivity problem in the illegitimacy definition is actually easier to address, by defining the problem as one of achieving a broad consensus on a finite list of flows that satisfy a broadly defined set of criteria and conditions.

To conclude, we believe that it is possible to make the illegitimacy definition practical. To do that, we would need to identify a *list* of flows that most observers would agree were damaging for development and sustained by an abuse of power, and these are exactly the types of flows that are described as IFFs in the popular discourse. Our list may include flows that are not entirely illegal, and may exclude some flows that are. If a broad consensus cannot be achieved for the inclusion of a particular flow, then even if some observers think the flow is illegitimate and damaging, we will have to drop that flow from the consensus list. We argue that this process of discussion and seeking consensus is essential to identify a list of policy-relevant flows and indicators that should be included in our measure of IFFs.

4. Parallels with corruption analysis

Some of the problems that have emerged in the discussion of illicit financial flows have close parallels with problems that have emerged in the analysis of corruption. Corruption has sometimes been defined in a 'narrow' legalistic way, as the violation of formal rules by those in public authority to further their economic or political interests. According to this definition, corruption involves public officials breaking the law for personal gain, typically involving bribery. Just as with illicit financial flows, when corruption is defined in terms of illegality, many types of activities that would be described as corruption in everyday usage are excluded.

To include these cases, the definition of corruption has moved away from a narrow legalistic one to align more closely with issues of public concern. Corruption may not involve the breaking of laws if laws prohibiting the misuse of power in specific ways do not exist, or if bureaucrats or politicians use the discretion that they are legally allowed in partisan ways. In extreme cases of state capture, politicians or bureaucrats may define laws in ways that give them the right to capture resources in legal but illegitimate ways. In all these cases, a narrow definition of corruption as violations of laws by those in positions of power may be too restrictive. As a result, corruption is now normally understood to be 'the abuse of entrusted power for private gain' (<https://www.transparency.org/what-is-corruption>). Variants of this definition have been adopted by most international organizations including the World Bank (Bhargava 2005). The notable feature of this definition is that it no longer relies exclusively on violations of law to define corruption, and brings in the abuse of power as a critical determinant of corrupt activities. Moreover, the broader definition of corruption does not require the involvement of public officials. Individuals in the corporate sector enjoying 'entrusted power' could also engage in abuses of power that would be classified as corruption.

The broader definitions of corruption and of IFFs thus have important overlaps. Both refer to transactions that are illegitimate because they involve the abuse of power. Illicit financial flows refer exclusively to transactions that cross international borders, while corruption refers to transactions that are generally within a national jurisdiction. Corruption still refers primarily to activities that involve someone in public authority, like a politician or a bureaucrat, even though the broader definition of corruption as violations of entrusted power can include corruption by the corporate sector that does not involve public officials.

The discussion of IFFs sometimes includes corruption as a separate category of cross-border financial flows. However, this is likely to result in unnecessary double counting. When the receipts of corruption cross international borders, whether they are bribes, or the excess profits of companies that engage in corruption, these flows would be identified as IFFs in any case. If we use a legal definition of both corruption and illicit financial flows, then bribery incomes that cross international borders would be classified as IFFs automatically. Similarly, if we use a broader social legitimacy-based definition of corruption and IFFs, then any corrupt incomes of public or private sector entities, based on the abuse of power and crossing international borders would be automatically classified as IFFs. This is why,

irrespective of the definition of corruption and IFFs, the cross-border movements of incomes generated by corruption would automatically be illicit financial flows. It is not necessary to include bribery or corruption as a separate category of IFFs, and doing so would risk double counting.

Given the close overlaps between corruption and IFFs, the analysis of IFFs can benefit from the considerable policy experience and analysis that has developed for anti-corruption strategies. An important lesson is that IFFs (like corruption) describe a very wide range of transactions. Transactions that involve corruption can range from petty corruption that can have limited effects on overall economic performance, to types of corruption that can significantly distort policy and divert very significant resources away from productive uses (Khan 2002, 2006). The multiplicity of types of corruption, each driven by different sets of factors, has meant that measures of corruption matter a great deal. Ignoring these differences means that aggregate measures of corruption are likely to 'add up' many different types of corruption that have different causes and effects. Targeting such an aggregate measure can be quite problematic. Attempting to devise a policy that simultaneously targets all types of corruption and is thereby likely to make a dent on the aggregate measure is very likely to fail.

Similarly, IFFs can describe very different flows with very different underlying drivers. Some of the drivers of corruption and IFFs may be hard to change by immediate policy, and targeting these types of IFFs (or corruption) may not deliver immediate results. Indeed, the attempt to target forms of corruption that are structural and cannot be immediately reduced can occasionally do damage. For instance, some types of corruption can emerge as a result of the insufficient development of a rule of law in developing countries and the prevalence of clientelist politics (Khan 2005). In these contexts, anti-corruption has to be carefully targeted if it is to be effective, because many activities may be inadvertently tainted with corruption. Anti-corruption strategies that target aggregate measures either do not work (there are too many different things being targeted) or inadvertently have negative effects because some types of corruption cannot be feasibly reduced and attempts to reduce these types of corruption can squeeze economic activities without achieving the significant structural changes that promote a rule of law or reduce these types of corruption. A general anti-corruption strategy may therefore achieve very little in these contexts, as we know from the disappointing achievements of general anti-corruption strategies in many developing countries (DFID 2015; Johnsen, et al. 2012). A similar caution should apply to strategies to address IFFs. Just like corruption, there are many types of IFFs, with different drivers. A strategy targeting IFFs is only likely to deliver results if it targets *specific* IFFs that are amenable to feasible policy interventions and uses appropriate indicators to measure progress in reducing these specific IFFs.

If policies target very broad measures of IFFs the results can be adverse, just as they can be by targeting broad measures of corruption. This is again for similar reasons: the policy target can then include flows that may have structural drivers that cannot be changed in the short to medium term, without harming the economy or social welfare. Consider a measure of IFFs that includes: outflows that are the result of illegal tax evasion; notional tax losses that arise as a result of tax concessions granted by a developing country to attract foreign

investment; criminal activity; poor rule of law conditions that result in inadvertent legal violations by some businesses; and capital outflows due to high political expropriation risk. A composite measure that does not discriminate between these flows is actually a bad measure of illicit flows from a policy perspective, because policies targeting such a measure could easily make some societies worse off. For instance, the composite indicator may include some flows that are difficult to target, like the proceeds of crime, or the flows that are tainted because of a general weakness of the rule of law. It may also include some flows that are easier to target like tax avoidance. But, paradoxically, the easy to address flows may not be the most damaging flows, and some tax concessions may be deliberately offered by some developing countries to attract foreign investment that would otherwise have been disincentivised by adverse conditions, including a weak rule of law, weak infrastructure or political risks. Choking off these concessions may reduce the measure of IFF, but it may also have the unfortunate effect of reducing investment and thereby social welfare in that country.

Our work on feasible and high-impact anti-corruption strategies in the Anti-Corruption Evidence Research Consortium at SOAS University of London (SOAS-ACE - <https://ace.soas.ac.uk>) is based on avoiding some of the failures that have beset generalized anti-corruption strategies that developing countries and the international community have often tried to implement in very adverse contexts. The SOAS-ACE research on anti-corruption shows that anti-corruption has to be designed to target very specific types of corruption that operate very differently across sectors and countries. It is very likely that the same considerations will affect strategies targeting IFFs. Given the many different types of IFFs, the relevant IFFs may also be different across countries with different characteristics. The immediate challenge is to agree on a list of IFFs that satisfy an agreed definition and policy-relevance tests (we suggested three critical conditions that indicators of IFFs must meet). The second challenge is to field-test indicators and measures of these IFFs so that we are assured that our measures are not misleading or damaging and are actually useful for monitoring the progress of anti-IFF policies in a variety of contexts. An even later statistical challenge will be to agree about how best to aggregate a number of different measures of each type of critical IFFs (for instance capital outflows affecting domestic investment, profit shifting that reduces tax collection, flows associated with drugs, human trafficking or terrorism) into an aggregate measure that is still useful. However, we should not jump into the aggregation problem without first going through all the prior steps, which clearly still need to be taken. In the next few sections we discuss a number of potentially important components of IFFs and evaluate the indicators available for measuring them.

5. Multi-nationals and tax evasion: What would a feasible IFF indicator look like?

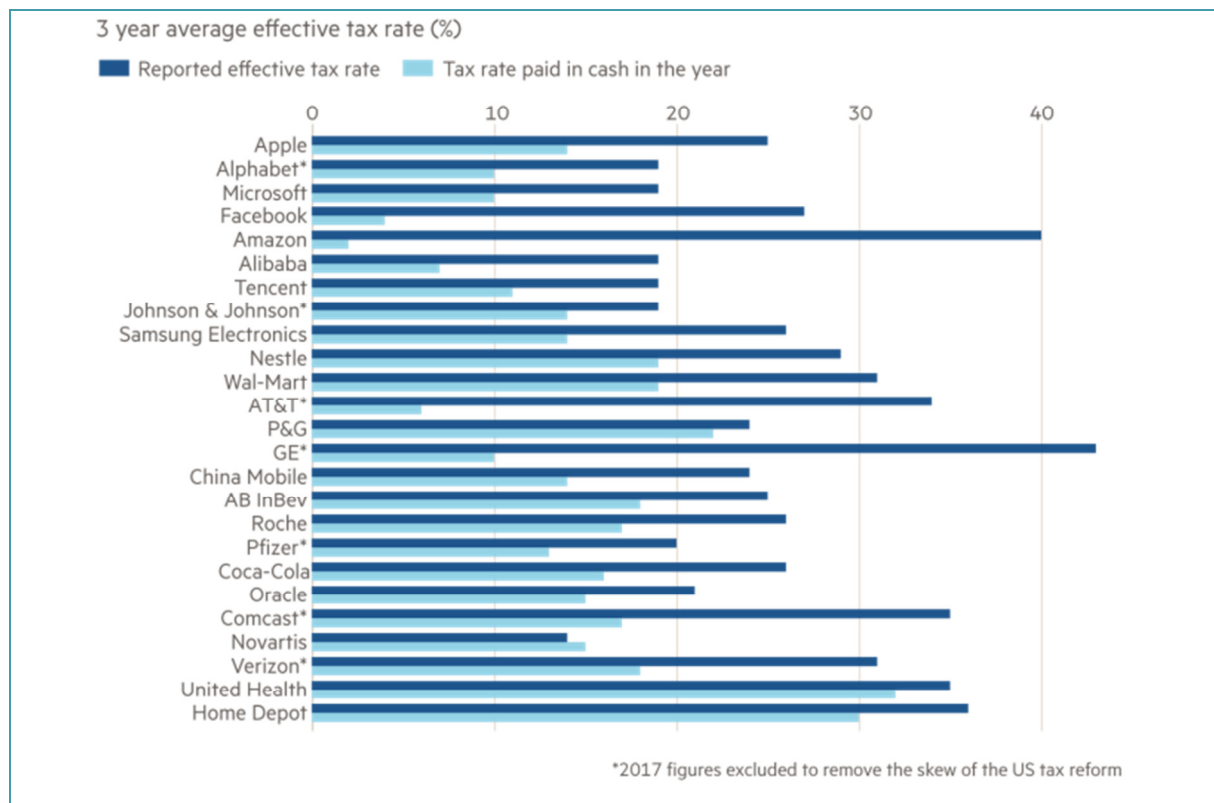
This section looks at illicit financial flows arising from tax evasion, tax avoidance and regulatory distortion. Recalling our earlier discussion of false negatives, a legal definition of IFFs would exclude tax avoidance as an IFF. For the moment, we include tax avoidance issues as a potential IFF as we will follow our second definition of IFFs as illegitimate flows, and because there is a considerable body of policy literature that includes these flows as illicit. Including tax avoidance as an illicit flow has been justified on grounds of tax justice and the importance of taxation as a source of revenue for funding public goods and development. The need to enforce ‘arm’s length’ taxation and clamp down on profit shifting has resulted in intensive efforts at a multilateral level, especially with regard to corporate tax evasion and avoidance by multinational corporations (MNCs). Recent efforts by the OECD have also identified profit misalignment as a problem that can arise due to illegal evasion, illegitimate avoidance and lawful avoidance (Cobham and Jansky 2017). However, Cobham and Jansky point out that abiding by the new OECD goals set out in 2013 will not help to eradicate the full range of profit misalignment problems because that is not the OECD goal. According to them, the OECD goals are predicated on the suggestion that MNC parents and subsidiaries should be treated as independent profit making entities and they recommend market-based transfer prices for assessing transactions between parents and affiliates. Cobham and Jansky rightly question the logic of this as MNCs exist to internalise ownership advantages and hence cannot credibly be asked to use notional market prices for internal transfers. The alternative, they suggest, is to allocate profits and taxes between affiliates based on their real economic activity in each country. The aim is therefore not to track tax evading or avoiding behaviour directly, but to track the scale of profit shifting using the misalignment between profits and economic activity across the countries (particularly developing countries) where the MNC is operating.

The reason for focusing on MNC activities in developing countries is mainly because the tax base in developing countries is very thin, especially for income taxes, and taxation of corporate profits is often the main source of direct tax revenue (UNECA 2018). Shifting profits for tax avoidance in this context can have adverse consequences for development. The report of the high level panel on illicit flows from Africa, quoted in UNECA (2018) estimated that African countries were losing USD 50 billion annually due to illicit flows and that between 2000 and 2015 net illicit outflows between Africa and the rest of the world averaged USD 73 billion annually (UNECA 2018). The two main ways in which MNCs dodge taxes are debt restructuring and transfer pricing. In the first case, MNCs lend heavily from tax havens to affiliates in higher tax jurisdictions. The interest deduction on the debt in the poorer country significantly reduces tax incidence. Developing countries tend to lack rules disallowing thin capitalisation and this allows them to stack up debt more easily. The second route is through transfer mispricing (Centre for Applied Research, et al. 2015).

Estimates provided across a range of studies show how profit shifting to low tax jurisdictions like tax havens and secrecy jurisdictions help MNCs lower their tax liability very significantly. The fact that higher statutory tax rates lead to higher debt equity ratios has been studied in the literature, especially for the US and Germany (Desai, et al. 2004; Mintz and Weichenrieder 2005; Buettner, et al. 2006). Huizinga et al. (2006) also showed that European MNCs followed strategies using differences in tax rates and systems across countries to reduce their liabilities. Dischinger et al. (2010) showed that companies with subsidiaries which had an overall high firm-specific risk were more prone to use debt shifting than the subsidiaries with lower firm-specific risk, using German firms with high R&D risks as an exogenous proxy variable for risk. Other work focusing on IFFs and transfer pricing include Fuest and Riedel (2012), Reynolds and Weir (2016) and Johannesen and Larsen (2016). Later empirical work has focused on specific estimates using dollar values.

A number of studies have used the idea that reporting of income is sensitive to changes, and differences, in tax rates—essentially measuring the elasticity of reporting. A recent review article on the literature on elasticities by Dharmapala (2014) suggests that based on studies of semi-elasticity the magnitude of profit shifting may not be as high as the prevailing policy discourse suggests. However, he does question whether the methodology is failing to pick up potentially large infra-marginal profit shifting. On the other hand, estimates by accountants and most recently by De Simone and colleagues (2016) suggests income shifting might be larger in magnitude than the current policy discourse suggests. MNCs not only shift profits across jurisdictions to take advantage of differences in tax rates, they also shift profits from higher profit to lower-profit or loss-making affiliates as a way of reducing overall tax liabilities. When including loss-making affiliates in their study, the tax elasticity, or income shifted due to a change in tax incentives nearly doubled. The scale of the problem may be inferred from the *Financial Times* chart below which shows the difference between the effective tax rates reported by MNCs at their headquarters and the actual tax paid. The difference plausibly reflects the tax these MNCs have saved by shifting profits to reduce liabilities. The reduction in tax liabilities not only affects developing countries, but also advanced countries and China where most of these MNCs are headquartered. This literature suggests that the profit shifting problem includes shifting profits across profitable and loss-making affiliates as well as across high-tax and low-tax jurisdictions.

Figure 2: Gap between reported effective tax rates and tax actually paid



Source: Financial Times (<https://www.ft.com/content/2b356956-17fc-11e8-9376-4a6390addb44>) (Toplensky 2018)

It may be objected that a company with many affiliates should be allowed to do tax planning to reduce its liabilities, and this is indeed the case. However, the argument would be that cross-border tax planning that shifts profits across national borders is illegitimate and harms at least one of the countries in a way that it did not agree to when setting its tax codes.

Most of the work based on elasticity does not provide estimates and dollar values of revenue losses, but some more recent literature reviewed below does. UNCTAD (2015) estimates that profit shifting from developing countries leads to losses of USD 91 billion annually. Their approach looks at data on Foreign Direct Investment (FDI), and estimates tax revenue losses associated with inward FDI that is linked to tax havens. The estimates look at the relationship between relative rates of return and offshore investments. They find that corporates based in tax havens pay substantially less tax than those based in other jurisdictions. However Cobham and Jansky (2017) correctly point out the reasons why these estimates might be capturing not only corporate profit shifting but also avoidance of capital gains taxation or withholding tax as well as treaty shopping. Another study at the IMF by Crivelli et al (2015) establishes a causal link between the average of corporate tax rates in tax havens and the incidence of base spillovers. The intuition here is that the estimated losses due to profit shifting point to how much revenue a country would gain if the tax rates in the tax havens could be brought into line with that of the home country. Cobham and Jansky’s robustness test points to the fact that lower income countries lose relatively more taxes. A similar effort by the OECD (Johansson et al 2017) estimates revenue losses from profit shifting at USD 100 to 240 billion annually, representing between 4 to 10 percent of

global corporate income tax revenues (CIT). The OECD's estimates are broader than the UNCTAD's or the IMF's in terms of the effects they try to capture: profit shifting due to tax differentials across jurisdictions and differences in average effective tax rates between large subsidiaries due to differences in tax systems and preferences. In the first instance, losses from profit shifting amount to USD 99 billion and losses due to differences in average effective tax rates to USD 50 billion. However the Orbis database the work draws on underrepresents both secrecy jurisdictions and lower income countries and hence the true scale and nature of profit shifting sensitivity cannot be fully established on this basis (Cobham and Jansky 2017). The OECD study also uses financial accounts rather than tax returns, making the data relatively less robust as tax returns may sometimes show that actual taxes paid were even lower than the financial accounts estimated.

A study by Clausing (2016) deploys a two-step approach to estimate profit shifting by US MNCs using statistics from the Bureau of Economic Analysis. She estimates the semi-elasticity of reported income with respect to tax rate differentials across countries for US firms to estimate the profits that may have been declared by subsidiaries of US MNCs if the differential in tax rates between the US and the countries the subsidiaries operated in disappeared. She then adjusts for various parameters like foreign MNCs profit shifting from the US and intra-firm transactions between US MNCs and their affiliates relative to intra-firm transactions between foreign parents and their affiliates, to arrive at estimates for US losses from profit shifting. In a second step she extends her US estimates to most of the global economy using the Forbes 2000 Global database of the largest corporations. Here she assumes that the share of income booked by these global MNCs in low tax countries (she identifies 17 countries with an effective rate lower than 15 percent) is proportionate to the share of income reported by US MNCs in these low tax jurisdictions. She then applies the same semi-elasticity estimate to calculate what profits would be in low tax countries and the magnitude of the shift to these jurisdictions. Her estimates suggest that around USD 545 billion of profits of US companies and around USD 1,076 billion of profits for MNCs from other countries were booked in low tax countries because of the tax differential. While her work on the US is more robust, her scaling up and extrapolation to MNCs headquartered elsewhere should be taken as indicative. However, the scale of the estimated revenue losses for higher tax economies as a whole (including both developed and developing ones) suggested by this work is truly staggering.

Two further attempts by the IMF (2014) and EPRS (2015) at estimating losses from profit shifting use the efficiency of corporate income tax across countries. The efficiency of tax collection is a measure of the ratio of actual tax collected to the amount that should be collected given the corporate tax rate and the tax base. The IMF study found this efficiency declined with increases in the corporate tax rate, which can be attributed to profit shifting. The EPRS study which concentrates on the EU points to the fact that a cost-effective regulatory enforcement could significantly improve CIT efficiency and lessen profit shifting. Cobham and Jansky point out that CIT efficiency could also be capturing differences in compliance standards and enforcement across jurisdictions so that these studies are useful as indicative studies.

A different type of empirical investigation has been attempted by Tørsløv et al. (2017). They use a Cobb Douglas production function to argue that the ratio of corporate profits to employee compensation should be constant across jurisdictions. The assumptions behind the Cobb Douglas are fairly unrealistic but the model provides a benchmark for comparing declared profits with employee compensation across countries. By comparing reported ratios across countries they find that tax havens report abnormally high profits relative to employee compensation. The second part of their work uses the fact that tax havens have very high trade surpluses compared to their gross national income (which is a better measure than GDP as incomes from profit shifting are excluded). They assume that profitability in tax havens that is above the world average is due to profit shifting. They then use Eurostat, BEA and WTO data on trade in services and allocate the above average profits (due to shifting) across countries based on which countries import capital and pay interest to tax havens. This is in line with the fact that technology and communication MNCs often locate intangible assets in low tax jurisdictions (such as Skype customers paying into Skype Luxembourg despite not being based there). They conclude that 45% of multinationals' profits are artificially shifted to tax havens, i.e. more than 600 billion euro in 2015. They also estimate global corporate tax revenue loss at around 200 billion euro per year (around 12% of global corporate tax revenue) and the countries benefiting from this the most are Ireland and Luxembourg.

These results show a wide range of estimates based on different assumptions and tools. The arithmetic estimates comparing profits declared in low tax versus high tax jurisdictions provide some indication of orders of magnitude, but clearly there may be many other reasons for these differences that are difficult to adjust for. The illicit part of the flow is estimated using assumptions about the 'expected' declaration of profits but this is problematic. Using Cobb-Douglas assumptions are particularly unrealistic because the elasticity assumptions are not necessarily universally valid. Similarly, simple methods of allocating expected profits across jurisdictions based on measures of activity or sales are problematic as we discuss later. In reality, with somewhat different assumptions we could expect to see different allocations of MNC profits across jurisdictions, making it difficult to achieve a wide consensus around particular measures of direct calculations of IFFs due to profit shifting.

6. Taxation, IFFs and developing countries

A UNECA report published in 2018 affirms that policies on tracking IFFs need to be context-specific as they need to take into account variables like socio-economic circumstances and levels of development, among others. While highlighting the problem with base erosion and profit shifting by MNCs, the report also acknowledges the role played by African residents who have shifted resources abroad via tax havens to developed countries (UNECA 2018). In Africa the problem of tax evasion and profit shifting can be associated with both MNCs and residents and a true estimation of IFF and its sources can only be identified when taxation is broken up into taxes that should have been paid by MNCs and by high net worth nationals. Here the types of profit shifting indicators discussed above may not be adequate for locating the IFFs relevant for measuring the loss of tax revenues, which is what policy in African countries needs to identify. An indicator on the lines formulated by Turkewitz et al. (2018) that uses a composite of measures looking at the risk of different types tax avoidance and evasion could prove to be more effective. Turkewitz et al. focus on a legal definition of IFFs, but their measurement approach could be usefully adapted to the types of flows that the legitimacy definition would identify. The disaggregated approach to indirectly identify the likelihood of different types of IFFs that these authors suggest is more likely to pick up both tax avoidance by MNCs but also violations by local companies which do not have operations in other jurisdictions but are taking money out through hundi/hawala or other means. However, this requires a more detailed understanding of the drivers of different types of IFFs and identifying the risk factors that could estimate the hidden flow. We do not have this yet, but the approach outlined by Turkewitz et al. has the potential of taking us there.

In many low-income countries, illicit flows driven by nationals may be as important or even more important as those organized by MNCs. Focusing only on the latter generates significant false negatives for the IFFs linked to domestic companies. Anecdotal evidence collected just before the legislative primaries in Nigeria in 2018 or the 2018 elections in Bangladesh suggests that local political developments can play an important role in the outflow of illicit funds. Uncertainties about election outcomes can lead to capital flight by those who face a risk if there is an election defeat for the ruling party. In Nigeria, there is some evidence to suggest that dollars become scarce in the run-up to elections as candidates buy hard currency for use during these primaries. Much of these hard currency transactions then flow abroad through different mechanisms.

The Nigerian example also shows that while MNCs clearly engage in tax avoidance, policies can have a rapid effect on recovering some of the taxes lost through transfer mispricing. For instance, tax collection improved in Nigeria when Nigerian tax authorities began to re-examine commercial arrangements between Nigerian and Ghanaian firms. Though there is no ongoing formal cooperation between the tax authorities of the two countries, this is an example of how bilateral cooperation can achieve quick results in Africa. MNCs based in developed countries are also facing increased oversight in their home jurisdictions to curtail their most egregious transfer pricing operations. However, the legislative loopholes are also

becoming more complex. For instance, the legal framing of how MNCs (and local companies) had to pay penalties for gas flaring in Nigeria allowed them to get away with paying lower taxes for several decades. The Tax Appeal Tribunal had ruled that charges for gas flaring were fees and not penalties. MNCs with their high legal capabilities then claimed that because the law required paying a ‘fee’ rather than a ‘penalty’ for flaring, the money could come from their operating costs rather than profits. Paying out of operating costs meant that the tax incidence could be reduced. However, the Federal High Court overturned the judgement of the Tribunal and an appeal is now currently before the Court of Appeal. This example shows how the law is evolving in response to implicit claims of illegitimate flows and suggests why a purely legal definition of IFFs will not only result in false negatives, but also deprive campaigners of the tools for arguing for changes in the law to reduce IFFs. The Nigerian government has only recently amended the legal phrasing of flaring-related charges to describe them as ‘penalties’ in order to collect more taxes based on profits.

The illicit flows arising from tax avoidance are therefore complex. As long as options for tax arbitrage remain, curbing tax avoidance will prove to be difficult. However, the disappearance of profits into tax havens is widely perceived to be illegitimate and is one of the parts of the base erosion which should be most possible to construct a broad consensus around. However, even here, attempts by some countries to clamp down on these jurisdictions will be met with resistance. Many developed country economies are also losers, and while the developmental consequences might not seem large when compared to developing economies, tax related IFFs affect both developing and developed countries.

SDG indicators for IFFs related to tax evasion and avoidance are therefore arguably necessary and should be included in the list of IFFs. However, to be credible, the indicators identified have to be designed carefully to minimize false positives. The indicators discussed above suggest that there are two broad approaches to estimate the relevant IFFs. One approach is to use clever strategies of estimating the IFF using available data, for instance by looking at the proportionate declaration of profits across jurisdictions relative to some expectation of what they *should* be. This gives a dollar measure of IFFs but is open to potentially significant criticisms of the assumptions behind the expectation calculation. In particular, the assertion that profits should be proportional to employment and sales across countries can be easily challenged on the basis of economic theory. The productivity of workers varies greatly across jurisdictions, as do infrastructure, political risk and other factors that can ensure that the profitability of an MNC will not be proportionate to the employment and sales of its affiliates across countries. What is more, countries with adverse conditions may want to use differential tax rates to attract investment. For these reasons, the simplistic assumption that looking at the ratio between profits and some combination of sales, employment or other activity indicators will tell us something about illicit profit shifting may be implausible. Nor can this measure be meaningfully applied to companies that do not have affiliates across countries, such as most domestic companies, and yet significant IFFs can be driven by domestic companies.

A more credible alternative, we believe, is to develop the risk factor approach that is outlined by Turkewitz et al. for measuring IFFs, which they rightly argue are latent variables that cannot be directly observed or measured. We would first need to agree about the most

relevant components of tax-related IFFs and then identify variables that could plausibly predict the probable magnitude of these flows. This is a feasible analytical exercise, but one that is outside the remit of this paper. What we can conclude on the basis of our review of methods is that dollar-based estimates have potentially serious problems in terms of assumptions, and can be criticized for significantly overestimating or underestimating the relevant IFFs. This in turn can make the measures unsuitable for policy. Tracking changes in risk factors is likely to be a more plausible strategy for policy even if it does not directly measure IFFs.

7. Trade misinvoicing, corruption and the limits to productive development

This section looks at trade-related IFFs, in particular we focus on various forms of trade misinvoicing and how they are linked to transfer pricing (discussed above) and corruption processes. Trade misinvoicing includes practices whereby customs information is deliberately misreported or manipulated to achieve different objectives such as transfer pricing, bypassing import duties or export bans, smuggling, dumping, and so on. The misreporting or manipulation of the information can depend on the 'nature' of the good, the 'value' of the traded good, and the 'quantity' of the traded goods, as well as different permutation of these three dimensions (e.g. underreporting of both the value and the quantity of the goods). When these forms of misreporting and manipulation happen we have a form of 'technical smuggling', whereas when goods are not reported at all we have 'pure smuggling'.

Trade misinvoicing can lead to both situations of over-invoicing and under-invoicing, depending on the objectives of the participants involved in the IFF. Over-invoicing is a way to take advantage of export subsidies, or reducing the declared import of certain goods by over-invoicing others, or transferring capital out of a country by importing goods of lower value than declared, or even of no value in some cases. Under-invoicing, on the other hand, allows traders to bypass export bans or quantity restrictions, and reduce the payment of custom duties on imports (Nitsch 2017).

Finally, trade misinvoicing can happen at different stages of the trading chain – e.g. country of origin or country of destination – and result from individual as well as collusive practices between traders (importers and exporters) or corrupt practices involving traders and one or more custom authorities. In cases of re-exporting and trade transit the players involved in trade misinvoicing can be located in several countries.

The first estimations of the global scale of IFFs (Baker 2005) revealed how more than USD 539 billion flows out of developing countries, and that trade-related IFFs represent the largest share of this outflow (Baker 2005). Building on this seminal work, in 2015 Global Financial Integrity (GFI) estimated that outflows from developing countries due to trade misinvoicing alone accounts for USD 800 billion and that a few commodities were responsible for this massive outflow of resources, especially in Africa (GFI 2015; HLP 2015). In the last IFF estimations from GFI (Spanjers and Salomon 2017), trade misinvoicing is responsible for two thirds of the total IFFs, which for developing countries alone amounts to something between USD 600 and 900 billion.

Countries at early stages of industrialisation are 'structurally vulnerable' to trade-related IFFs. The reason for this is that the tradable sector is very small and mainly composed of mineral resources or agricultural commodities. The underdevelopment of the manufacturing sector, both in terms of scale and price competitiveness, creates strong incentives for trade misreporting and smuggling. Traders can make significant margins out of imported

commodities if they can bypass import duty barriers erected to protect nascent and infant industries. While the lack of capabilities at the level of customs authorities make developing countries particularly vulnerable to trade-related IFFs, there is also a more structural dynamic leading to trade misinvoicing. This is the fact that, in some cases, large margins arising from IFFs are also recycled into policy money through patron-client networks. The structural link between the trade-related IFFs and corruption is thus a complex one as it involves multiple sets of incentives at the interface of the trade activities chain and the political settlement in the country (Andreoni and Tasciotti 2019).

The first attempts to capture the scale of trade-related IFFs have been mainly centred around country level bilateral trade data – so called ‘mirror trade statistics’ – alongside (and sometimes in combination with) ‘residual measures’ of capital flight based on BoP. These residual measures are calculated as the difference between recorded inflows and recorded uses of foreign exchange (Ndikumana and Boyce 2010). Country-level mirror trade statistics are built around anomalies in bilateral trade, that is, the existence of gaps between the declared values of total exports from one country and imports from another. In some cases (e.g. Ndikumana and Boyce 2010; Spanjers and Salomon 2017), this mirroring of bilateral import and export activities is adjusted so that when a gap exists between a developed and a developing country, we assume there is an illicit financial flow and that the developing country would misinvoice at the same rate with other developing countries (so called ‘bilateral advanced economy calculation’). For those developing countries for which bilateral data are not available, world trade benchmarks are constructed building on country level data.

The use of mirror trade statistics at the country level was pioneered by GFI and refined over time by several studies (see Cobham and Jansky 2017 for a review). Since then this methodology has raised several concerns and criticisms, despite attempts to improve it. There are two main sets of criticisms. The first is related to the level of aggregation of the analysis and the indicators used. Country-level mirror statistics tend to be quite conservative – that is, they capture only a limited amount of trade misinvoicing, for example they cannot pick up collusion between imports and exporters to misreport consistently at both ends. Moreover, they balance out critical differences across commodities which might be in some cases over-invoiced and, in others, under-invoiced. Paradoxically countries with high average trade value gaps might have lower trade-related IFFs than countries with lower gaps, simply as a result of the distribution of over and under reporting commodities (problems of benchmarking and false negatives). The second set of critical arguments is related to the first, and points more explicitly to the fact that trade mirror statistics can conflate legitimate and illegitimate flows (false positives) and that assumptions made around some countries being more or less prone to trade misinvoicing is arbitrary. These assumptions are required given the limited quality of the data for developing countries, although they cannot solve the fundamental data problem, its existence and comparability across countries. Finally, while the trade mirror statistics methods allow for the estimation of several IFFs - such as tax losses - the latter are all based on an aggregate figure and there are limited opportunities for policy actionability. In fact, building on country-level mirror trade statistics only, government policies to tackle IFFs might run the risk of being largely misguided.

The aggregation problem in country-level mirror trade statistics approaches has been increasingly addressed by shifting from analyses based on IMF's DOTS data towards commodity-specific analyses based on UN Comtrade data. The latter represents the most disaggregated dataset for global analysis of international trade and allows for the application of trade mirror statistics as well as 'abnormal prices estimates' at the commodity level. Commodities are defined in the Harmonised System categorisation at up to the six-eight digit level.

The application of trade mirror statistics to specific commodities allows for the identification of those products for which the trade gap between exporters and importers is larger (see for example the UNCTAD study by Ndikumana 2016). Thus, it allows us to avoid compensability problems associated with indicators relying on standard linear aggregation and reduce the risk of false positives and negatives. Moreover, for each commodity, by matching the estimation of trade misinvoicing with the specific taxes and duties associated with each commodity, it is possible to derive commodity details analysis of tax losses.

Finally, by developing international price benchmarks for each traded commodity, it is possible to assess the normality or extremeness of trade prices. The benchmarks are normally constructed by using unit value methods, that is, by dividing the total value of the traded commodity by its quantity (generally in weight or unit, depending on the nature of the product and how they are reported in UN Comtrade). The pioneering work in 'abnormal prices methods' is associated with the contribution by Pak and Zdanowicz (1994) and later contributions. This method relies on the fundamental assumption that in international trade the price of commodities should be relatively similar given the trade disciplining effect, and therefore that abnormal price differences are in fact signals of misinvoicing. This disciplining effect is particularly significant for commodity trade as it is a low margin and high volume business (Forstater 2018b).

The use of trade mirror statistics and abnormal prices methods has led to a series of country reports and studies on trade-related IFFs and more detailed estimations of import under-invoicing. Some of these studies have also linked the international trade data to revenue authority data in countries, where these data were available. For example, the report by GFI for South Africa (GFI 2018) shows how, for the period 2010-2014, revenues lost to the South African government due to trade misinvoicing losses were in excess of USD 7.4 billion annually, totalling USD 37 billion over five years. The analysis by commodities and trading partners also allows us to discern significant heterogeneity in trade misinvoicing. For example, the report found that goods categories with a preponderance of under-invoicing tend to be associated with higher effective tax rates than other classes of imports. Moreover, when country partners are selected, the value of some imports from one country are priced below the respective group medians (China and India), while in other cases above (Nigeria).

Table 1: Trade Misinvoicing and Potential Revenue Losses in South Africa

(millions of U.S. dollars, average 2010-2014)

| | USD, Millions |
|---|---------------|
| Average Import Value Analyzed | 92,052 |
| Import Under-Invoicing | 16,308 |
| Average VAT%, lost revenue | 2,110 |
| Average customs duty%, lost revenue | 596 |
| Import Over-Invoicing | 9,833 |
| Average company income tax%, lost revenue | 2,134 |
| Average Export Value Analyzed | 88,145 |
| Export Under-Invoicing | 11,598 |
| Average company income tax%, lost revenue | 2,517 |
| Average royalties, lost revenue | 116 |
| Export Over-Invoicing | 8,584 |
| Potential Revenue Losses | 7,473 |

Notes: Only gaps with advanced economies (excluding Hong Kong) are considered.

Due to irregularities, gaps for commodity codes falling under HS 2-digit headers 77, 98, 99, and portions of 71 are excluded.

"." indicates unavailable data

Sources:

UN Comtrade: Trade data.

WITS: Tariff data.

SAAS: VAT rate and exemptions/zero-rated goods, royalty collections by commodity for calculating effective rate (inclusive of 5% unpolished diamond export tariff).

PWC/World Bank 'Paying Taxes' 2017: profit tax rate.

Source: GFI, 2018:4

Table 2: Selected Characteristics of South African Imports (millions of U.S. dollars)

| | Reported by SARS | | Filtered by GFI | | | |
|---|--------------------------|--------------------------|--|----------------------|-----------------|-----------------------|
| | Value | Value | Price categories (percent of total filtered value) | | | |
| | | | Low (p<median) | Very low (p<0[0.25]) | High (p≥median) | Very high (p≥Q[0.75]) |
| Total (2010-2015) | \$578,853,611,802 | \$494,266,002,006 | 58.9 | 24.4 | 41.1 | 15.0 |
| 2010 | \$82,959,746,250 | \$71,547,223,590 | 60.1 | 24.4 | 39.9 | 13.7 |
| 2011 | \$102,705,913,523 | \$87,814,470,305 | 58.0 | 23.8 | 42.0 | 15.6 |
| 2012 | \$104,148,113,167 | \$89,054,906,692 | 58.2 | 22.8 | 41.8 | 16.4 |
| 2013 | \$103,436,689,928 | \$88,218,409,548 | 58.6 | 25.9 | 41.4 | 14.3 |
| 2014 | \$99,890,452,671 | \$84,421,698,359 | 57.8 | 23.6 | 42.2 | 15.2 |
| 2015 | \$85,712,696,263 | \$73,209,293,512 | 61.1 | 26.5 | 38.9 | 14.2 |
| By Commodity (top ten, 2-digit classification) | | | | | | |
| Mineral fuels | \$118,817,545,690 | \$102,684,582,313 | 53.2 | 17.2 | 46.8 | 14.7 |
| Machinery | \$83,139,100,686 | \$67,090,322,931 | 50.0 | 18.6 | 50.0 | 20.0 |
| Electrical machinery | \$57,029,813,852 | \$47,417,282,036 | 60.1 | 32.5 | 39.9 | 14.2 |
| Vehicles | \$50,050,344,892 | \$45,527,127,332 | 43.3 | 15.5 | 56.7 | 29.5 |
| Plastics | \$14,473,825,089 | \$12,390,571,338 | 75.2 | 37.4 | 24.8 | 5.8 |
| Optical , medical products | \$13,870,455,841 | \$11,499,423,734 | 46.7 | 19.9 | 53.3 | 22.3 |
| Pharmaceuticals | \$13,160,966,551 | \$12,314,583,452 | 52.3 | 24.8 | 47.7 | 21.1 |
| Organic chemicals | \$9,936,071,970 | \$8,427,222,367 | 73.4 | 38.3 | 26.6 | 7.0 |
| Chemical products, misc. | \$9,378,409,305 | \$8,782,795,925 | 57.4 | 27.1 | 42.6 | 19.1 |
| Rubber | \$8,111,489,220 | \$6,972,177,769 | 52.0 | 23.1 | 48.0 | 19.3 |
| By Partner Country | | | | | | |
| Advanced countries | \$267,557,167,319 | \$232,465,202,855 | 50.5 | 15.5 | 49.5 | 19.7 |
| Developing countries | \$302,034,922,159 | \$261,800,569,446 | 66.4 | 32.4 | 33.6 | 10.8 |
| Top ten countries: | | | | | | |
| China | \$87,453,450,081 | \$75,449,950,883 | 82.4 | 52.1 | 17.6 | 4.5 |
| Germany | \$60,307,051,256 | \$54,767,963,881 | 51.4 | 11.5 | 48.6 | 20.2 |
| USA | \$40,530,109,954 | \$34,729,246,170 | 42.0 | 12.5 | 58.0 | 27.1 |
| Saudi Arabia | \$33,422,769,671 | \$27,952,993,542 | 52.7 | 14.8 | 47.3 | 7.3 |
| India | \$25,608,861,622 | \$23,035,195,280 | 79.3 | 41.6 | 20.7 | 4.4 |
| Japan | \$24,585,411,879 | \$23,156,788,123 | 57.2 | 13.8 | 42.8 | 14.0 |
| Nigeria | \$20,830,223,717 | \$19,659,380,813 | 33.0 | 7.9 | 67.0 | 31.5 |
| United Kingdom | \$20,047,945,682 | \$17,835,477,876 | 46.8 | 16.5 | 53.2 | 18.3 |
| Italy | \$14,839,111,124 | \$12,584,729,801 | 53.0 | 20.8 | 47.0 | 15.0 |
| France | \$14,117,835,747 | \$12,252,742,918 | 46.7 | 12.5 | 53.3 | 20.6 |

Sources: GFI calculations based on data provided by the South African Revenue Service (SAAS). Note that the SAAS reported data in the top panel (by year) includes unclassified and unknown categories of imports that are not included in the commodity and country detail below or the filtered estimates.

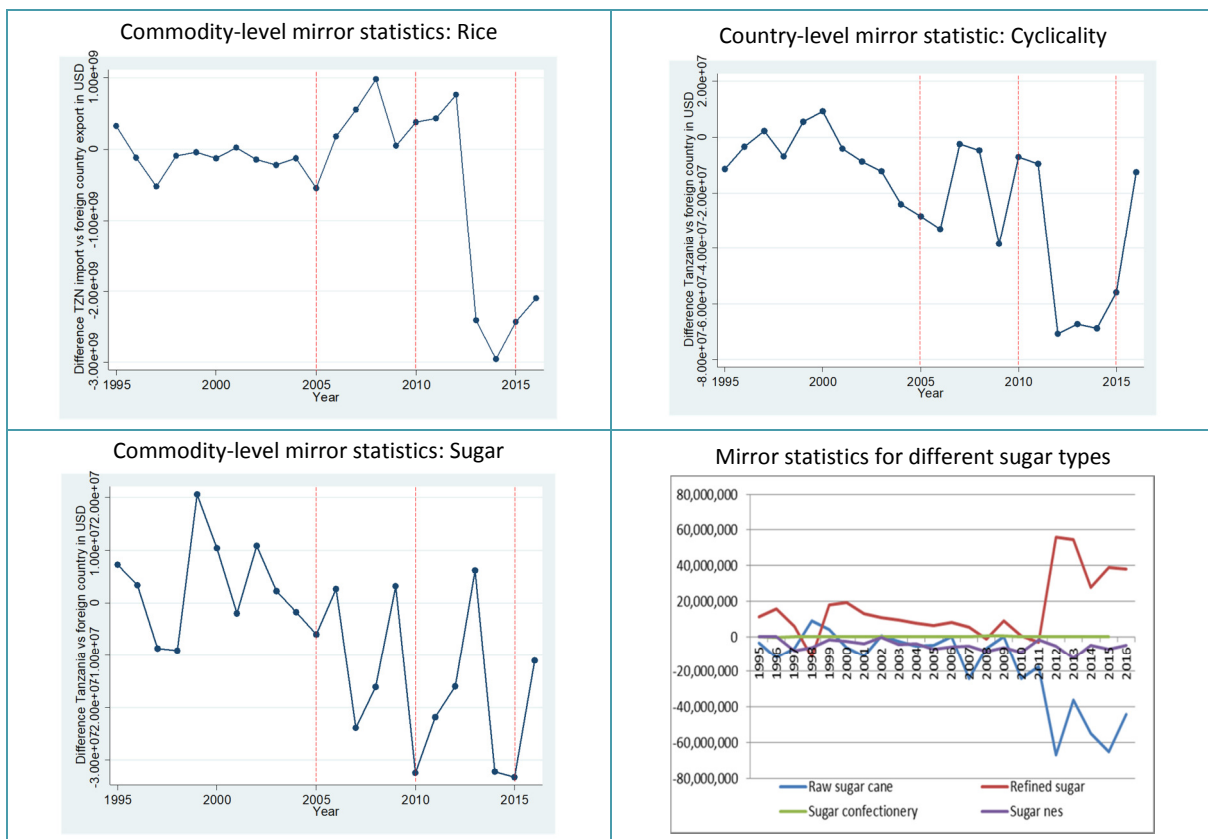
Source: GFI, 2018:10

The abnormal price methods have raised several concerns, both in terms of how the normal price matrix is constructed and price thresholds are defined, but also with respect to the possibility of several false negatives and positives. First, despite the granularity of product classifications, all traded products within each six-eight digit group are treated as homogenous. This means that price differences due to quality or product functionalities are lost. The volatility of commodity prices during the periods under consideration is another factor of concern. Moreover, trade misinvoicing (more precisely mispricing in this case) will be flagged by the abnormal price methods only when prices diverge significantly and when trade misinvoicing is happening through misreporting of prices and not volume measured in weight. Finally, in many cases, many products are classified as “others” or are misclassified when they reach the custom authority. In some cases, further digit classifications are applied which are not comparable across countries. As pointed out by Chalendar et al. (2017), the abnormal prices methods can be in fact used as a tool to study product misclassification and potential custom fraud.

Many of the limitations of trade mirror statistics and abnormal prices methods can be revealed by more context specific analysis of commodities and countries. For example, Fortstater (2018b:16) points out how “by looking at individual commodities it is possible to see that price volatility, transit and merchanting trade, and the use of bonded warehouses can result in large trade data discrepancies arising from legitimate trade. In particular ordinary, legitimate trade can generate systematic discrepancies in trade data involving three countries”. Country-specific and commodity specific studies are able to correct for potential false positives or negatives by allowing a better interpretation of the trade data and unpacking the underlying types of trade misinvoicing. In many cases, only at this level of analysis and with the support of “transaction-based” trade data it is possible to disentangle the IFFs–corruption nexus.

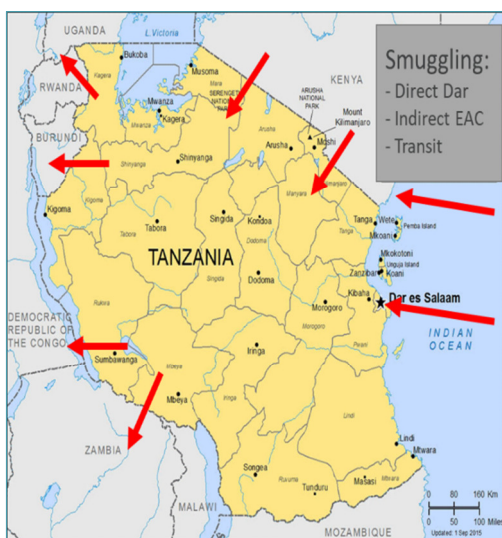
Research under the SOAS-ACE consortium in Tanzania has attempted to adopt the different sets of methods reviewed in this section, including frontier methods based on transaction-based data, to understand smuggling of two key commodities, rice and sugar (Andreoni and Tasciotti 2019; Andreoni et al. 2019). The country-level and commodity-level data show how trade misinvoicing is a major issue for Tanzania, in particular for these selected commodities. Moreover, it points out how trade misinvoicing is a cyclical phenomenon aligned with the policy cycle. In the pre-election period, trade mirror statistics at the country and commodity level shows a significant increase in under-invoicing, that is, an increasing gap between what is reported by country export data and data recorded in the Tanzanian custom authority. On the other hand, in the post-election period, the over-invoicing phenomenon is more common. This cyclicity points to the fact that trade misinvoicing is linked to changes in trade policy regimes, especially the introduction of special import licences or export bans in critical political phases. These data also show the sensitivity of the trade misinvoicing indicator to customs product classification. For example, taking sugar as an example, for the same commodity depending on the type of sugar reported there might be opposite trend patterns.

Figure 3: Smuggling in Tanzania, with a focus on sugar and rice



Source: Andreoni and Tasciotti, 2019

These trade-related IFFs indicators are important pointers and red flags, however they say little about the complex flows and processes involved in trade misinvoicing in Tanzania. The country-specific and value chain-specific analysis of these commodities reveal some of the complexities associated with IFFs for just two commodities (Andreoni et al. 2019). For example, the analysis of technical and pure smuggling is not simply a country-level issue. There are at least three smuggling channels responsible for trade misinvoicing, related to direct, indirect and commodity trade transit.



The value chain analysis reveals the existence of a tension between players involved in trade misinvoicing and domestic producers of the same commodities. It also shows how domestic businesses are involved in these practices as much as MNCs, and that the trade misinvoicing practices have a negative impact on key development outcomes, in particular productive sector development and employment generation. Finally, the use of transaction-based trade data shows the concentration of trade misinvoicing among a few major importers, and points to critical links between corruption and IFFs.

8. Towards a multi-level indicator system for IFFs

Our analysis of the theory and measurement of IFFs has highlighted a number of definitional issues as well as the pros and cons of several methodological approaches for measuring a number of important types of IFFs. We have not attempted to do an exhaustive survey of all IFF indicators, because our point is to show that even when picking indicators on which considerable work has been done, there are significant differences in assumptions and values that are generated. It is unlikely that we will achieve consensus on a particular method of measurement given that all the available measures have significant false positive and/or false negative issues. We have addressed three sets of IFFs that are themselves closely related, namely tax-related IFFs, capital flow-related IFFs and trade-related IFFs. Crime-related IFFs such as drug trafficking were not included in the analysis. Particular emphasis was given to the importance of avoiding false positive and false negatives in the measurement of IFFs, and to examine whether indicators were grounded in sound theory. Without such grounding, the analysis of the development outcomes of IFFs and the consideration of different types of IFFs becomes difficult and can lead to misleading policy recommendations.

From a definitional and analytical point of view we have also identified a set of interdependencies between different types of IFFs and corruption processes, with the latter understood as a structural factor characterising countries at early to mid-stages of development. By showing parallels between IFFs and corruption research, we have shown how corruption is an orthogonal process, that is, it permeates all forms of IFFs and it does so in different ways for different sectors of the economy.

From a measurement perspective, we have advanced three criteria which should be met in the development of IFFs indicators. It is worth restating them at this stage:

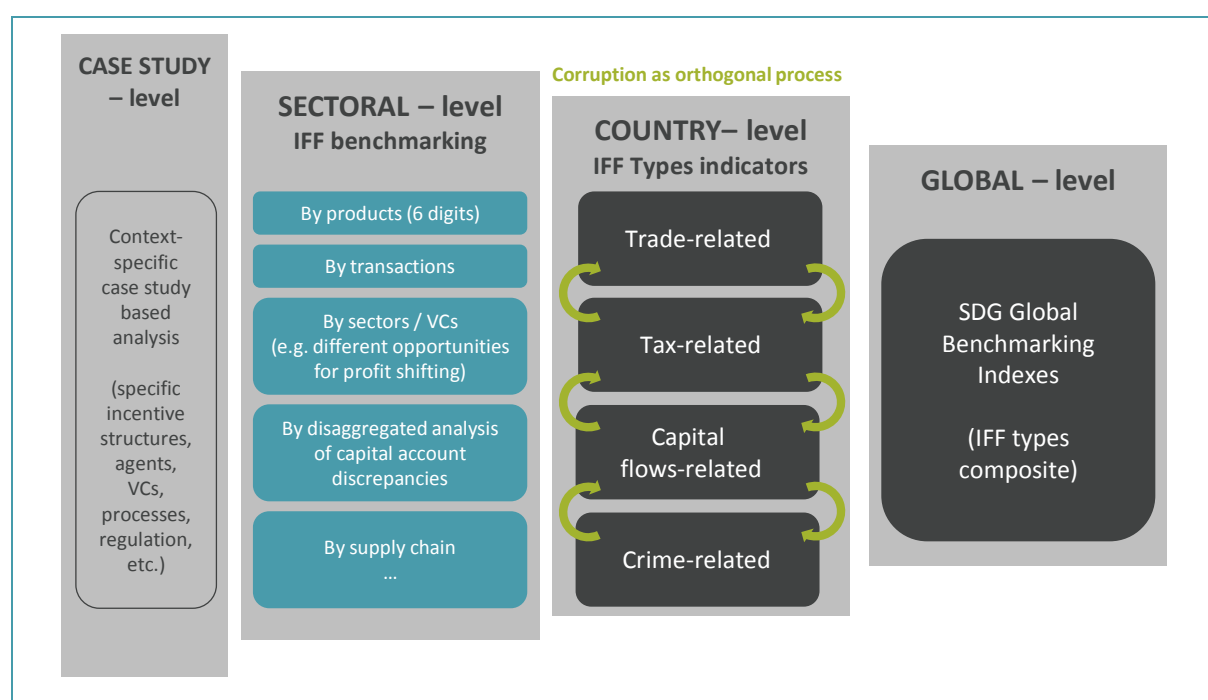
- a) It must be possible to estimate the indicator using available statistics and techniques, or using feasible extensions of existing statistics; and
- b) It must be possible to target the indicator using feasible policies to reduce what the indicator measures; and
- c) The indicator must be precise enough in its measurement of damaging flows so that if policies succeed in reducing the value of the indicator, the result will be an improvement in development outcomes or at least development prospects.

The consideration of these measurement criteria against the complex processes underlying IFFs points to the fact that it is highly unlikely that it will be feasible to rely on a single indicator. It is therefore crucial to develop a battery of different indicators for different levels of aggregation and complement them with targeted qualitative analyses. The latter includes rents and process analysis; sectoral value chain analysis; country specific political economy analysis and so on. The selection of indicators and heuristics recognises how different measurement tools can play a different role. For example, a few aggregate

indicators can be used to flag broader global patterns, while more sector/commodity/business specific ones can, in some cases, identify critical IFFs precisely enough (without too many false positives and negatives) to be important tools for policy. Similarly, while measurement exercises involving price, profit or tax benchmarks are potentially useful as pointers of potential IFFs, further control indicators must be introduced to increase the robustness of the analysis.

The suggestion of developing a multi-level system of indicators stems from acknowledging the impossibility of capturing and reducing a complex phenomenon like IFFs into one single proxy/indicator. From a methodological point of view, it also suggests the need to move from the aggregate to the micro-specific phenomena – as generally done in the literature so far – as well as from the micro-specific to the meso- and macro-level analysis. This means being open to the idea of testing different combinations of IFF indicators for different countries (or groups of countries with similar economic structures) and selecting on these bases alternative ways of capturing IFFs (see Figure 4 below). As pointed out by Turkewitz et al. (2018:7) “The pattern of IFFs that exist in any jurisdiction will be shaped by the incentives of economic actors to send and receive illicit financial flows and the capacity and willingness of governments to prevent and stop illicit financial flows”.

Figure 4: Schematic for a multi-level system of indicators for IFFs



Source: Authors

The adoption of such an approach does not preclude the possibility of creating a composite index for IFFs benchmarking and monitoring goals. The transparency of such a composite index, however, will depend on the extent to which it is possible to go down to the different component IFFs (maintaining modularity) and that appropriate aggregation criteria are adopted (avoiding compensability). A composite index, however, should not be used as a policy tool as the risk of multiple and cumulated errors is indeed extremely high.

Politically actionable indicators will have to be sector or commodity specific and will have to be supported by an analysis of risk factors, as well as the economic and social consequences of IFFs. These are critical steps in the creation of a more developmental approach to IFFs (Turkewitz et al. 2018). While many of these types of indicators are still in development and many of them will have to be piloted across countries to prove their effectiveness, a number of efforts at the frontier of IFFs research are opening new avenues for populating the multi-level system of indicators advanced here.

In the context of trade misinvoicing (see Section 7), despite the limited country coverage so far, the use of transaction-based bilateral trade data is allowing us to address a number of major limitations of trade mirror statistics. Indeed, the possibility of matching specific transactions in both the export and import country allows us to bypass some of the aggregation problems discussed above and conduct abnormal prices analysis more effectively. The availability of transaction-based trade data, even for one individual country, can also play an important role in the analysis of the link between IFFs and corruption, as discussed in Andreoni and Tasciotti (2019). However, a number of challenges remain. The transaction-based trade data are still the result of a process of coding allocation which is vulnerable to corruption. Collusion between buyers and sellers in coordinating invoices is a further challenge. Cases of collusion in trade misinvoicing can remain under the radar, and trade misinvoicing for prohibited goods may be covered under unsuspected transactions.

The empirical findings presented in Section 5 suggest that a measure of IFFs relevant for the SDGs could well include an indicator for misaligned profits to track illicit flows. One suggestion is to use ‘the value of profits reported by multinationals in countries for which there is no proportionate economic activity of MNCs’ as an indicator of IFFs. Economic activity is calculated as the simple average of single indicators of production (the share of full-time equivalent employees in a jurisdiction) and consumption (final sales within each jurisdiction) (Cobham and Jansky 2017). This is a good starting point but opens up a number of questions. Differences in productivity, infrastructure and political risk, amongst other factors, can result in differences in profitability despite similar employment and sales. Many firms produce for exports where final sales are abroad, and the productivity of workers can vary in ways that are not compensated by wages so that profits per employee could be expected to be different across sectors and countries. Looking at the proportionate profits declared across jurisdictions without accounting for *all* the possible economic reasons for these differences would give a false measure of IFFs, and accounting for all these differences is not easy. The other critical point that should not be missed is that low taxes can be a policy choice by countries to attract investment, particularly in developing countries that have adverse infrastructure and other conditions. Tax incentives are often used as part of industrial policy to control for initially adverse investment conditions in many developing countries. While it is possible to criticize the use of tax incentives as industrial policy given the potential revenue losses, the policy is nevertheless widely used in developing countries where concern with the SDG IFF targets is also potentially the greatest. Failing to account for these problems would result in false positives for IFFs being identified, even using the illegitimacy definition of IFFs.

Another possible indicator is the undeclared offshore assets indicator defined as ‘the excess of the value of citizens’ assets declared by participating jurisdictions under the Common Reporting Standards (CRS, devised by the OECD), over the value declared by citizens themselves for tax purposes’ (Cobham and Jansky 2017). The limitation of this measure is that offshore assets may also be parked in developing countries or in jurisdictions that adhere less to rule of law and the assets reported according to CRS in *these* jurisdictions may be less credible or entirely absent (Khan 2018). This indicator also suffers from an endogeneity problem due to the possible collusion between economic agents (private actors/citizens involved in asset shifting) and the political agents who are meant to legislate and enforce, making it likely that laws will not be enacted or partially enforced in many cases (Turkewitz, et al. 2018: 53). In this case, adherence to the reporting requirements of the CRS may therefore vary significantly across countries, making the identification of IFFs across countries on this basis problematic. A less critical shortfall of the indicator would be the difficulty of keeping pace with technological innovations in asset classes for instance in derivatives contracts and similar exotic instruments, given that much innovation goes on in transferring undeclared assets across countries.

A third, risk-based indicator being suggested is based on the fact that illicit flows are hidden and therefore increased opacity in transactions point to illicit transactions (Cobham and Jansky 2017). This involves creating a measure of partner opacity where bilateral transactions (for partner jurisdictions) through FDI, commodity trade and portfolio investments, are interrogated to identify opaque dealings. The next step is to identify ‘scale’ or ‘the importance of a given bilateral stock or flow in relation to the GDP of the country of concern’ (Cobham and Jansky 2017). Multiplying this with partner opacity would give an indicator for ‘exposure’. This is in line with some of the thinking emerging on IFFs in the World Bank and IMF (Turkewitz, et al. 2018). Some of the data required is already available, including the IMF’s Coordinated Portfolio Investment Survey and data mapper that specifically tracks capital flows in developing economies¹. An indicator of this type is likely to be feasible and indicate the likelihood of IFFs of interest. However Turkewitz et al. (2018: 30) correctly argue that the methodology of identifying exposure or ‘observable characteristics’ that has an empirical link with IFFs, while seeming to be an empirical prediction problem, suffers from the inconsistency that IFFs are rarely observable (as the rationale for the indicator also acknowledges) and therefore researchers have to assume a relationship between the combination of characteristics and IFFs without necessarily being able to test it. This makes the indicator somewhat obscure but it is arguably more credible than the other two indicators discussed above in terms of analytical robustness.

Turkewitz et al. (2018: 62) therefore argue that IFFs should be treated as a latent variable that cannot be directly observed. This approach recognizes the lack of robust data on IFFs (which are by their nature typically hidden and subject to much noise) and the fact that apart from the sort of data where measurement errors are bound to be large, there is very little data available on IFFs. They define the current measures to be more in the line of

¹ <http://data.imf.org/?sk=B981B4E3-4E58-467E-9B90-9DE0C3367363> and https://www.imf.org/external/datamapper/Portfl@CF/SPR_LIDC.

‘surface level manifestations of a latent propensity towards IFFs’. We believe there is much of merit in this line of thinking as it can address the measurement errors that bedevil existing approaches. They also distinguish between inflows and outflows, which the current IFF SDG indicators under consideration do not. Inflows and outflows of IFFs follow different processes and have separate proximate causes. For instance, a company might choose to invest in a certain country because of lower taxes but may also be engaged in organizing profit withdrawal subsequently using transfer pricing. A risk-based approach may be more suited to picking up both tendencies, whereas direct measures may cancel these IFFs out.

The challenge going forward is therefore to first agree on a broad definition of IFFs (and we suggest our second, ‘illegitimacy’ definition comes closest to the concerns motivating global discussions of IFFs), and second to agree on the most important components that constitute policy-relevant IFFs (and we have suggested that most of the components discussed in the literature have some merit). The most challenging task is to develop meaningful indicators for each of these flows that do not have significant false positive and false negative problems, and which satisfy the three policy-relevance conditions that we suggested. Here much work needs to be done, but our review of estimates of dollar flows shows that each of these approaches have significant problems and depend on very significant theoretical or empirical assumptions that are rarely satisfactorily plausible. We argued that some early exploratory work on a risk-based approach to measuring IFFs is promising, though much work needs to be done to make this approach robust enough to achieve a broad consensus for each of the major types of IFFs of concern.

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