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The importance of data and statistics in the field of illicit financial flows (IFFs)

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Abstract :
Ghana suffers high levels of trade mis-pricing in trade, high exposure and vulnerability to IFF in Trade, FDI, Double Tax Treaties, financial secrecy and Corporate Tax Haven activities of partners with adverse implications for inwards/outward FDI, import/export trade, withholding tax yields for interest payments, royalties, banking claims and divided payments. CSOs therefore made representations to the Government of Ghana to conduct a formal study to ascertain the extent of IFF, quantify the problem and make specific recommendations for their elimination to free up resources for development as part of the domestic resource mobilization, especially for funding the SDGs.

Data and statistics are key to detecting and measuring illicit financial flows. Ghana government and development partners, including CSOs, have used the price filter methodology based on three sets of databases: 1) EUROSTAT for the EU member countries, 2) US Census Bureau for the United States and, 3) Ghana transaction level data (import and export) covering all commodities for the period 2000 to 2012. The study detected that trade mispricing in EU-Ghana and US-Ghana trade for the period 2000 to 2012 is real, with undervaluation of Imports from Ghana over the thirteen-year period-(Ghana's Export) : €2.7bn (EU), $0.63bn (US) and overvaluation of Export to Ghana for the thirteen-year period being-(Ghana's Import) : €2.8bn (EU), $0.57bn (US). EU : Annually between €100m to €300m and US : $328m in 2000 is an exception : mostly likely due to non-industrial diamonds smuggling from other West African countries. After 2000 : ranges between $10m and $62m. Spain is the largest underpricing partner for the 13-year period, with the Netherlands, UK, Germany, Belgium, Greece : Each at least €100m for the 13-year period. Identified export sectors/commodities with significant underpricing, include wood and wood product, ores, cocoa

Keywords:
<Price Filter method>; <Partner Country method>; <Trade mispricing>; <over invoicing>; <under invoicing>

1. Introduction:

Measuring/quantifying illicit financial flows is challenging given that it is hidden and the information needed to measure it cannot be captured by a single data source and the required statistics and expertise are scattered across many agencies, including central banks, tax and revenue authorities, customs, and ministries of finance and justice and even civil society organisations. Measuring IFFs therefore relies on the use of indirect/proxy measures rather than direct or observation, thus the importance of data and statistics.

Ghana suffers high levels of trade mis-pricing in trade, high exposure and vulnerability to IFF in Trade, FDI, Double Tax Treaties, financial secrecy and Corporate Tax Haven activities of partners with adverse implications for inwards/outward FDI, import/export trade, withholding tax yields for interest payments, royalties, banking claims and divided payments. CSOs therefore made representations to the Government of Ghana to conduct a formal study to

ascertain the extent of IFF, quantify the problem and make specific recommendations for their elimination to free up resources for development as part of the domestic resource mobilization.

This short paper documents the efforts being made in Ghana to identify, measure, track and recover and prosecute offenders of illicit financial flows since 2014 even before the AU-ECA(Mbeki) report was done. The work on IFF in Ghana was started by local NGOs, led by the Integrated Social Development (ISODEC) with the support of the Government of Ghana, UNDP-Ghana office, TrustAfrica and the Ford Foundation-West Africa office.

2. Methodology:

There is the lack of a uniform framework for conceptualising and measuring IFFs until recently when UNCTAD and the United Nations Office for Drugs and Crime (UNODC) – the custodians of SDG indicator 16.4.1 on IFFs – established an international statistical task force in 2019 to develop common definitions and methodologies to measure the indicator.

In Ghana government and its development partners, CSOs, UNDP-Ghana, TrustAfrica and Ford Foundation have been working on quantifying the extent of IFF in it trade with the USA and EU using price filter methodology.

In the detection of abnormal pricing, the Ideal Approach is Arm's length prices but these are not available for many commodities and so an alternative Statistical Approach is used to determine the benchmark upper and lower bounds of prices based on statistical Analysis of historical prices for each commodity category by country is or estimated by commodity specialists in Customs. Transactions with prices outside a benchmark price range higher probability of being abnormal than the population.

 Four main methods have been used to estimate specific types of IFFs: the Hot Money Method, the Dooley Method, the World Bank Residual Method and the Trade Mispricing Method (UNECA, 2015: 90).

Price filter analysis method was used in this study to evaluate each import or export record against an arm's length price range, and the deviation from an arm's length price range is treated as the mispriced amount. The upper quartile price and the lower quartile price are estimated for every commodity category for the EU-World, the US-World, the EU-Ghana, and the US-Ghana pairs. The price range between an upper quartile price and a lower quartile price is assumed to be the arm's length price range. If the declared price of a particular transaction falls within the inter-quartile price range, it is assumed to be an arm's length transaction. So that:

- Undervalued Amount = quantity*MAX (0, PLQ – P) (1)
- Overvalued Amount = quantity*MAX (0, P – PUQ) (2)
- Where:P = declared price (unit value implied in quantity and value in each trade record)
- PLQ = lower quartile price
- PUQ = upper quartile price

Data and data sources

High-quality data are crucial for estimating the size and type of IFFs entering and leaving a country and for the Ghana exercise, three sets of databases were used: 1) one from EUROSTAT for the EU member countries, 2) another from the US Census Bureau for the United States and, 3) the third was Ghana transaction level data (import and export) covering all commodities for the period 2000 to 2012. These data sets included the most detailed import and export records available publicly. Each record in EUROSTAT is an aggregation of transactions (line items) by declarant country, partner country, product code at 8-digit level (NC8), flow (import/export), statistical procedure, and period. Similarly, each record in the US import or export merchandise trade data is an aggregation of transactions (line items) by partner country, product code at 10-digit level (HS10), customs district, and period. Approximately half of the US records contain one line item.

The quality of data matters for correctly detecting anomalies. The customs data was kept in an outmoded dbase II format and exporting data tables to a pipe delimited file or flat file was a problem. Attempts to export to CSV files also met with same problems: The comma separated value files do not work as long as some field values contain commas and so it is better to use the vertical bar character ("|", not the alphabet i, but the pipe character) as a field separator since no field values contain such character and this is what we used for the data export.

3. Result:

The following four summary tables is a sample of results from the modeling. Table1 shows the import and export mispricing for both the EU and USA.

Table 1-EU/US Trade with Ghana

Imports from Ghana, 2000-2012			
	value	Undervalued amount	Percent undervalued
EU Import	€19,033 m	€ 2,668m	14%
US Import	$2,985 m	$ 633m	21%
Exports to Ghana, 2000-2012			
	value	overvalued amount	Percent overvalued
EU Export	€21,202 m	€ 2,835m	14%
US Export	$6,978 m	$ 573m	8%

Source: Pak (2014), data source: Eurostat & US Merchandise Trade Data (as of May, 2014)
While averagely imports from Ghana are undervalued by 14 % and 21% respectively for Eu and USA, in the case of exports, EU is 14% while USA is 8%.

Table 2- EU Import from Ghana 2000-2012: Undervalued Items

ALUMINIUM ORES AND CONCENTRATES	€ 436m
KERUING, RAMIN, KAPUR, TEAK, MANSONIA, . . . AND PALISSANDRE DE ROSE, SAWN OR CHIPPED	€ 250m
NON-INDUSTRIAL DIAMONDS UNWORKED OR SIMPLY SAWN, CLEAVED OR BRUTED (EXCL. INDUSTRIAL DIAMONDS)	€ 172m
SHEETS FOR VENEERING, OF A THICKNESS OF <= 1 MM	€ 155m
CRUDE FIXED VEGETABLE FATS AND OILS, IN IMMEDIATE PACKINGS OF A CONTENT OF > 1 KG	€ 131m
Source: Pak (2014)	

Table 2 shows the major items of mispricing which include aluminum, diamonds, timber and vegetable fats. Table 3 shows Ghana's imports from the USA with industrial diamond being the highest at $413m but this might be because of smuggling from other West African countries like Sierra Leone, Liberia and Ivory Coast during the Ivorian crisis.

Table 3-US Import from Ghana 2000-2012: Undervalued Items

DIAMONDS EXCEPT INDUSTRIAL, UNWORKED OR SIMPLY SAWN, CLEAVED OR BRUTD	**$413m**
ANNATO, ARCHIL, COCHINEAL, CUDBEAR, LITMUS, LOGWOOD AND MARIGOLD MEAL	$31m
NAPHTHAS, EXCEPT MOTOR FUEL OR MOTOR FUEL BLENDING STOCK	$20m
SOCKS AND OTHER HOSIERY, FOR VARICOSE VEINS, AND FOOTWEAR WITHOUT APPLIED SOLES, KNITTED OR CROCHETED, OF COTTON: NOT CONTAINING LACE OR NET	$16m
COCOA BEANS, WHOLE OR BROKEN, RAW OR ROASTED	$13m
Source: Pak, 2017)	

EU Export to Ghana 2000-2012: Overvalued Items

MEDICAMENTS	€ 210m
AEROPLANES OF AN UNLADEN WEIGHT > 15.000 KG, FOR CIVIL USE	€ 170m
BASE STATIONS OF APPARATUS FOR THE TRANSMISSION OR RECEPTION OF VOICE, IMAGES OR OTHER DATA	€ 142m
PROCESSING UNITS FOR AUTOMATIC DATA-PROCESSING MACHINES	€ 141m
OTHER MEDICAMENTS	€ 137m
Source: Pak (2017)	

Table 4 reveals USA overvalued exports to Ghana, with one oil/gas item of overvaluation at $30m even though Ghana started oil production only in 2010. Other items are clothing($22m), Aluminium products ($14m), water filters ($11m) and mining equipment ($11m).

Table 4-US Export to Ghana 2000-2012: Overvalued Items

OIL AND GAS FIELD WIRE LINE AND DOWNHOLE EQUIPMENT	$30m
WORN CLOTHING AND OTHER WORN ARTICLES	$22m
ALUMINUM WIRE ALLOY, CROSS-SECTION > 9.5MM	$14m
WATER FILTERING OR PURIFYING MACHINERY AND APPARATUS	$11m
BACKHOES, SHOVELS, CLAMSHELLS AND DRAGLINES WITH A 360 DEGREE REVOLVING SUPERSTRUCTURE, USED OR REBULT	$11m
Source: Pak (2017)	

4. Discussion and Conclusion:

when an item is flagged as a suspicious transaction as a result of overinvocing or underinvoicing, it cannot be concluded right away that there is a crime committed. It May be related to one or more of the following:

1. Capital flight-attempt to take out money to another country
2. Import duty fraud-to evade customs duties, that is to pay less and make more profit
3. Income tax evasion / Transfer pricing
4. Money laundering
5. Clerical/Recording errors
6. Product heterogeneity for a given HS10 code, for example a $25,000 fax machine imported to the U.S. from Japan – was a prototype industrial sample

This is why we need commodity specialists in the customs to help make a determination on the flagged transactions by carrying out further investigations to determine which of the above apply and if it is not a clerical error or due to product heterogeneity, but any or all of the others, then the following steps could be taken further:

1.Carry out a detailed audit of the individual or business entity involved;

2.do further analysis of previous transactions to see if similar trends can be observed;

3.Once a clear case has been made, recovery and prosecution can follow.

Largely Export underpricing and Import overpricing Facilitates:

1. Income tax avoidance – abusive transfer pricing
2. Capital flight
3. Money laundering

This is why I prefer Price Filter method (PFM)over the Country-Partner method (CPM). Country partner Data method does not identify suspicious transactions so that we can recover and prosecute to deter future occurrence. It also makes a Critical assumption that: The values declared in Advanced economies reflect the market value correctly, i.e., no mispricing, which is not the case. For Grouped records, the Country-Partner method yields net mispricing, not gross mispricing.

The assumption of "no mispricing in advanced economies" made by the CPM is not supported by DOTS/COMTRADE data. Thus, the mispricing of one country will be biased by the amount of mispricing in partner country records. For detecting suspicious transactions, DOTS: is Annual and Monthly data, with no commodity level data and COMTRADE is Commodity at HS6 level (aggregation high).

When you use data of your trade partner (CPM), you are only able to:

Identify seemingly mispriced records, but not identities of importers or exporters. But you need a detailed investigation of the country's export and import documents for more accurate estimates of trade mispricing. And that is where price filter method shows its best using the country's transaction level import and export data.

Transaction Level Data, applying the PFM will:

1. improve accuracy of price filter estimation;
2. enable you to find identities of importers and exporters (names, addresses, destination/origin of trade, dates, amounts) for ease of recovery and or prosecution;

3. Enables comparison of values reported in Ghana against values of matching trades reported in partner countries.
4. identify and target importers and exporters with tendency of frequent mispricing allowing the customs to build a commodity and importer/exporter risks profiles for continuous monitoring;
5. Allows for estimate of trade mispricing as reported in Ghana for the period 2000 to 2012.

An on-going programme of focused examination and investigation of a country's export documents, especially using a price filter method will:

- Reduce capital flight through trade mispricing;
- Deter abusive transfer pricing by companies/businesses;
- Make Real time detection possible with the installation of real-time price filter model in the customs;
- Reduce tax losses and capital flights based on trade mispricing.

IMPLEMENTATION OF A REAL-TIME MONITORING OF IFF

Steps necessary in implementing a real-time monitoring/screening trade mispricing based on the statistical price-filter based matrix, Pak (2014), include the following:

- Update the price filter matrix regularly to reflect reality of the market/industry;
- Cross-referencing PFM and PCM in order to identify highly suspicious trade transactions;
- Acquire Market Price data-maybe subscribe to databases
- Use Statistical Price data as "arms-length" if comparables do not exist;
- Consolidate into a common electronic platform, maybe using BIG DATA?
- Set up the computerized screening of prices at each port/airport for all inbound/outbound cargo;
- Employ commodity specialists to audit trade documents and the physical inspection of flagged cargo. In the meantime, make use of specialists in the regulatory commissions.
- Carry out audits, recover and or prosecute offenders

4.0. LIMITATIONS OF THE PRICE FILTER METHOD

The estimated amounts of mispricing: A preliminary first order approximation at best. Identified seemingly mispriced records, but not identities of importers or exporters. Need national level transaction data to do that as was done for cocoa and gold. Auditing export and import documents is necessary for accurate estimates of trade mispricing. Foe effectively dealing with trade mispricing, we need establish an on-going programme of focused examination and investigation of Ghana's export and import documents consolidated into a Real-time detection platform. This allows GRA to deter abusive transfer pricing, reduce tax losses and capital flights based on trade mispricing. To further strengthen results, transaction Level Data from major trading partners will improves accuracy of price filter estimation and help finds Identities of importers and exporters as this enables the comparison of values reported in Ghana against values of matching trades reported in partner countries.

TRADE MISPRICING TRENDS IN GHANA WITHIN THE PERIOD

Annual Import overpricing trends upward (Both US and EU)

- EU: Over €300m in 2012 and US: Over $100m in 2012
- US, France, and UK among the largest overpricing in 2012, and trending upward
- Identified import sectors/commodities with significant overpricing, include machinery, vehicles, electrical machinery and equipment, articles of iron and steel, textile articles, and aluminum articles.

RECOMMENDATIONS

1. Develop/strengthen transaction level, real time risk assessment for GRA, customs, Ghana Statistical service and FIC and Test geographic risk applications in operations (audits, prioritisation custom controls, national risk assessments, suspicious transaction reporting, foreign exchange transfers). If successful, embed geographic secrecy and corporate tax avoidance risk in operations (audits, prioritisation, national

       risk assessments). This will enable Ghana to analyse country risks profiles and consider adequate capacity and/or policy legal and/or audit response; a).

2. Consider filling macro data gaps: a) Banking statistics (BIS, central bank), b) Accelerate FDI inward reporting and c) Portfolio statistics (CPIS, central bank/FIC)

3. Consider strengthening domestic policies and capacity to counter IFFs, including analysis of Ghana's Corporate tax haven index (CTHI) and financial secrecy index (FSI) profiles;

4. Consider a Policy/Law to empower the GRA to estimate tax due in case the tax payer does not comply with request for information;

5. Common standard reporting (CRS) implementation-wider-wider approach; public statistics, targeting key jurisdictions;

6. Modelling of oil production and revenues („using openoil model ")?

7. Ensure that Customs have sufficient mandate to tackle not only under-invoiced imports intended to evade Customs duty, but also over-invoiced imports intended to disguise capital flight as a form of trade payment, under-invoiced exports intended to conceal trade profit abroad such as tax havens, and over-invoiced exports intended to bring illicit proceeds into the domestic legal financial system;

8. Allow Customs to access foreign exchange transactions databases, and equip them with a mandate to examine whether 'financial transactions' between traders correspond to the 'declared value of traded goods;

9. Facilitate inter-agency cooperation among Customs, Tax authorities, Financial Intelligence Units and other agencies via information sharing, joint investigation teams, joint intelligence centres, secondments and co-location of personnel, and joint training programmes;

10. Empower customs to take advantage of the potential offered by new technologies such as blockchains to prevent any fraudulent manipulation of trade transactions by sharing relevant information in a trusted and secure manner.

CONCLUSION

Trade mispricing in EU-Ghana and US-Ghana trade is real, with undervaluation of Import from Ghana over the thirteen-year period being: €2.7bn (EU), $0.63bn for the US, while overvaluation of Export to Ghana for the thirteen-year period being: €2.8bn for the EU and $0.57bn for the USA. For the EU: Annually trade mispricing between €100m to €300m while that of the USA is $328m, with the 2000 figure being an exception most likely due to smuggling of non-industrial diamonds from other West African countries. After 2000, mispricing ranges between $10m and $62m. Spain is the largest under-pricing partner for the 13-year period, with Netherlands, UK, Germany, Belgium, Greece each at least €100m for the 13-year period. Identified export sectors/commodities with significant under-pricing, include wood and wood product, ores, cocoa and gold.

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