

# **Corruption and Bilateral Trade: A Rigorous Study between Bangladesh and India**

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## **Abstract**

*The current study seeks to quantify the extent of unregistered transactions and corruption through misreporting of bilateral trade between India and Bangladesh and identify its reason behind this corruption also. India is the second largest import partner country of Bangladesh after China. We want to find out the determinants of corrupt transactions and the relationship between corrupt capital outflows and inflows. Another focus is on identifying the corrupt capital in Bangladesh's total trade with India and its share in Bangladesh's GDP also. Now to measure the export and import misreporting we have taken the difference of recorded trade data between India and Bangladesh. Exchange rate fluctuations, interest rate difference, custom duty, export tax and their impact on trade as well as the black-market premium issues are the crucial problem areas from the view point of the beneficial impact of trade on the economic growth and prosperity of the India and Bangladesh.*

**Keywords:** *Exchange rate fluctuations, interest rate difference, custom duty, export tax, Capital flight, Black market premium.*

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## **I. Introduction**

Bangladesh as an independent country was first identified by India and their friendship has started before the independence, 1971. Historically they are the integral parts of Indian subcontinent with a common linguistic and cultural ties, literature, music, arts and food habits. For the geo-political advantages both countries have much opportunity to develop their trade connectivity and trade volume. In this study, we have done a case study between Bangladesh and India where India occupies on an average 13.06% import shares with respect to world import of Bangladesh during 1973-2018 (IMF, DOTS). Morgenstern (1963), in case of European countries he used partner-countries bilateral trade data and showed illegal financial transactions in international trade. Bhagwati (1974) studied import supervision where he found that workers sending remittances to Turkey were the biggest source of under-invoicing who converted their foreign currency from the black market for profitable premiums so that they can increase their income domestically. Marjit et al (2000) according to India's official trade statistics, the devaluation of the domestic currency and the achievement of export growth targets resulted in real long-term export growth, which is clearly reflected in the business statistics of the partner countries. Using US import statistics, the study was conducted for the period 1951-94. Fisman & Wei (2004) showed that there is a positive correlation between tax rate increase and tax evasion, and if 1% tax rate increases, Hong Kong reports 3% increase in tax evasion on exports to China, and according to reports of China, the amount of missing reporting also increased in the case of imports from Hong Kong. Biswas and Marjit (2005) establish that officially reported trade figures may not provide accurate statistics because a regulated system never reveals the actual situation. This is why officially reported information can be confusing when it comes to policy prescriptions. Using trade statistics from partner countries, they have shown why and how data inconsistencies between developed and developing countries have occurred and affected the economy, highlighting events between India and the United States. Chen, Mai and Yu (2006) studied China's data from 1985-2002 and developed a theoretical model where they found that the reduction in export taxes had a significant impact on China's exports and had a positive and serious impact on foreign exchange reserves. Biswas and Marjit (2007) examine illegal trade activities and see how the foreign exchange market and the outflow of illicit capital are affected by various strict trade policies. They created a preferred and non-preferred trade model with three countries where a low-tariff authority monitors both illegal capital outflows and foreign exchange transactions on the black market. Beja and EL (2008) use data discrepancies to show that China's net trade in 2000-05 and the amount of misreporting was 287.6 billion US\$, but they estimate that the total amount of misinvoicing was actually 1.4tn US\$. Ndikumana and Boys (2010), this study calculated the estimated capital outflows of 33 sub-Saharan African countries during the period 1970-2004. The method was to differentiate between foreign exchange inflows and outflows recorded in the BOPs, the amount of foreign debt, trade-in misreporting and the amount of anonymous remittances. They found that the total capital outflow during this

period was \$ 443 billion. In their study, Cheung and Qian (2010) showed that the amount of capital flight from China or the amount of money paid for foreign loans could be higher than the amount of foreign direct investment in China. Analyzing the role of VAT reduction on exports to China, Kar and Freitas (2012) estimated that 77.8% of China's total capital flight was conducted through trade misreporting. Chandra & Long (2013) studied firm-level panel data from 2000-06. They found that for 1% VAT reduction, export misreporting decreased by 13%, and for every \$1 export tax reduction, exports of China increased by \$4.70. Kar & Spanjers (2014) showed that China is the largest source of capital flights in Asia. Cheung et al. (2016) examined why and how Chinese capital flight took different forms before and after 2007. In this article, Betz (2019) mentions that institutional restrictions on trade policies increase illegal border crossings and illegal economic activities, and discusses government revenue and trade policy to further relax them. Biswas, von Hagen and Sarkar (2019) see that invisible capital outflows occur through trade channels, but invisible capital inflows occur through FDI channels and outflows positively affect inflows in the long run. They also observed that if foreign exchange prices or forward premiums increase in China and actual interest rates in the country increase comparatively, illegal inflows also increase in China. Biswas, Marjit and Sarkar (2019) argued that using the mirror data system is beneficial because it can be cross-checked, they examined bilateral export-import data (1960-2017) and the bilateral FDI time series data (2000-2017) between India and the United States. And shows that misreporting exists in exports, imports and FDI. To the best of my knowledge & effort, in the case of Bangladesh, I did not find any literature on these topics but I have found a huge misreporting trade situation between Bangladesh and India.

## **II. Material and Methods**

Bangladesh (BD) and India both are developing country, both countries are more or less corrupted and no one's data may be not fully true. But for the sack of my study, I have considered India's data is actual data so that I can do crosscheck and take the difference between two countries recorded data, and '1.06' is the f.o.b. (Free or Freight on Board), c.i.f. (Cost Insurance and Freight) cost followed by IMF working paper (Marini et al, 2018). By following the technique of (Biswas and Marjit; 2005), I am measuring the export-import misreporting, export misreporting is the difference between 'India's import from Bangladesh' (actual export of BD) and 'Bangladesh's export to India multiplied by 1.06' (Official export of BD) and import misreporting is the difference between 'India's export to Bangladesh' (Actual import of BD) and 'Bangladesh import from India multiplied by 1.06' (Official import of BD). ARDL regressions have taken to interpret the impact of some regulatory factors on misreporting of export, import & and VAR Granger Causality Test have taken to interpret the interrelationship between the export misreporting rate and import misreporting rate (1973 to 2018). In the first step we have checked mean, variance, SD, skewness then install log for normalisation, if skewed. In second step we check unit root tests. Some are stationary at level and some are stationary at first difference. Heteroscedasticity, specification error test, detecting serial correlation problem etc. have also checked with solution. The dependent variables are - export misreporting rate (x\_mrate) and import misreporting rate (m\_mrate), data source is IMF, DOTS. The Independent variables are- exchange rate (er), interest rate difference (ird), black market premium (bmp), export tax (x\_tax) and custom duty (cus\_duty). Exchange rate data has taken from Bangladesh Bank, black-market premium (BMP) is from IMF and interest rate difference, export tax & custom duty have taken from WDI (World Development Index). Time period is 1973-2018 for all above data set.

## **III. Results and Discussion**

In this part we are presenting a graphical misreporting scenario of Bangladesh with India. I have got period-wise different under & over reporting scenario after 1990s. In case of export Bangladesh mostly under reports and in case of import we have also got a period wise different under and over reporting situation (fig. 1). After 1990s to till 2012, import is mainly overreported by Bangladesh and after 2012, import is totally underreported by Bangladesh (fig. 2).

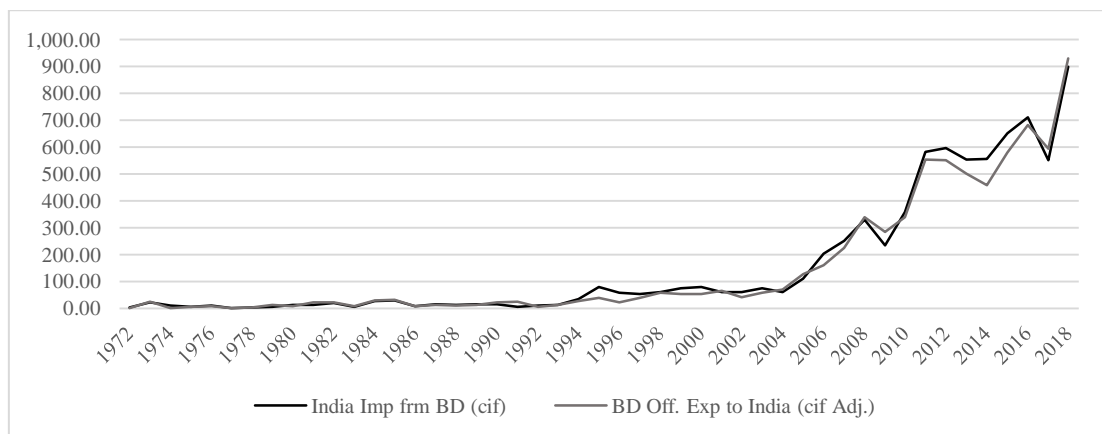


Figure 1: BD's Actual & Official Export with the INDIA as bilateral Trade Partner (US \$ mill.)

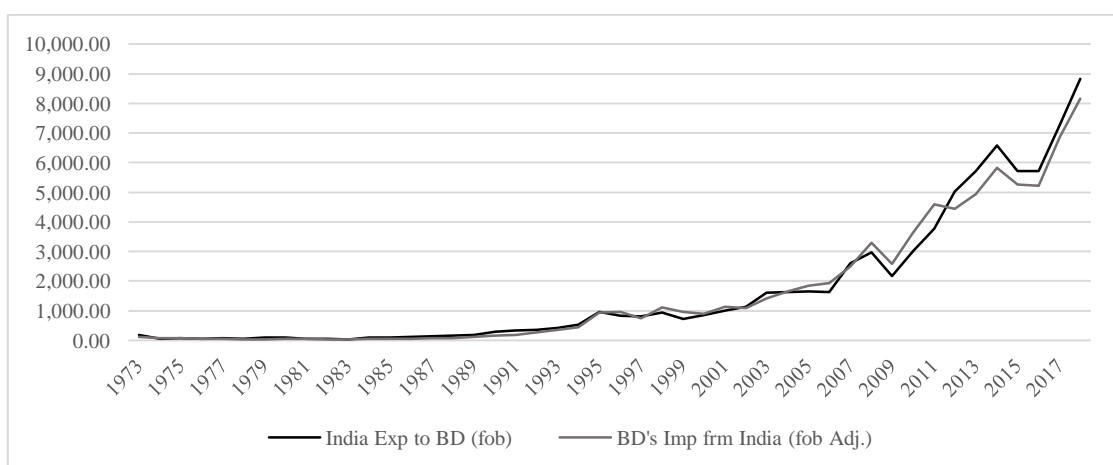


Figure 2: BD's Actual & Official Import with the INDIA as bilateral Trade Partner (US \$ mill.)

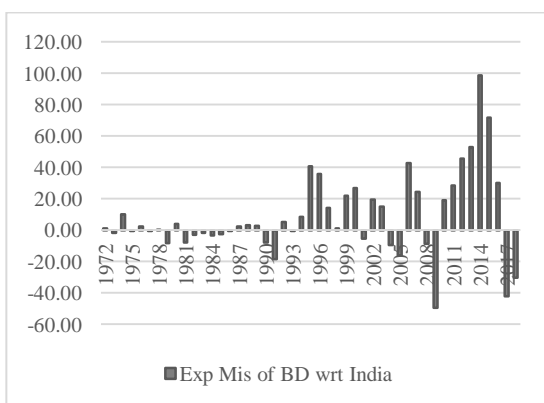


Figure 3: BD's Export Misreporting with the INDIA as bilateral Trade Partner (US \$ mill.)

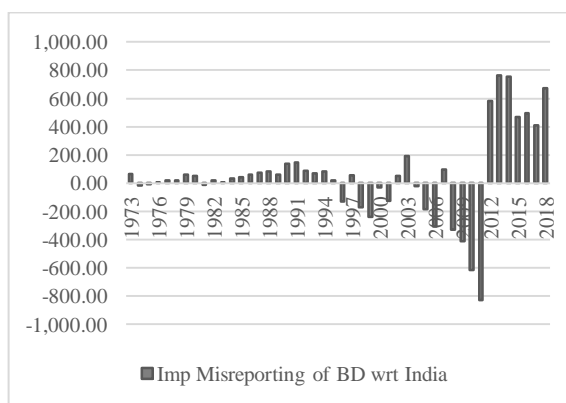


Figure 4: BD's Import Misreporting with the INDIA as bilateral Trade Partner (US \$ mill.)

Figure-3 is presenting the net misreported export volume (US\$ million) of Bangladesh with India. When the bars are in the positive and negative quadrant that means the export is underreported and overreported respectively. Now by export underreporting invisible corrupt capital (ICC) is flying-out from Bangladesh to India and by export overreporting invisible corrupt capital (ICC) is flying in Bangladesh from India. From figure-3 we can notice that by export underreporting, Bangladesh most of the ICC has flight-out to India, but the recent trend is ICC is flying in Bangladesh and with the time the rate of misreporting amount has increased also. Now, figure-4 is presenting the net misreported amount of import (US\$ million). Since, India is the import prime country of Bangladesh and import volume is much higher than export, that's why the export misreporting amount is comparatively lower than import. Why and how these misreporting is happening we will discuss these in the next part. Now, we will see the determinants of import-export misreporting in the following table-

**Table I:** Determinants of Log of Import & Export Misreporting rate of Bangladesh with India

Determinants of Log of Import Misreporting Rate of Bangladesh with India (1973-2018)		Determinants of Log of Export Misreporting Rate of BD with India (1972-2018)	
Variables	BD-India	Variables	BD-India
<b>Speed of Adjustment Parameter</b>		<b>Speed of Adjustment Parameter</b>	
Import_Mis_Rate	-1.002*** (0.158)	Export_Mis_Rate	-0.798* (0.26)
<b>Long Run Coefficients</b>		<b>Long Run Coefficients</b>	
Exchange Rate	<b>0.127*</b> (0.0768)	Exchange Rate	<b>-3.726*</b> (1.939)
Interest Rate Difference	<b>0.0126*</b> (0.00656)	Interest Rate Difference	
Black Market Premium	<b>-0.0191***</b> (0.000463)	Black Market Premium	<b>0.0202*</b> (0.00995)
Custom Duty	<b>0.0432**</b> (0.000052)	Export Tax	45.4 (33.78)
<b>Short Run Coefficients</b>		<b>Short Run Coefficients</b>	
Δ.Exchange Rate	<b>0.406*</b> (0.159)	Δ.Exchange Rate	<b>-7.884*</b> (2.575)
Δ.Black Market Premium		Δ.Black Market Premium	<b>0.0447*</b> (0.0177)
		Δ.Export Tax	<b>4.76**</b> (1.0003)
Δ.Interest Rate Difference	-0.00805 (0.00521)		
Constant	-0.260 <sup>†</sup> (0.127)	Constant	1.852 (1.747)
<b>Frequency and Log Likelihood</b>		<b>Frequency and Log Likelihood</b>	
NOS	46	NOS	47
LL	22.49	LL	13.34
R <sup>2</sup>	0.553	R <sup>2</sup>	0.722
<b>Diagnostic Checks</b>		<b>Diagnostic Checks</b>	
ARDL Bounds: t test	-2.489***	ARDL Bounds: t test	-2.106***
ARDL Bounds: F test	1.351***	ARDL Bounds: F test	1.209***
Serial Correlation test	26.275	Serial Correlation test	21.135
Multicollinearity	2.18	Multicollinearity	2.08
Heteroskedasticity test	19.34	Heteroskedasticity test	28.17
Normality	0.706	Normality	1.114
Ramsey Reset test	29.18	Ramsey Reset test	1.39
Cusum test	Stable	Cusum test	Stable

Standard errors in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

In our result (Table I), in case of import misreporting of Bangladesh with India we have got, in the long-run exchange rate, interest rate difference & customs duty have a positive impact and black-market premium (BMP) have a negative impact on import misreporting rate. In the short-run exchange-rate has a positive impact on import misreporting rate. In the LR, for each one-point increase in exchange-rate (ER), import misreporting scores increase by 0.127 points and the reverse is also true. By definition black-market premium is the difference between market exchange rate and the official exchange rate, when the exchange rate increases, the premium on the black-market decreases. To pay the import bill, the importer has to buy foreign currency and when the exchange rate is high, they have to spend more domestic currency for their official exchange, which is not at all profitable for them. When the exchange rate is high and the importer has to pay high customs duty also, a rational / corrupt importer will be forced to underreport the amount of import to increase his profit margin. And this is why they will be interested in buying foreign currency from the black market even if it is at a higher price than official exchange. Since they will want to underreport of their imported goods or services to evade import tax or custom-duty, they will be more likely to be caught if they buy all the foreign currency officially. On the other hand, if he did not mis-report, the amount of money that an importer would have to pay as customs-duty is much more than buying foreign currency with extra money from the black market. And once this condition is fulfilled, an importer will bring in invisible corrupt capital in the form of goods or services in his country. And if at the same time the amount of customs duty on imported goods is less and the interest rate of Indian banks is higher than that of Bangladesh, then the importers can over-report and send the money abroad i.e. to India.

Now in case of log of export misreporting rate, in the long & short-run, exchange-rate has a negative impact and black-market premium has a positive impact that means if exchange-rate increase then export misreporting will fall and vice-versa. On the other hand, when exchange rate decrease BMP will increase then to get the extra amount of premium, exporter will misreport and will exchange the hidden foreign currency from

the black-market so that in terms of domestic currency he can gain more. On the other hand, in the short-run export-tax is positively significant that means if the export tax is high then the misreporting amount will be also high, according to our result- for each one-point increase in export-tax, export misreporting scores increase by 4.76 points and the reverse is also true. If the interest-rate difference is high i.e. Indian banks interest rate is higher than Bangladesh then the exporter can underreport their export and can keep their money in foreign (India's bank) account. Thus, an exporter can send invisible corrupt capital to abroad. On the other hand, if exchange rate is high in the domestic country than an exporter can overreport his export and bring-back his money from the foreign account in his country because, in terms of domestic currency his income will be higher than before periods and in this way invisible corrupt capital can fly-in the domestic country.

Now, I have done VAR Granger causality test to check the causal relationship between export and import misreporting of Bangladesh with India.

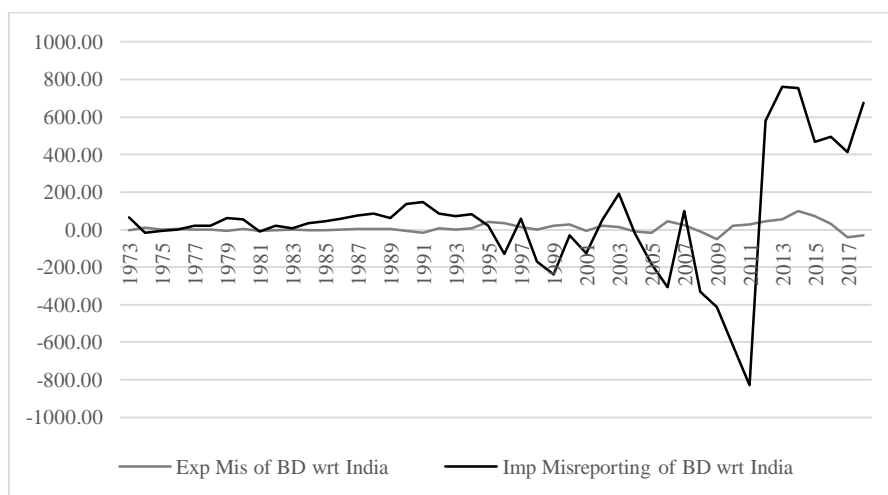


Figure 5: BD's Export & Import Misreporting with the INDIA as Bilateral Trade Partner (US \$ mill.)

The volume of export is much smaller than the volume of import, but I suspect that there may have a relationship between export & import misreporting that means export misreporting can be financed by import misreporting and vice-versa. From the figure-5, it is clear that by export underreporting mainly net invisible corrupt capital (ICC) is flight-out to India. In case of import misreporting, from 1973-1995 by underreporting of import, the net ICC is flight-in Bangladesh from India, from 1995-2011 by import overreporting most of (except from 2002-04) the net ICC has flight-out from Bangladesh to India and the recent trend is by import underreporting huge amount of invisible corrupt capital (ICC) is coming in Bangladesh from India. If we notice that then we will see a periodical mirror image in case of import misreporting trend-line. I suspect that in the current period the ICC is going-out to India and then in the next period it is coming back. For example, from 2004-11 the ICC has gone-out from Bangladesh to India by import overreporting and after 2011, that ICC is coming in Bangladesh from India by import underreporting. I suspect that for the increase of exchange-rate and banking interest in Bangladesh, their exchange amount will be higher than before in terms of domestic currency or we know that Bangladesh is a fastest growing market for the middle-class family, so possibility of investment & profitable business is growing day by day, that's why the importer is bringing back their money in terms of goods & services in Bangladesh.

Table II: Causal Relationship between Export and Import Misreporting (VAR Granger Causality Test)

Explanatory Variables	Dependent Variable (1973-2018)	
	BD-India	
	X_Mis	M_Mis
L.X_Mis	<b>0.536</b> <sup>***</sup> (0.138)	0.822 (1.725)
L2.X_Mis	-0.171 (0.171)	4.074 (2.134)
L3.X_Mis	-0.165 (0.181)	-3.782 (2.264)
L4.X_Mis	<b>0.390</b> <sup>*</sup> (0.169)	2.148 (2.105)
L.M_Mis	0.0119 (0.0139)	<b>0.678</b> <sup>***</sup> (0.173)
L2.M_Mis	-0.00224 (0.0153)	-0.108 (0.191)

L3.M_Mis	-0.016 (0.0147)	-0.117 (0.184)
L4.M_Mis	<b>-0.0401**</b> (0.0133)	0.0701 (0.166)
Constant	4.23 (3.334)	-1.086 (41.62)
<b>Frequency and Log Likelihood</b>		
NOS	46	46
LL	466.3	466.3
R <sup>2</sup>	0.57	0.5
<b>Granger Causality Test</b>		
ALL	19.55	7.78
Lags	19.55	7.78
Break Year	Y-2004	Y-2009

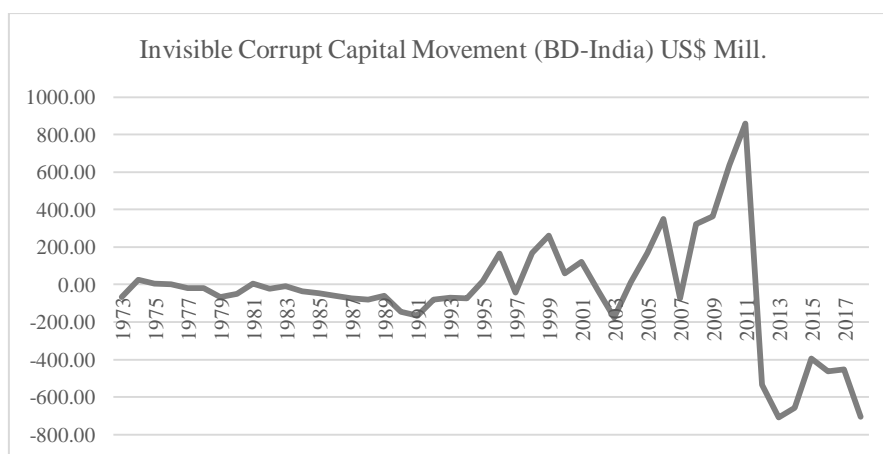
Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

From the above result (Table II), we have got-

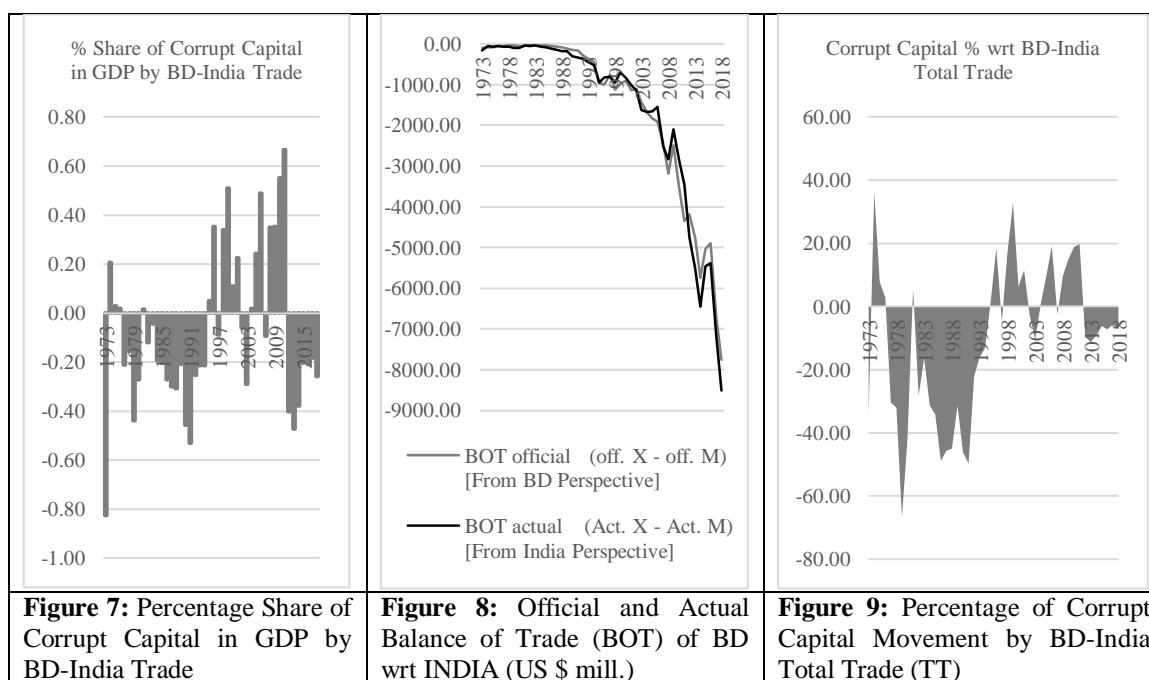
$$X^{Mis} = f(L.X^{Mis}, L4.X^{Mis}, L4.M^{Mis}) \text{ and } M^{Mis} = f(L4.M^{Mis})$$

These means that export misreporting is a function of export misreporting lag 1 & lag 4. And export misreporting is also a function of import misreporting lag 4 that means export misreporting is financed by import misreporting and here export & import misreporting are negatively correlated. Export misreporting is financed by export-misreporting lag 1 & lag 4, which also means that may be 1 or 4 years ago the invisible corrupt capital was flight-out from the country and in the current year it is coming back. In other meaning, one or four year ago the invisible corrupt capital was flight-in, now it is going out to abroad. Now, the case of import misreporting, here import misreporting is a function of import misreporting lag 4, that means 4 years ago the corrupt capital was flight-out by import (over) misreporting and in the current period that capital is coming back by import (under) misreporting and the reverse is also true.



**Figure 6:** Invisible Corrupt Capital (ICC) Movement between Bangladesh & India (US\$ Mill.)

Now, it shows that the scenario of net invisible corrupt capital (ICC) movement between Bangladesh and India. Before 1995, capital was flight-in, after 1995-2011 the capital was flight-out and after 2011, the capital is again flight-in Bangladesh (figure- 6).



When the line is in positive or negative quadrants that means that percentage of corrupt capital has flight-out from GDP or come-in and add with GDP (Figure-7 ). Figure-8 shows the difference between actual & official balance of trade (BOT) and it is clearly showing that in one period it is underreported and in the next period it is overreported and so on. Figure-9 shows that the percentage of corrupt capital movement with respect to Bangladesh-India total trade. Only by BD-India trade misreporting from 1977-1993 near about 40-60% invisible capital has flight-in Bangladesh and before 1977 & after 1993-2012 the invisible capital has flight-out from Bangladesh and after 2012 the invisible corrupt capital is coming-in again after a long break from 1993-2012.

#### IV. Conclusion

Mis reporting or financial corruption between the two countries can happen in many ways, but in all cases it is not possible to get data from both sides or cross-check, so we have only dealt with trade mis-reporting here. Bangladesh and India share an international border of 4,096 km (2,545 miles) and it is the fifth longest land border in the world. On the other hand, the whole border is not well protected by fencing. So, it is never possible to prevent misreporting just by applying strict trade policy. That's why with more open and easy trade policies, less misreporting will happen. This will increase the amount of trade and revenue between the two countries, as well as reduce the tendency to mis-report, corruption and crime.

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## APPENDIX

**Table I: Descriptive Statistics (ARDL)**

Variable	Observation	Mean	Std. Dev.	Skewness
x_mrate	46	0.19	0.08	-0.92
m_mrate	46	0.03	0.20	-1.01
er_inr	46	19.75	13.42	0.06
ird	46	-4.02	11.47	-0.17
bmp	46	57.70	73.53	0.47
exp_tax	46	0.00	0.01	0.42
cus_duty	46	906.56	597.31	0.49

**Table II: Correlation Matrix (ARDL)**

BD-India	er_inr	ird	bmp_bd	x_tax	cus_duty
er_inr	1.00				
ird	0.22	1.00			
bmp_bd	-0.61	0.03	1.00		
x_tax	0.35	0.01	-0.18	1.00	
cus_duty	0.76	0.19	-0.49		1.00

**Table III: ARDL Unit Root Test**

Variables	1973-2018	
	I (0)	I (1)
ln_x_mrate(BD-India)	-2.96	-2.97***
ln_m_mrate (BD-India)	-2.94	-2.95***
er_inr	-2.94	-2.95***
ird	-2.94**	
bmp	-2.95	-2.96***
x_tax	-2.94***	
cus_duty	-2.96	-2.95**

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