

## QUANTIFYING TRANSPORT, REGULATORY AND OTHER COSTS OF INDIA–BANGLADESH TRADE

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### Abstract

*In the globalised world, international borders ought to be mere lines on the map. But recent studies have shown that informal trade barriers still exist, and inhibit trade, particularly so in the developing countries. This can arise due to a host of factors such as complex customs procedures, which sometimes change, and capacity constraints, given limited facilities and/or corruption at the border. However, non-tariff barriers of various sorts and structural impediments are less obvious and perhaps more interesting, but also much more difficult to measure directly. In this context, this paper attempts to quantify the relevant costs resulting from informal barriers that impinge upon trade between India and Bangladesh through the land customs stations (LCSs) at Petrapole (West Bengal) and Benapole (Bangladesh). The study is based on primary data collated through surveys conducted in West Bengal.*

*Our estimates show that the aggregate delay pertaining to all the phases of exports turns out to be approximately four days for a single shipment. It also shows that the additional transaction costs in terms of delays and speed money incurred by the Indian exporters during trading with Bangladesh is about 10 per cent of shipment value. The present study has shown that informal barriers/para-tariff in India-Bangladesh trade are already high and further trade liberalisation without improving the infrastructure would be counterproductive. The paper ends with feasible policy recommendations to make trade between India and Bangladesh more vibrant.*

JEL NO. F19, R41

**Key words:** Institutional barriers, transaction cost, and corruption

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\*\*The authors are respectively Junior Economist and Principal Economist at NCAER. The research was sponsored by World Bank under the project “South Asian Trade Policies and Regional Trade in South Asia”. The authors are immensely grateful to Dr. Garry Pursell, Mr. Zaidi Sattar, Prof. Abdul Bayes, Dr. Arun Goyal and Mr. F. M. Ziaul Ahsan for valuable suggestions. The views expressed in the paper are those of the authors and not of the institute to which they belong. The usual disclaimer applies.

## Quantifying Transport, Regulatory and Other Costs of India-Bangladesh Trade

### 1. Introduction

Globalisation has opened up opportunities to developing countries in the form of outflows of value-added services and low-cost raw materials/human resource skills, improved market access for their exports, efficiency gains in economies through technology transfers, and spill-over resource allocations. Increasingly, the developing countries have begun to position themselves to participate in regional and global markets. This, in turn, depends on efficient transport and trade facilitation systems. Costs related to trade facilitation have long been thought to be an important factor determining transaction costs, in addition to other factors such as tariffs and non-tariff barriers. Of late, tariffs and non-tariff barriers have been losing their significance because of successive rounds of negotiations under the World Trade Organisation (WTO). On the other hand, transportation costs have plateaued because of technological innovations. As a result, trade facilitation or border delays have become much more conspicuous and deserve greater attention than they had received in the past. However, few studies have focused attention on informal trade barriers such as border delays on account of capacity constraints, customs clearances, and corruption. As Hummels (2001) asserts, “[N]on-tariff barriers of various sorts and structural impediments are less obvious and perhaps more interesting, but also much more difficult to directly measure.”

In the globalised world, country borders ought to be mere lines on the map. But recent studies (Anderson and Van Wincoop 2001) have shown that informal trade barriers still exist and inhibit trade flows, particularly so in the developing countries. This can arise due to a host of factors such as complex customs procedures, which sometimes are changing, capacity constraints, given limited facilities, and/or corruption at the border.

### 2. Review of literature

To our best knowledge, there have been two other studies—Pohit and Taneja (2003), and Subramanian and Arnold (2001)—which have attempted to identify the relevant costs in terms of time and money, involved in trading commodities between India and Bangladesh. These studies have attempted to identify losses of time in different stages of trade such as (a) securing export licences, (b) procedural delays at the customs, (c) processing costs at the banks, and (d) movements of merchandise (see Table I). However, both fall short of identifying all the factors that impinge upon trade. As Table I shows, these two studies have not analysed separately losses of time at parking, crossing borders, unloading at Benapole, and crossing the border while returning.

<b>Table I: Comparisons of various studies</b>			
	<b>Studies</b>		
<b>Factors/Elements</b>	<b><u>Pohit and Taneja (2000)</u></b>	<b><u>Subramanian and Arnold (2001)</u></b>	<b><u>Current (2003)</u></b>
<b>Transportation cost:</b>			

<b>Table I: Comparisons of various studies</b>			
<b>Factors/Elements</b>	<b>Studies</b>		
	<b>Pohit and Taneja (2000)</b>	<b>Subramanian and Arnold (2001)</b>	<b>Current (2003)</b>
Cost per kilometre/cost per 10 tonne truck	No	Yes	Yes
Cost as proportion of annual total exports/single shipment	Yes	No	Yes
<b>Loss of time in:</b>			
Obtaining export licence	Yes	No	Yes
Loading at Kolkata	No	No	Yes
Transportation	Yes	Yes	Yes
Parking	No	No	Yes
Customs clearance	Yes	Yes	Yes
Crossing of border	No	No	Yes
Unloading at Benapole	No	No	Yes
Crossing of border while returning	No	No	Yes
Export remittances	Yes	No	Yes
<b>Loss perceived by exporters – cost implications:</b>			
Due to delay in customs clearance and transportation including parking and queue at border	No	Yes	Yes
Due to delay in obtaining export remittances	No	No	Yes
<b>Trading costs other than transportation</b>			
Incidence of bribes (speed money)	Yes	Yes	Yes
Cost of credit	Yes	No	Yes

**Note: All the three studies have analysed costs in respect of the Petrapole-Benapole border.**

### 3. Description of border-crossing logistics

The land-border routes in West Bengal are the most important gateways for trade with Bangladesh in terms of trade volume and value. Notable among the land customs stations in West Bengal are Petrapole, Mahadipur, and Hilli. However, the physical infrastructure at these land customs stations is in a mess. Table II provides a summary of the problems.

The table shows that the parking lots in all of these lack basic amenities like potable water and toilet facilities. Approach roads to the customs stations are congested. Frequent power cuts, coupled with low voltage, impair the work of customs officials. Surprisingly, there is no government-bonded warehouse at these stations. Thefts are common and corruption is rampant.

<b>Table II: Bottlenecks in physical infrastructure and procedural hazards</b>			
<b>FACILITY</b>	<b>HILLI</b>	<b>MAHADIPUR</b>	<b>PETRAPOLE</b>
Approach Road to LCS	➤ Single lane congested road	➤ Poor physical condition	➤ Passes through congested towns & places infested by hawkers.
Parking lot	➤ No sanitation facility and	➤ Lack of basic amenities.	➤ No sanitation facility and inadequate drinking

<b>Table II: Bottlenecks in physical infrastructure and procedural hazards</b>			
<b>FACILITY</b>	<b>HILLI</b>	<b>MAHADIPUR</b>	<b>PETRAPOLE</b>
	<ul style="list-style-type: none"> <li>inadequate drinking facility.</li> <li>➤ Not secured—loss through theft</li> <li>➤ Prevalence of speed money</li> </ul>	<ul style="list-style-type: none"> <li>➤ Highly discriminatory parking fees</li> <li>➤ Not secured—loss through theft</li> <li>➤ Prevalence of speed money</li> </ul>	<ul style="list-style-type: none"> <li>water facility.</li> <li>➤ Not secured—loss through theft</li> <li>➤ Prevalence of speed money</li> </ul>
Warehouse	<ul style="list-style-type: none"> <li>➤ No government bonded warehousing</li> </ul>	<ul style="list-style-type: none"> <li>➤ No government bonded warehousing</li> </ul>	<ul style="list-style-type: none"> <li>➤ No government bonded warehousing</li> </ul>
Others	<ul style="list-style-type: none"> <li>➤ Poor quality of power</li> <li>➤ Local clubs with political affiliations extort exporters for donations</li> <li>➤ Hilli not notified in Duty Entitlement Pass Book (DEPB) port registration – traders of DEPB items not getting the benefit.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Poor quality of power affects efficiency of customs officials</li> <li>➤ Absence of bank collection centre</li> <li>➤ No office space for clearing &amp; forwarding agents</li> </ul>	<ul style="list-style-type: none"> <li>➤ Irregular power supply with low voltage</li> <li>➤ Single gate for export, import and passengers</li> <li>➤ Frequent strikes delay official work</li> <li>➤ Electronic Data Interchange (EDI) ineffective due to lack of efficient operator</li> </ul>

It is evident from the above table that problems prevailing in the three land customs stations are similar in nature. Hence, an analysis of transportation and cross-border costs and time of one of the land customs stations would provide a fair picture of the ground realities. We have chosen the Petrapole border for our study because it handles the highest volume of trade.

Petrapole is located about 95 km from Kolkata. The commodities traded through the Petrapole LCS come from all over India. Kolkata is the final transshipment area for most of them, and they are carried to the Petrapole border by truck through National Highway 35, formerly known as Jessore Road, because the road originates in Jessore in Bangladesh. The delay on this route occurs because of heavy traffic, because the road is narrow, and because of encroachments<sup>1</sup>.

On average, 250 trucks travel daily along Jessore Road. The road passes through very congested towns like Barasat, Dutta Pukur, Ashoknagar, Habra, and Bongaon. Furthermore, hawkers in Habra and Bongaon and three railway crossings hold up traffic. Another major hurdle is the Naobhasa Bridge, 3 km from Petrapole. The bridge is so narrow that at a time only one truck can pass. Moreover, heavy trucks with a carrying capacity of 15–18 tonnes, or even more, cannot pass through this bridge because of its decrepit condition. This results in transshipments of goods in smaller trucks, either in Kolkata or Bongaon, incurring additional transportation cost and time. Our findings reveal that the average transportation cost on the Kolkata–Petrapole route is around Rs 2,543, in comparison with Rs 1,752 for other national highways, for the same distance of 95 km. Hence, the average transportation

cost per kilometre turns out to be Rs 27 on the Kolkata–Petrapole route, against Rs 18 for other national highways.

The delays at the border take place at the parking lots, customs clearances, and entry/exit points. It is mandatory for the trucks coming from Kolkata during daytime to park at the Bongaon Municipality Parking, instead of moving directly towards the Central Warehousing Corporation (CWC) parking lot, which is situated near the border gate and adjacent to the Indian Customs House. The trucks are allowed to move serially, based on their entry coupons, towards the Petrapole border only after 11 p.m. in the summer and after 10 p.m. in the winter<sup>2</sup>. At the border, the trucks are again made to park at the parking space of the CWC. After getting clearances from the Indian customs authorities, trucks can cross the border between 10 a.m. and 5.30 p.m.

Non-transparent customs procedures and documentations at the border result in significant costs and delays. So, exporters employ clearing agents on commission to undertake paper work at the border. The fees of clearing agents usually vary from 0.3 per cent to 1 per cent of shipment value. In spite of appointing clearing agents and paying bribes to customs officials, customs clearances require much more time than is expected by the exporters. Although officially there are no fees for paper work at the customs office, exporters are compelled to shell out money if their consignments are to be cleared on holidays or before/after the scheduled working hours. Recently, the government of India introduced the electronic data information (EDI) system at the customs office in Petrapole to streamline the system. Poor planning dogs it, however. Papers are therefore cleared manually.

The entry point at the border has one gate, used for exports, imports, as well as for passenger movements. Only one truck can pass at a time. Thus, it remains very congested. Big trees impede traffic flow. After unloading at Benapole (in Bangladesh), trucks are allowed to enter India only after 7 p.m., or are allowed to return to India before the start of exports from India (i.e. 10 a.m.). This results in a loss of time, apart from payments of detention charges.

#### **4. Framework, methodology, and sampling design**

Any transaction goes with a transaction cost. A trader/exporter incurs transaction costs during all the phases of the export process, starting from obtaining information about market conditions in any given foreign market and ending with the receipt of final payment. One part of the transaction cost is inherent in any transaction. It is trader-specific and depends upon his operational efficiency. The magnitude of this transaction cost diminishes with an increase in the efficiency level of the trader. The other part adheres to the trading environment, and occurs because of in-built inefficiencies in it. It includes institutional bottlenecks (transport, regulatory, and other logistics) and information asymmetry, giving rise to rent-seeking activities by officials at various steps. These cost traders time and money, including demurrage charges, making transactions all the more expensive.

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<sup>1</sup> The width of Jessore road is 16 feet.

<sup>2</sup> Trucks carrying perishable items and hazardous chemicals like acid are allowed to move straight towards the border.

In our analysis, we deal with this transaction cost and term it *auxiliary transaction cost*. It refers to the additional transaction cost that exporters have to incur in terms of speed money (bribes) and delays. As noted earlier, the cost estimates in this paper are based on primary data collated through field surveys. We have surveyed exporters and transporters. The survey was conducted in towns adjoining Petrapole including Kolkata, using structured questionnaires, during July and August 2002. We solicited information from the exporters and transporters regarding the time and cost of different phases of transactions. For clarity, the entire set of activities has been divided into three phases:

- Phase I—loading at Kolkata, unloading at Benapole, and crossing the border while returning
- Phase II—transportation
- Phase III—exports including parking, customs clearances, and crossing of border.

The questionnaires elicited information on several variables. Data were collected on transaction costs and the time taken for the transaction of each of these phases. Information was also solicited from the traders on transportation costs, costs of credit, bribes, export remittances, duties refunded, and in respect of obtaining the import-export code. Besides these, traders were asked to provide the money value (opportunity cost) of delays.

Once we established the scope of the population, we obtained a *sampling frame*—a list of population elements. The lists of “major transporters” (25 in all) and “major exporters” (155 in all), with commodity specifications, were acquired from the respective federations in Kolkata. Before the selection of samples, we held discussions with representatives from the different federations of exporters and transporters, and learnt that the population was not heterogeneous enough, and hence there was no reason to be critically worried about *sample size* and *sampling error*. Therefore, given the time and budget constraints, fifteen transporters were contacted and interviewed. Though information was solicited from 155 exporters, responses were obtained from 82.

## 5. Estimation of cross-border delays

Tables III, IV, and V summarise our survey findings regarding time losses. In each table, delay is sought to be understood by comparing the time taken with how much time should be required, in the exporters’ view.

Table III shows that the unloading part in Benapole takes the highest time, in reality as well as ideally—the real being more than four times the ideal. Similarly, crossing the border yields about 200 per cent real-ideal difference.

	Ideal time (in hrs)	Loss of time (in hrs)	Loss of time as % of ideal time	Ideal time (in hrs)	Loss of time (in hrs)	Loss of time as % of ideal time	Ideal Time (in hrs)	Loss of time (in hrs)	Loss of time as % of ideal time

	LOADING AT KOLKATA			UNLOADING AT BENAPOLE IN BANGLADESH			CROSSING OF BORDER WHILE RETURNING		
Average	2.50	4.10 (40)	126.67	1.83	9.00 (43)	444.00	1.60	4.67 (8)	300.00
Std. Dev	2.07	10.16	152.21	2.04	11.87	314.25	0.51	1.91	126.77
Coef. Of var	0.83	2.48	1.20	1.11	1.32	0.71	0.32	0.41	0.42

**Note: The figures in the parenthesis represent the maximum loss of time**

On the other hand, Table IV shows that on average there is a loss of more than three hours in transporting merchandise from Kolkata to Petrapole (95 km), the real being nearly 1.5 times the ideal.

<b>Table IV: Loss of time in Phase II</b>			
	Ideal Time (in hrs)	Loss of time (in hrs)	Loss of time as % of ideal time
TRANSPORTATION			
Average	2.40	3.20 (5)	146.19
Std. Dev	0.95	0.90	57.56
Coef. Of var	0.40	0.28	0.39

**Note: The figure in the parenthesis represents the maximum loss of time**

Table V summarises our findings regarding time losses incurred in parking, customs clearances, and crossing the border, etc. As the table shows, the average ideal time for exports is perceived to be slightly more than 21 hours. However, the actual is 99 hours, resulting in a loss of around 78 hours.

<b>Table V: Loss of time in Phase 3</b>			
	Ideal Time (in hrs)	Loss of time (in hrs)	Loss of time as % of ideal time
TOTAL TIME FOR EXPORTS INCLUDING PARKING, CUSTOMS AND CROSSING OF BORDER			
Average	21.33	78.07 (96)	375.67
Std. Dev	5.43	17.29	125.84
Coef. Of var	0.25	0.25	0.36

**Note: The figures in the parenthesis represent the maximum loss of time**

In summary, the aggregate delay turns out to be around 99 hours, on average (more than four days), for a single shipment (see Table VI). Data suggest that the aggregate delay could be as high as 192 hours (eight days).

<b>Table VI: Cumulative loss of time in exports</b>		
	Ideal time (hrs)	Loss of time (hrs)
Phase 1	5.9	17.8
Phase 2	2.4	3.2
Phase 3	21.3	78.1
Cumulative	29.6	99.1

## 6. Auxiliary transaction costs vis-à-vis shipment value

Other transaction costs incurred by Indian exporters include speed money and delays. We have attempted to estimate the extent of these additional transaction costs in relation to the average value of shipment based on the perceptions of our sample exporters. The results are given in Table VII.

<b>Table VII: Auxiliary transaction cost vis-à-vis shipment value</b>		
Cost elements	% of Shipment Value	
	Average	Maximum
Delay in customs clearance including transport, parking and queue at border	5.73 (0.54)	18
Total bribes	2.50 (0.74)	10
Delay in obtaining export remittances	2.15 (1.33)	12
Total	10.38	

**Note: Figures in the parenthesis indicate the coefficient of variation.**

As this table shows, the average cost of time losses in customs clearances and transportation, including parking and queues at the border, turns out to be 5.73 per cent of the value of shipment. The survey results indicate that the maximum perceived loss is 18 per cent. Similarly, the financial implications of bribes and delays in obtaining export remittances are 2.50 per cent and 2.15 per cent of the shipment value, respectively (Table VII). The results of the survey reveal that a majority of the exporters pay bribe, which generally varies between 1 per cent and 3 per cent of the shipment value, the highest being 10 per cent. The maximum perceived loss due to delay in obtaining export remittances is 12 per cent of the shipment value.

Thus, it may be concluded that on average an Indian exporter incurs in sum an auxiliary transaction cost of about 10 per cent of the shipment value.

## 7. Summary and policy implications

Our estimates show that the delay in a single shipment from India to Bangladesh is to the tune of four days (99 hours). The maximum loss of time occurs in parking, customs clearances, and crossing the border (78 hours), followed by unloading at Benapole (nine hours). Our analysis also shows that on average an Indian exporter incurs an auxiliary transaction cost of about 10 per cent of shipment value.



One aspect usually not taken into account while undertaking trade liberalisation—either unilaterally or through free trade agreements (FTAs)—is the welfare implications of institutional barriers. In low-income and transitional economies like India and Bangladesh, the real barrier to trade is quite often institutional, taking the form of unreasonable customs delays and bribes. However, the literature on trade liberalisation or costs and benefits of FTAs has rarely touched on this issue. How such delays arise and their duration have been badly documented, but their impact on trade is undeniable.

The crucial question is whether the institutional factors can marginalise or negate the India's gains from trade liberalisation, either through the unilateral route or the FTA route. Sadly, none of the past Indian studies quantifying the gains from FTAs or trade liberalisation has accounted these factors. In fact, similar studies for other countries are also silent on this, the sole exception being the study for Russia by Edgar Cudmore and John Whalley (2003), which has shown that liberalisation can be welfare-worsening rather than welfare-improving, as is usually the case in conventional models if one incorporates border delays in the analysis. In the context of India-Bangladesh trade, this finding has immense relevance in emphasising the need to have a fresh look in improving the infrastructure in the land customs stations. The approach roads towards the land customs stations have to be widened. Government-bonded warehousing facility is mandatory. Efforts should be made to operationalise the EDI system immediately. The local administration, with co-operation from exporters, should ensure potable water and sanitation facilities at the parking lots. In addition, issues related to poor power supply and strikes should be sorted out.

Negotiations are on for signing an FTA with Bangladesh. But the government of India needs to focus more on administration, infrastructure development, and border delays. Moreover, the balance of trade is significantly in favour of India. As a consequence, the trucks from Bangladesh carrying Indian imports have to give way to the Indian trucks carrying Indian exports, and the waiting time on average turns out to be 4–5 hours.<sup>3</sup> Once the trucks from Bangladesh enter India, immediate transshipments of Indian imports are required because there is no customs bonded warehousing facility in Petrapole, and the Bangladeshi trucks are not allowed to move further into the Indian territory. Perishable commodities are sometimes damaged, especially so during the monsoon. Currently, the Indian imports are transhipped in a vacant land beside the Indian customs office, which is insufficient.

Bangladeshi traders complain that Indian customs officials misbehave with them, in spite of regular suborning. As this generally happens on the land route, they prefer the air route, which adds to their costs.

The government of India should construct separate gates for exports and imports in all the important land customs stations in general and Petrapole in particular. If this is not feasible, during some days of the week imports from Bangladesh should be given the first preference before exports from India proceed. Transshipments of goods from Bangladeshi trucks to Indian trucks have to be made efficient and trader-friendly.

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3 . This is true with other LCSs.

## References

1. Anderson, James E, and Eric Van Wincoop (2001): "Borders, Trade and Welfare," National Bureau of Economic Research, working paper # W8515, October.
2. Bougheas, Spiros, P O Demetrades, and E L W Morgenroth (1999): "Infrastructure, Costs and Trade," *Journal of Development Economics* 47.
3. Chaudhari, S K (1995): "Cross Border Trade between India and Bangladesh," National Council of Applied Economic Research (NCAER), New Delhi, working paper # 58.
4. Chow, Garland, and J J McRae (1989): "Nontariff Barriers and the Structure of the U.S.-Canadian (Transborder) Trucking Industry". *Transportation Journal* 30(2):4-21.
5. Cudmore, Edgar, and John Whalley (2003): "Border Delays and Trade Liberalization," National Bureau of Economic Research, working paper # W9485, February.
6. Exim Bank of India (1999): "Transaction Costs of Indian Exports: An Analysis," Working paper # 104.
7. Hummels, David (2001) "Time as a Trade Barrier". Working paper, Purdue University, July 2001.
8. Lin, J Y, and Nugent, J B (1995): "Institutions and Economic Development" in *Handbook of Development Economics*, Volume III, Edited by J. Behrman and T.N. Srinivasan.
9. Pohit, Sanjib, and Nisha Taneja (2000): "India's Informal Trade with Bangladesh and Nepal: A Qualitative Assessment," Working Paper # 58, Indian Council for Research on International Economic Relations (ICRIER), New Delhi, July.
10. Subramanian, Uma, and John Arnold (2001): "Forging Subregional Links in Transport and Logistics in South Asia," World Bank, Washington D.C., January.
11. Subramanian, Uma (1999): "South Asia Transport: Issues and Options," paper presented at the World Bank/ESCAP Regional Technical Workshop on Transport and Transit Facilitation, Bangkok, April.