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DEVELOPMENT STUDIES WORKING PAPERS

N. 513

July 2026

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ISSN 2282-5452

Transport Mode and the Geography of Exchange Rate Pass-Through [*]

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July 15, 2026

Abstract

This paper examines how transport mode shapes the geography of exchange rate pass-through (ERPT) within Global Value Chains. Using transaction-level customs data from the Bangladeshi garment sector (2018–2024), we exploit the sharp depreciation of the Bangladeshi Taka in 2022 to compare maritime and air-based trade corridors through Chittagong seaport and Dhaka airport. We show that ERPT to exporter prices is incomplete on average and systematically lower in buyer–seller relationships that rely more intensively on air transport. This differential is concentrated in destinations and products where delivery speed is especially valuable, notably European fast-fashion markets.

Keywords: Global Value Chains, Exchange Rate Pass-Through, Transport Mode, Bangladesh

JEL Classification: D22, D43, E31, L14, L22

[*] We thank participant of the Lisbon Macro Group for useful feedback. We thank Marco Errico and Enrico Cristoforoni for helpful comments and suggestions. This work does not reflect the views of the Asian Development Bank. All errors are our own.

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1 Introduction

Global Value Chains (GVCs) have played a central role in the industrialization of developing economies, yet their regional impact remains uneven. Regions do not participate in GVCs uniformly; rather, they are embedded in specific segments of production networks and connected to international markets through distinct infrastructural corridors (MacKinnon, 2012; Crescenzi and Harman, 2023). Ports, airports, and logistics gateways anchor local production to global demand, shaping not only trade flows but also local economic outcomes (Rodrigue, 2020).

Transport mode constitutes a central yet underexplored dimension of this spatial integration. Maritime and air transport represent distinct logistical regimes linking regions to global markets. Maritime routes typically involve slower and larger-scale shipments organized around port infrastructure, whereas air transport provides faster and more flexible connections through airport-centered logistics networks (Meixell and Norbis, 2008; Bonadio, 2024). These infrastructural differences may shape how global shocks affect exporting firms. When exchange rates fluctuate, for example, their transmission to export prices may depend on the speed, flexibility, and contractual arrangements associated with different transport modes (Aizenman, 2004; Hummels and Schaur, 2010).

This paper studies whether and how transport mode mediates the pass-through of exchange rate shocks to export prices. Using transaction-level customs data from Bangladesh's garment industry between 2018 and 2024, we compare pricing responses across buyer–seller relationships that differ in their reliance on air transport. Our empirical strategy exploits the sharp depreciation of the Bangladeshi Taka following the shift away from a de facto dollar peg in 2022, which generated substantial exchange rate volatility during the sample period.

We measure exchange rate pass-through (ERPT) as the elasticity of exporter-currency (BDT-denominated) prices with respect to the bilateral exchange rate, expressed as BDT per unit of foreign currency. Under this definition, an increase in the exchange rate corresponds to a depreciation of the BDT (Juarez, 2024). A positive ERPT coefficient therefore implies that exporters raise BDT prices in response to a depreciation, retaining part of the currency gain rather than fully passing it on to buyers through lower foreign-currency prices. Consistent with the Dominant Currency Paradigm (Gopinath et al., 2020), almost all transactions in our data are invoiced in US dollars, implying that dollar prices are sticky in the short run and that BDT revenues adjust with the exchange rate only insofar as exporters actively revise their dollar-denominated prices.

We document two main findings. First, ERPT is incomplete on average and varies systematically across transport modes. Buyer–seller relationships that rely more intensively on air transport exhibit significantly lower pass-through than those relying primarily on maritime shipping. The magnitude is economically meaningful: air-intensive relationships reduce pass-through by roughly five percentage points relative to sea-based relationships. Consequently, when the BDT depreciates, exporters engaged in air-intensive relationships increase their BDT revenues by less than exporters that mainly ship through maritime shipping. Given that transactions are invoiced in US dollars, this muted response in BDT prices implies a larger decline in dollar export prices for air-intensive relationships following a depreciation: exporters capture a smaller share of the exchange-rate gain, with the remainder passed on to buyers through lower foreign-currency prices.[1] This result is robust to demanding fixed effects that absorb buyer and seller heterogeneity and destination-product-time characteristics.

Second, the air-ERPT differential exhibits clear geographical and product-level heterogeneity. The effect is concentrated in European destinations and is largely absent in North American markets. Consistent with this pattern, shipments exiting through Dhaka, the country's main air-cargo gateway, display significantly lower ERPT. The differential is also strongest for products typically associated with fast-fashion supply chains. These patterns point to a mechanism rooted in time sensitivity. In markets and product segments where delivery speed is especially valuable—such as European fast-fashion retail—air-intensive logistics limit exporters' ability to adjust prices in response to exchange-rate movements. In settings where speed commands a premium, this logistics flexibility dampens the transmission of exchange-rate shocks to exporter prices and increases the share of the currency gain accruing to the buyer.

Taken together, these findings identify transport mode as an independent determinant of ERPT. Incomplete pass-through is therefore not driven solely by market power or invoicing currency choices, but also reflects the operational and logistical structure of supply chains. By linking sub-national transport infrastructure to the geography of price adjustment, the paper offers a new perspective on why exchange rate fluctuations have uneven effects across exporting firms and regions.

The Bangladeshi garment sector provides a particularly suitable setting to examine this issue for four main reasons. First, apparel production is organized through highly fragmented GVCs in which international buyers coordinate large networks of suppliers across countries (Gereffi, 1999; Gereffi et al., 2001; Cajal-Grossi et al., 2023b; Boudreau et al., 2023). Bangladesh is the world's second-largest garment exporter after China, and garments account for more than 80% of the country's export earnings.

Second, the geography of the sector is strongly concentrated within countries

[1] This finding is consistent with Juarez (2024), who documents that greater buyer market power is associated with lower ERPT into seller-currency prices, compressing the exporter's revenue response to exchange-rate shocks. In our setting, the logistical structure of the supply chain plays an analogous role: reliance on air transport attenuates the exporter's ability to convert BDT depreciation into higher revenues.

(Comotti et al., 2020). In Bangladesh, garment production clusters around a small number of districts and relies primarily on two export gateways: Chittagong seaport and Dhaka airport (Cajal-Grossi and Kreindler, 2025). This spatial structure generates a natural link between transport mode and sub-national trade corridors.

Third, the sector is highly time-sensitive. Apparel products are characterized by short production cycles and strong seasonal (semester-based) demand, making delivery speed an important component of supply chain organization. In this context, firms may use air freight to meet tight delivery deadlines, particularly in fast-fashion segments (Cajal-Grossi et al., 2023a).

Finally, since May 2022, the Bangladeshi Taka (BDT) has been depreciating following the shift away from its de facto dollar peg, primarily due to a balance of payments deficit that has significantly eroded foreign reserves (IMF, 2023).

Related literature By integrating transport mode into the analysis of ERPT, this paper contributes to three strands of literature.

First, a large literature has studied the ERPT in international trade. Standard models predict incomplete pass-through when firms adjust markups in response to exchange rate changes (Amiti et al., 2014; Auer and Schoenle, 2016; Burstein and Gopinath, 2014; Gopinath et al., 2020; Bolatto et al., 2022). More recently, attention has shifted toward the role of large buyers and market structure in shaping ERPT. Juarez (2024) shows that buyer market power reduces pass-through in Colombian exports, as larger buyers can adjust markdowns more flexibly. However, this literature largely abstracts from the logistical and spatial structure of supply chains. Prices are typically modeled as being negotiated within buyer–seller relationships, but the logistics through which goods move, and the infrastructures that connect production to markets, are not considered. We extend this literature by showing that transport mode independently shapes ERPT, even conditional on market power. Air-intensive relationships exhibit significantly lower pass-through relative to sea-based relationships, and this effect persists under demanding product-destination-time and relationship fixed effects. Thus, markdown adjustment alone cannot explain the heterogeneity in pass-through. Operational features of GVC organization matter. In doing so, we broaden the scope of the ERPT literature from a market-power perspective to one that incorporates the geography of trade.

Second, our paper contributes to the literature on shock propagation through production networks and across regions (Barrot and Sauvagnat, 2016; Boehm et al., 2019; Carvalho et al., 2021). Within economic geography, recent work emphasizes that GVC participation is spatially uneven and that regions play differentiated roles in global production networks (Crescenzi and Harman, 2023; Comotti et al., 2020). Yet most of this literature focuses on input-output linkages or firm productivity, with less attention to how pricing responses to global shocks vary across space. Our second contribution is to show that transport infrastructure, specifically the reliance on air versus sea gateways, affects how exchange rate shocks are transmitted to exporter prices. In Bangladesh, garment exports are highly concentrated around two nodes: Chittagong (sea) and Dhaka (air). This spatial concentration implies that transport mode is tightly linked to sub-national geography. We show that ERPT differs systematically across these gateways. In particular, shipments processed through the Dhaka airport show a lower ERPT. These findings imply that sub-national transport infrastructure mediates global shock transmission. Exchange rate volatility does not affect all exporting relationships uniformly; instead, its local impact depends on how goods move across space. Regions more integrated into fast air-based supply chains appear less able to benefit from currency depreciations. This perspective advances the economic geography literature by highlighting a previously underexplored mechanism of spatial heterogeneity: not only who trades with whom, but how goods travel shapes regional exposure to global volatility.

A third literature studies transport infrastructure and trade. Work on ports, airports, and roads shows that connectivity influences firm performance, market access, and regional development (Gibbons and Wu, 2020; Coşar et al., 2022; Fan et al., 2023; Bonadio, 2024; Rattsø and Sheard, 2025). Hummels and Schaur (2010) show that firms use faster transport modes to mitigate inventory and price volatility. However, while this literature establishes that faster transport can hedge certain forms of volatility, it does not examine how transport mode affects ERPT within buyer–supplier relationships nor the mechanisms through which this occurs. We show that air transport is associated with lower ERPT, but only in contexts where exchange rate volatility is economically meaningful and where air transport substantially reduces delivery times, namely European fast-fashion markets.[2]

The rest of the paper is organized as follows. Section 2 describes the data together with some key stylized facts. Section 3 presents the empirical strategy, while Section 4 presents the results. Finally, Section 5 concludes.

[2]This paper further highlights the value of transaction-level customs data for analysing the economic geography of GVCs. While most research relies on aggregate trade statistics and input–output tables (Timmer et al., 2019; Antràs, 2020), such approaches lack firm-level information on buyer–seller relationships and geographic location that is essential for understanding sub-national dynamics (Ottaviano, 2011). By leveraging detailed customs records, we provide a granular perspective on how GVCs operate across regions, generating insights that go beyond what conventional data sources allow (Fort, 2023; Boehm et al., 2023).

2 Data and Facts

We use transaction-level customs records on Bangladeshi garment exports spanning January 2018 to December 2024, disaggregated at the shipment level. The data for 2018–2022 are drawn from Cajal-Grossi et al. (2023a), which we extend with newly obtained observations for 2023 and 2024 from the Bangladesh Customs National Board of Revenue.[3]

A transaction i is specific to a buyer (b) in a given destination (d), a seller (s) in Bangladesh, a product (j) and a date (t).[4] For each transaction, the data report shipment value, weight (and in some cases physical units), port of exit, transport mode, and the product classification at the HS 6-digit level. Importantly, the data include identifiers for both trading partners. Buyers are identified by name and address, while sellers are identified either through tax identification numbers or firm names and addresses. The resulting dataset contains more than 30 million export transactions.

We perform several data cleaning steps. First, we remove observations with missing or negative values for shipment value, weight, or quantity. Second, we mitigate the influence of extreme observations by winsorizing unit prices at the 1st and 99th percentiles. Third, because buyer and seller names are not always uniquely recorded across transactions, we standardize firm names across years and eliminate duplicate identifiers. To reduce noise from very small export markets, we restrict the analysis to the top 50 destination countries, which together account for 99.5 percent of total Bangladeshi garment export value.[5] Finally, we exclude markets in which a single buyer accounts for the entire market share within a given semester. These steps reduce the number of observations from 30 million to around 7.1 million.

We then construct an unbalanced panel dataset by aggregating transactions at the buyer–seller–destination–product–semester level. Using a semester frequency enables us to capture price adjustments over a horizon that broadly aligns with a full production and delivery cycle in the garment industry, while preserving sufficient variation in exchange rate movements. The final dataset for the empirical analysis, after the cleaning and the aggregation, corresponds to around 600 thousand observations.[6]

[3]These data are confidential and cannot be shared publicly.

[4]Transactions may be even more granular, as multiple shipments of the same product between the same buyer and seller can occur on a given day under separate customs declarations.

[5]Figure B.2 in the appendix reports the distribution of export value across destination countries.

[6]The number of observations is smaller than in the initial sample because aggregating daily transactions to a semiannual frequency reduces the dataset to approximately 1.2 million observations. Moreover, the inclusion of demanding fixed effects leads to the further exclusion of singleton observations. The median buyer-seller-destination-product quadruplet appears for

To measure exchange rate movements, we combine the customs data with bilateral exchange rate series obtained from the IMF's *International Financial Statistics*. For the United States we use the BDT–USD exchange rate directly, defined as units of BDT per US dollar. For other destinations, we compute the bilateral rate by combining the destination-country currency–USD rate with the BDT–USD exchange rate. Figure B.1 illustrates the sharp depreciation of the Bangladeshi Taka against the U.S. dollar beginning in 2022.

The transaction-level nature of the data allows us to follow prices within buyer–seller relationships and markets over time, offering a natural framework to examine how exchange rate shocks are transmitted to export prices across transport modes.

2.1 Key Facts

In this section we present summary statistics on the Bangladeshi garment sector and document a set of empirical patterns that motivate our analysis. In particular, we highlight three features of the data that are directly relevant for the empirical specification: (i) the presence of large international buyers with different sourcing strategies, (ii) the strong spatial and logistical organization of exports around a small number of transport gateways, and (iii) substantial price dispersion within narrowly defined markets.

Our dataset contains 8,250 Bangladeshi exporters selling to 18,846 international buyers across 50 destination countries between 2018 and 2024. The analysis focuses on apparel products classified under HS codes 61 and 62 (knit and woven garments), covering 225 product categories. Nearly all transactions—about 98 percent—are invoiced in U.S. dollars, while the remaining shipments are denominated in Bangladeshi Taka (BDT) or euros (EUR).

Trade relationships in the sector are highly heterogeneous. While buyers typically source a limited number of goods from individual suppliers—the median importer purchases three products per destination—the presence of large multinational retailers significantly raises the average number of products traded. The median buyer imports 16 products from Bangladeshi suppliers, whereas the largest buyers purchase more than 150 products from the country (Table A.1). These patterns reflect the central role played by large international retailers in coordinating production across multiple suppliers.

Fact 1: Buyers have different sourcing strategies The Bangladeshi garment export sector is characterized by large buyers with different sourcing strate-

six periods in the sample. However, since our focus is on average pass-through, our empirical strategy does not require tracking the same quadruplet over the entire sample period.

gies. Table 1 reports statistics for the top 20 international buyers ranked by their market shares. H&M alone accounts for approximately 8 percent of total export value in our sample, while the top 20 buyers together represent more than 30 percent of the market.

Insert Table 2 here.

This pattern is consistent with the organization of apparel GVCs, where large international retailers coordinate production across networks of suppliers. Even among these large buyers, sourcing strategies vary substantially. For example, Inditex relies heavily on air shipments through Dhaka, whereas other large buyers such as Walmart use air transport only rarely.

These patterns are central for the empirical analysis, as they generate systematic differences across and within buyer–seller relationships in the use of air versus sea transport.

Fact 2: Exports are highly concentrated in a few transport gateways Customs records report both the point of exit and the mode of transport used for each shipment.[7] Figure 1 shows that the spatial distribution of garment exports within Bangladesh is extremely concentrated. More than 98 percent of export value exits the country through two gateways: Chittagong seaport and Dhaka international airport.

Insert Figure 1 here.

This concentration reflects the structure of Bangladesh's logistics infrastructure. Chittagong serves as the country's main maritime gateway, while Dhaka functions as the primary air-cargo hub for garment exports.

The geography of export gateways is closely associated with the transport mode used. Although the majority of Bangladesh's garment exports are shipped by sea, a non-negligible share of shipments is transported by air. Figure 2 shows that shipments exiting through Chittagong are almost exclusively transported by sea, whereas those processed through Dhaka are shipped by air in a large fraction of cases.[8]

[7]The point of exit refers to the customs office processing the shipment rather than the physical location where the goods are produced.

[8]Shipments leaving from other customs offices are mainly transported by road or rail. Given the geography of the country, land transport is mostly used for trade with India as no other partner is connected directly via land. Figure B.3 and Figure B.4 in the appendix report the distribution of air share across destinations and products, respectively.

Insert Figure 2 here.

Importantly, the choice of transport mode is typically determined by international buyers rather than exporters. As shown in Figure B.5, most transactions are arranged under delivery terms in which the importer is responsible for organizing the shipment. This institutional feature implies that transport decisions largely reflect buyers' logistics with their sellers.

Fact 3: Export prices exhibit substantial dispersion Finally, export prices display considerable dispersion even within narrowly defined markets. Figure 3 reports the distribution of the coefficient of variation of unit export prices within markets defined as destination–HS6-semester or seller-buyer-destination-semester combinations.

Insert Figure 3 here.

The average coefficients of variation across markets point to substantial price dispersion (DellaVigna and Gentzkow, 2019). Notably, a significant share of dispersion exists even within the same buyer–seller relationships, indicating that a given exporter can negotiate different prices with the same buyer within a given destination.

Taken together, these stylized facts highlight three key features of the Bangladeshi garment export sector: the role of large international buyers with heterogeneous sourcing strategies, the strong spatial organization of exports around distinct logistics gateways, and substantial price dispersion across and within buyer–seller relationships. These patterns suggest that the logistics structure of trade relationships may shape how exporters adjust prices in response to external shocks. In the next section, we formally examine whether differences in transport mode within buyer–seller relationships affect the degree of ERPT to export prices.

3 Empirical Strategy

Motivated by the stylized facts documented in Section 2, we examine whether the use of air transport affects the degree of ERPT to export prices. The key idea is that buyer–seller relationships differ systematically in their reliance on air versus sea transport, reflecting differences in delivery requirements. If faster and more flexible transport modes are associated with different delivery times, exchange rate shocks may be transmitted differently to export prices across these relationships. To test this hypothesis, we estimate a transaction-level pass-through regression that allows the response of export prices to exchange rate movements to vary with the intensity of air transport within buyer–seller relationships.

Our baseline specification is therefore given by:

$$\Delta p_{s,b,j,d,t} = \beta_1 \Delta e_{d,t} + \beta_2 Air_{s,b,d,t-1} + \beta_3 (Air_{s,b,d,t-1} \times \Delta e_{d,t}) + \mathbf{FE} + \varepsilon_{s,b,j,d,t} \quad (1)$$

where $\Delta p_{s,b,j,d,t}$ denotes the log change in export prices for a transaction between seller s and buyer b for product j in destination d at time t. $\Delta e_{d,t}$ represents the change in the bilateral exchange rate between Bangladesh and the destination country.

Throughout the paper, $\Delta e_{d,t}$ denotes the log change in the exchange rate, measured as units of BDT per unit of destination-country currency, following Juarez (2024). An increase in $e_{d,t}$ therefore corresponds to a depreciation of the Taka against the destination currency. Under this convention, $\beta_1 > 0$ implies that BDT export prices rise following a depreciation, consistent with exporters partially capturing the associated currency gain. In this setting, we expect $\beta_1 > 0$, in line with Juarez (2024), who show that export prices tend to increase in response to a depreciation.

The coefficient β_1 thus captures the extent to which a depreciation of the BDT is transmitted into higher export prices expressed in the exporter's currency. When $\beta_1 = 0$, exporters do not adjust their dollar prices following a depreciation: BDT revenues increase mechanically with the exchange rate, while the buyer's foreign-currency price remains unchanged. This corresponds to the zero-pass-through benchmark under local-currency or dominant-currency pricing, consistent with (Gopinath et al., 2020). When $\beta_1 = 1$, the depreciation is fully transmitted into seller-currency prices, implying that dollar export prices decline one-for-one with the exchange rate. In this case, the buyer captures the entire exchange-rate gain, while the exporter's dollar revenue per unit remains unchanged—consistent with the complete pass-through benchmark under producer-currency pricing.

Since Bangladeshi garment exports are overwhelmingly invoiced in US dollars, short-run price adjustment to exchange rate movements is governed primarily by the frequency of dollar-price renegotiation rather than by markup elasticities alone (Gopinath et al., 2020). Accordingly, our estimates of β_1 should be interpreted as capturing the net response of BDT prices after any dollar-price adjustments that occur within the semiannual aggregation window.

The key variable of interest is $Air_{s,b,d,t-1}$, which measures the intensity of air transport between seller s and buyer b in destination d at time $t-1$. In the baseline specification, this variable is defined as a dummy equal to one if a positive share of shipments within a buyer-seller relationship in a given destination in the previous semester were transported by air.[9] This captures the recent logistics arrangements within a relationship on a specific route, rather than shipment-by-shipment mode choices that may be jointly determined with contemporaneous pricing. Moreover, using lagged transport shares ensures that the measure of air reliance is predetermined with respect to contemporaneous price adjustments.

The coefficient β_3 therefore captures the differential ERPT associated with air transport. A negative value of β_3 indicates that pass-through is lower in buyer–seller relationships that rely more heavily on air shipments. In other words, greater reliance on air transport dampens the responsiveness of export prices to exchange rate movements relative to relationships that depend less on air shipping.

In our most saturated specification, β_1 itself is not separately identified, as it is absorbed by destination–product–time fixed effects that remove all common exchange rate variation within narrowly defined markets. Identification of β_3 then relies entirely on within-market, within-period variation among buyer–seller pairs differing in their lagged reliance on air transport. This design rules out explanations based on time-invariant contractual arrangements or destination-specific demand shifts.[10] Standard errors are clustered at the destination-semester level; we also experiment with destination-only and two-way destination-semester clusters to confirm that this choice does not affect our results.

A potential concern for identification is that reliance on air transport is not random: air-intensive relationships may be systematically associated with larger buyers, more productive sellers, higher-quality products, or stronger relational contracting. Our empirical strategy addresses this concern in several ways.

First, the specification includes buyer-seller fixed effects, which absorb all time-invariant features of a relationship, including persistent differences in contract terms and sourcing strategies. Identification therefore exploits changes in pricing responses within the same buyer-seller pair over time. As a further check, we include buyer-time and seller-time fixed effects to rule out that results are driven by unilateral decisions on either side of the transaction; the baseline estimates are unaffected.

Second, destination-product-time fixed effects absorb common demand shocks affecting all exporters selling the same product in a given destination at a given point in time, so that the estimated effect is identified from within narrowly defined markets.[11]

[9]To assess whether results are driven by product composition or buyer route decisions, we replicate the analysis using both a more disaggregated buyer–seller–product–destination and a more aggregated buyer–product–destination measure (Table A.10).

[10]As a robustness check, we augment the baseline specification with the lagged market share of the buyer within a destination-product market, following Juarez (2024), to isolate the role of transport mode from that of buyer market power.

[11]For this reason, β_1 is not separately identified in our most saturated specification.

Third, air transport intensity is measured using lagged values: $L.Air_{s,b,d,t-1}$ captures whether a buyer-seller relationship relied on air transport in the preceding semester, ensuring that contemporaneous price adjustments cannot influence the transport intensity measure.

Fourth, transport mode in this sector is largely determined by buyers rather than exporters. As shown in Figure B.5, approximately 96% of transactions are arranged under delivery terms in which the importer controls shipping logistics, reducing the scope for exporters to select transport mode in response to contemporaneous pricing conditions.

Moreover, reverse causality is unlikely to be a first-order concern. The exchange rate variation we exploit stems from the May 2022 shift in Bangladesh's exchange rate regime, which was driven by macroeconomic imbalances, rising import costs and declining foreign reserves, rather than by firm-level export price dynamics. It is therefore implausible that pricing decisions within individual buyer–seller relationships could exert any meaningful influence on aggregate exchange rate policy.

4 Results

Table 2 presents the baseline estimates of the relationship between ERPT and the use of air transport. The dependent variable is the log change in export prices, measured at the buyer–seller–product–destination level, between two consecutive semesters. The key explanatory variable is the interaction between the exchange rate change and the lagged air-transport dummy.

Column (1) shows that the coefficient on $\Delta \ln ER$ is positive and statistically significant, indicating that for buyer–seller pairs that do not use air transport, exchange rate shocks are partially passed through to export prices. This finding is consistent with Juarez (2024), who studies the devaluation of the Colombian peso. Quantitatively, our estimates are also in line with the current literature, despite being obtained in a different context.[12]

Across all specifications, the interaction term between the exchange rate and air transport is negative and highly significant, ranging from -0.055 to -0.061. In the most demanding specification, which includes buyer-seller and destination-product-time fixed effects, air-intensive relationships show a pass-through of roughly 6 percentage points lower than sea-based trade (Table 2, column 4).

Insert Table 2 here.

[12] To facilitate comparison with the existing literature, we re-estimate our baseline specification using annual variation, following Juarez (2024) and Gopinath et al. (2020). Column (1) of Table A.3 shows that the estimated ERPT to export prices in domestic currency is about 7%, consistent with prior findings.

These results suggest that in buyer–seller relationships relying more heavily on air shipments, exporters are less able to adjust prices in response to exchange rate fluctuations. This implies that the use of faster and more flexible transport tends to benefit international buyers rather than domestic producers, at least in the context of a currency depreciation.

Importantly, the effect is robust across specifications with increasingly demanding fixed effects, suggesting that it is not driven by unobserved heterogeneity across buyers, sellers, or markets.

4.1 Robustness

We perform a series of robustness exercises to verify that our results are not driven by the econometric specifications or measurement choices.

Alternative specifications First, we verify that the results are robust to alternative fixed-effect structures and clustering strategies. Table A.4 presents estimates using different combinations of fixed effects. Column (1) includes seller–time (st) and destination–product–time (dtj) fixed effects, while column (2) additionally controls for buyer–time (bt) shocks. Column (3) corresponds to the baseline specification augmented by adding seller–time and buyer–time fixed effects. Across all specifications the interaction between exchange rate changes and air transport remains negative and statistically significant. In particular, the inclusion of seller–time and buyer–time fixed effects allows us to account for changes in firms' logistics strategies and the evolution of their logistics networks over time. Moreover, these controls capture other firm-level characteristics, such as market shares, which may influence both ERPT and the choice of transport mode.

Table A.5 further shows that the results are robust to different clustering strategies. The estimates remain stable when standard errors are clustered at the destination level (columns 1 and 2) and when using two-way clustering at the destination and semester levels (columns 3 and 4).

Sample composition and measurement Second, we examine whether the results depend on sample composition or on the definition of key variables. Table A.6 reports several robustness checks based on alternative sample restrictions. Excluding transactions destined for the United States does not affect the estimates (column 1). Similarly, using the BDT–USD exchange rate instead of bilateral exchange rates yields nearly identical results (column 2). Restricting the sample to USD-denominated transactions also leaves the estimates unchanged (column 3). These exercises also address concerns related to currency invoicing and exchange rate measurement. Using the dollar exchange rate ensures that the relevant exchange rate corresponds to the currency in which most transactions are invoiced, while restricting the sample to USD-denominated transactions verifies that invoicing practices do not bias the results. This approach is consistent with the dominant currency paradigm documented by Gopinath et al. (2020), according to which export prices are frequently set in dollars. Finally, we limit the analysis to shipments whose transport arrangements are determined by the importer according to Incoterms classifications, confirming that the baseline findings are not driven by unobserved exporter-controlled logistics decisions (column 4).

Table A.7 additionally controls for the lagged market share of the buyer within destination–product markets, as in Juarez (2024). The coefficient on the interaction between air transport and exchange rate changes remains virtually unchanged. Thus, the transport channel operates separately from buyer market power.

We also verify that our results are robust to alternative measures of air transport intensity. Table A.8 considers both an indicator equal to one when the lagged air share exceeds the median among relationships with positive air usage (column 1) and a continuous measure of the lagged air share (column 2). In both cases, the interaction between exchange rate movements and air transport remains negative and statistically significant. This suggests that the lower ERPT is not merely a binary phenomenon (air vs sea). Instead, the reduction in pass-through scales with the intensity of air reliance.

We further demonstrate that our results are not driven by the specific definition of the air dummy by re-estimating our baseline equation using two alternative measures. First, we define the air dummy as equal to one if the buyer–seller pair used air transport at least once in the year preceding the current semester (column 1). Second, we define it as equal to one if the pair used air transport in 2021, the year prior to the change in the exchange rate regime by the Bangladeshi Central Bank (column 2). The results, reported in Table A.9, show that our findings are robust to these alternative definitions.

Table A.10 examines alternative aggregations of the air-share variable. Column (1) computes the air share at the buyer–seller–destination–product–period level, while column (2) aggregates it at the buyer–destination–period level. The results indicate that the effect is primarily a relationship-level feature, as the estimate in column (2) is not statistically significant. Columns (3) and (4) retain the baseline definition of the air share but redefine the time unit as a year and a quarter, respectively. The interaction term remains negative and statistically significant at the annual frequency, but becomes insignificant at the quarterly level. This pattern is consistent with the idea that price adjustments occur over production-cycle horizons rather than at very high frequency.

Finally, in Table A.11 we show that the unbalanced panel does not affect our results. We first restrict our sample to buyer-seller-destination-products that appear for more than six semesters, which is the median value in the sample. As an alternative, we keep buyer-seller-destination-products that appear at least once before and after May 2022, which is the date of the change in exchange rate policy. In both cases, the results are quantitatively similar to our baseline specification.

4.2 Mechanisms

This section examines the mechanisms underlying the air–ERPT differential. In particular, we investigate whether the lower pass-through observed for air shipments reflects characteristics intrinsic to the transport mode, such as faster delivery and greater supply-chain flexibility, or instead captures differences in contractual arrangements between air and sea shipments, including contract duration or price-adjustment clauses.

Although we cannot directly observe contractual terms, we present a set of results that are difficult to reconcile with explanations based on contractual rigidity or price-adjustment clauses. Instead, the effects only materialize in the flexible exchange rate regime and are strongest in markets where air transport substantially reduces delivery times and where it is closely embedded in fast-fashion sourcing strategies.

Fast-fashion markets Table 3 explores whether the relationship between transport mode and pass-through varies across geographies.

Insert Table 3 here.

The results reveal substantial geographical heterogeneity. The attenuation of ERPT associated with air transport is strongest for OECD destinations, particularly in European markets. For instance, the interaction term is significant for Germany and Spain, where fast-fashion retailers such as H&M and Inditex (Zara) are especially prominent. By contrast, the effect is smaller and statistically insignificant for the United States and Canada, which are characterized by a more brand-driven retail structure (e.g., Gap, VF, Levi's). These patterns do not appear to be driven solely by distance: the coefficient is also insignificant for Australia, which is comparably distant from Bangladesh as European markets but, like North America, is less reliant on fast-fashion models.

This pattern is consistent with differences in production models across markets. European apparel retailers rely more heavily on fast-fashion production systems, which emphasize rapid product turnover and shorter delivery times. In such contexts, air transport plays a more important role in maintaining supply chain flexibility, which may reduce price adjustments following exchange rate movements.[13] In contrast, in less time-sensitive markets, price adjustment is less costly. In U.S. and Canadian retail structures, speed is less central to competitive advantage.

We next examine whether the transport–ERPT relationship varies across product categories. Table 4 reports the results for knit (HS61) and woven (HS62) garments, as well as for selected HS six-digit products.

Insert Table 4 here.

The attenuation of ERPT associated with air transport is particularly pronounced for knit products that are typically associated with fast-fashion supply chains. For instance, the interaction between air transport and exchange rate changes is strongly negative and significant for T-shirts (HS 610910), sweaters (HS 611020), and women's trousers (HS 620462). These products are characterized by rapid turnover and short fashion cycles, making delivery speed particularly valuable. In contrast, the effect is not statistically significant for men's trousers (HS 620342), which are generally less sensitive to seasonal demand fluctuations.

This pattern further reinforces the view that the role of air transport in moderating ERPT is strongest in product segments where timely delivery is most important.

Transport infrastructure and export gateways Because the choice of transport mode is closely linked to the point of exit, we also examine whether shipments processed through Dhaka airport exhibit different pass-through dynamics.

Table 5 shows that shipments routed through Dhaka display significantly lower ERPT. The interaction between exchange rate changes and the Dhaka indicator is negative and statistically significant across all specifications.

Insert Table 5 here.

This result reinforces the interpretation that the logistics structure of supply chains plays a key role in shaping price responses. Given that Dhaka serves as the main air-cargo gateway for garment exports, the finding further supports the view that air-based logistics networks are associated with lower price adjustments.

[13] Fast fashion's use of air freight to avoid delays is visible in practice. Reporting on Inditex (Zara) describes sharply increased use of air freight to bring clothing to its logistics hub to avoid shipping delays. https://www.reuters.com/business/retail-consumer/inditex-boosts-fast-fashion-flights-india-avoid-shipping-delays-2024-11-20/

Exchange rate regime We lastly examine whether the results depend on the exchange rate regime. Table 6 splits the sample between the period in which the Bangladeshi Taka was effectively pegged to the U.S. dollar and the period following the regime shift in 2022. When the exchange rate was tightly managed, currency movements were limited and we do not observe systematic differences in pass-through across transport modes (column 1). The differential effect emerges only after the transition to a more flexible exchange rate regime, when exchange rate fluctuations became economically meaningful (column 2). This pattern suggests that the role of transport mode becomes relevant precisely when firms face significant exchange rate volatility, thereby strongly supporting the idea that our results are tied specifically to exchange rate shocks rather than contractual differences.

Insert Table 6 here.

Taken together, these patterns are difficult to reconcile with a purely mechanical or contractual rigidity explanation. If air-intensive relationships were simply governed by more rigid contracts, one would expect lower pass-through in all regimes and destinations. Instead, the differential emerges precisely when exchange rate volatility becomes salient and is strongest in markets where air transport meaningfully reduces delivery times and is embedded in fast-fashion sourcing strategies.

We interpret these findings as evidence that transport mode is part of a broader volatility-buffering structure within GVCs. Air transport does not mechanically hedge exchange rate risk. Rather, air-intensive relationships appear to be embedded in organizational and operational arrangements that allow buyers to buffer exchange rate fluctuations. In this sense, transport infrastructure can shape the geography of shock transmission.

5 Conclusions

This paper studies how transport mode shapes the transmission of exchange rate shocks within GVCs. Using detailed transaction-level customs data from Bangladesh's garment sector over the period 2018–2024, we examine how export prices respond to exchange rate movements and whether this response varies with the logistics structure of buyer–seller relationships.

We document that the ERPT to export prices is incomplete and systematically differs by transport mode. In particular, relationships that rely more intensively on air transport exhibit significantly lower pass-through than those using maritime shipping. This pattern is robust across a wide range of specifications and persists after accounting for buyer market power and other relationship characteristics. The attenuation in pass-through associated with air transport is strongest for products linked to fast-fashion production and in European markets, where delivery speed is especially valuable.

These findings point to a central role for logistics networks in shaping how global shocks propagate through production systems. Transport infrastructure does not simply facilitate trade; it also influences how firms adjust prices in response to exchange rate fluctuations within GVCs.

More broadly, the results highlight the importance of sub-national connectivity in mediating the local effects of global shocks. Regions connected to international markets through faster and more flexible logistics networks may face a different exposure to global volatility than those relying on slower transport modes.

Understanding these mechanisms is key for designing policies that both enhance resilience and maximize the gains from GVC participation. For monetary authorities in developing economies, our findings imply that the macroeconomic impact of exchange rate movements is not uniform, but depends on the logistics structure of trade. Ignoring transport heterogeneity may therefore lead to overstated competitiveness gains from currency depreciations. For industrial and development policies, the results reveal an additional channel through which infrastructure investment matters: improving air connectivity not only reduces delivery times, but also reshapes firms' exposure to exchange rate shocks. More generally, the evidence from Bangladesh suggests that investments in logistics infrastructure have important distributional consequences across regions and along supply chains that extend well beyond their direct effects on trade costs.

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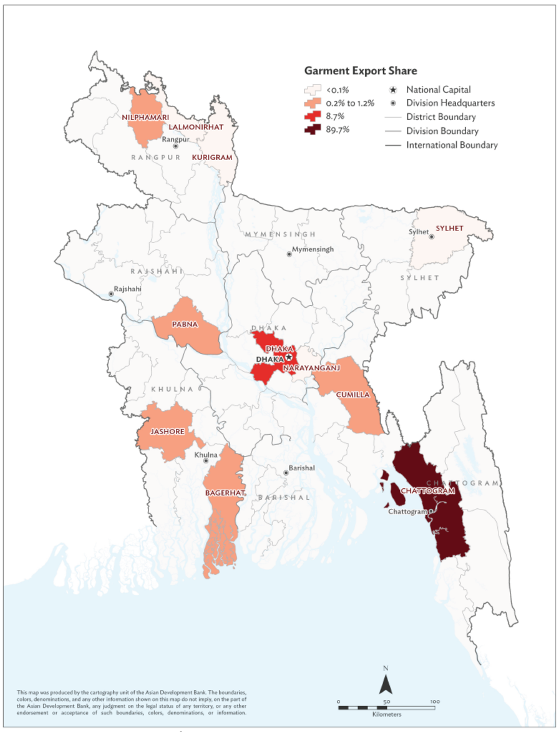
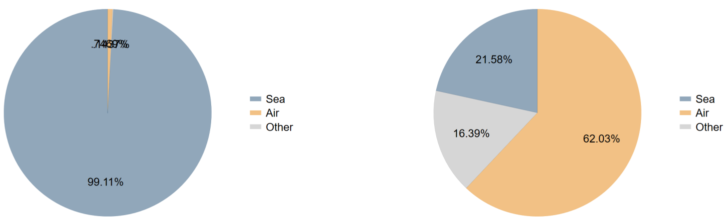
Figure 1: Exports by Point of Exit



Notes: This figure shows the share of total exported value in the garment sector by reported point of exit. Source: Bangladesh customs data.

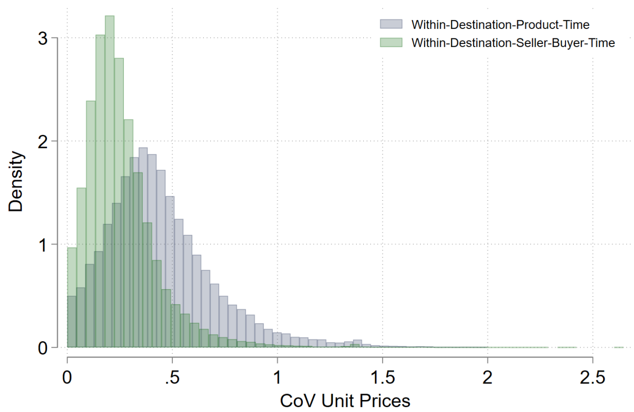
Figure 2: Exports by Point of Exit and Transport Mode



(a) Chittagong (b) Dhaka

Notes: This figure shows the distribution of export value by mode of transport and point of exit for the years 2018–2024. "Other" transport modes include road and rail. Source: Bangladesh Customs Data.

Figure 3: Export Price Dispersion



Notes: This figure plots the distribution of the coefficient of variation of unit export prices within destination–HS6-semester or seller-buyer-destination-semester combinations. The statistics are calculated using the years 2018-2024. Source: Bangladesh Customs Data.

Table 1: Top International Buyers in the Bangladeshi Garment Industry

	Market Share	Air Share	Europe Share	North America Share
Hennes & Mauritz	7.84	2.40	66.55	17.40
Primark	2.74	2.75	96.31	3.76
C & A	2.48	5.13	96.65	2.31
Marks & Spencer	2.08	8.10	91.86	5.80
Bestseller	1.92	5.49	95.19	2.98
Inditex	1.68	40.18	99.89	0.12
Lpp	1.57	2.54	99.96	0.06
Walmart	1.35	2.15	0.00	99.30
Uniqlo	1.24	12.89	13.32	7.74
Next	1.18	3.61	97.55	1.08
Vf Corporation	1.18	9.94	39.80	60.22
Target	1.11	0.85	0.65	62.15
Asda Stores	1.04	2.63	99.36	0.20
Pepco Poland	1.02	0.70	99.98	0.00
Phillips-Vh	1.00	6.04	5.65	89.05
Levi Strauss	0.91	9.11	15.65	75.85
Old Navy	0.92	6.99	0.00	99.97
Decathlon	0.80	1.61	90.16	1.64
The Gap	0.73	10.46	7.51	65.73
Owim	0.90	3.60	99.94	0.10
Top 20	32.80	6.86	64.00	31.34
Top 100	57.54	9.17	73.45	30.22

Notes: Key statistics for the top 20 international buyers in the Bangladeshi garment industry. The statistics are calculated using the years 2018-2024. The market share is calculated as the total share across markets. For the top 20 and 100 buyers, cumulative shares are reported. The air share is the average share of value exported via air transport. Source: Bangladesh Customs Data.

Table 2: Effect of Air use on Exchange Rate Pass-through

Dep. Var.	$\Delta \ln P$			
	(1)	(2)	(3)	(4)
$\Delta \ln ER$	0.051**			
	(0.022)			
L.Air	0.004***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
$\Delta \ln ER \times$ L.Air	-0.058***	-0.060***	-0.061***	-0.055***
	(0.017)	(0.018)	(0.018)	(0.018)
Obs.	604,751	604,751	604,751	604,751
FEs	t, dj	dtj	b, s, dtj	bs, dtj
R^2	0.03	0.09	0.11	0.16

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table 3: Effect of Air use on Exchange Rate Pass-through: Destination Markets

Dep. Var.	$\Delta \ln P$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
L.Air	0.003**	0.004*	0.002	0.000	-0.003	0.010*	0.006
	(0.001)	(0.002)	(0.005)	(0.005)	(0.003)	(0.005)	(0.006)
L.Air $\times \Delta \ln ER$	-0.060***	-0.018	-0.161***	-0.048*	-0.035	0.063	0.020
	(0.019)	(0.044)	(0.042)	(0.025)	(0.056)	(0.160)	(0.137)
Obs.	471,246	131,925	51,690	33,024	56,139	30,010	15,098
FEs	bs, dtj	bs, dtj	bs, tj	bs, tj	bs, tj	bs, tj	bs, tj
R^2	0.16	0.19	0.14	0.16	0.16	0.17	0.17
Sample	OECD	No OECD	Germany	Spain	US	Canada	Australia

Notes: This Table reports the estimates for equation 1 across different destination markets. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table 4: Effect of Air use on Exchange Rate Pass-through: Products

Dep. Var.	$\Delta \ln P$					
	(1)	(2)	(3)	(4)	(5)	(6)
L.Air	0.001	0.005***	-0.001	0.003	0.004	0.001
	(0.001)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
L.Air $\times$ $\Delta \ln ER$	-0.090***	-0.013	-0.084**	-0.106**	0.064	-0.113**
	(0.022)	(0.027)	(0.036)	(0.047)	(0.041)	(0.053)
Obs.	345,626	256,612	84,985	46,045	47,874	35,656
FEs	bs, dtj	bs, dtj	bs, dt	bs, dt	bs, dt	bs, dt
R^2	0.16	0.18	0.16	0.16	0.17	0.16
Sample	61	62	610910	611020	620342	620462

Notes: This Table reports the estimates for equation 1 across different product codes. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. The first two colums report the estimates from knit (HS61) and woven (HS62) textile goods. Columns (3) to (6) report the estimates for t-shirts (HS 610910), sweaters (HS 611020), men's trousers (HS 620342), and women's trousers (HS 620462). Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table 5: Effect of Air use on Exchange Rate Pass-through: Dhaka

Dep. Var.	$\Delta \ln P$			
	(1)	(2)	(3)	(4)
$\Delta \ln ER$	0.044**			
	(0.022)			
L.Dhaka	0.004***	0.003***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
$\Delta \ln ER \times$ L.Dhaka	-0.038**	-0.045**	-0.045**	-0.039**
	(0.017)	(0.019)	(0.018)	(0.018)
Obs.	603,459	603,459	603,459	603,459
FEs	t, dj	dtj	b, s, dtj	bs, dtj
R^2	0.03	0.09	0.11	0.16

Notes: This Table reports the estimates for equation 1 across different product codes. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Dhaka is a dummy that takes value 1 if in the previous period there was a positive share of transactions via that has been processed in the custom office in Dhaka. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table 6: Effect of Air use on Exchange Rate Pass-through: Regime

Dep. Var.	$\Delta \ln P$	
	(1)	(2)
L.Air	0.003**	0.004**
	(0.001)	(0.002)
L.Air $\times$ $\Delta \ln ER$	-0.030	-0.069***
	(0.037)	(0.023)
Obs.	330,197	269,532
FEs	bs, dtj	bs, dtj
R^2	0.18	0.17
Regime	Peg	Float

Notes: This Table reports the estimates for equation 1, splitting the sample before and after the decision of the Bangladeshi Central Bank to maintain a fixed exchange rate with the dollar. The change in policy happened in May 2022 so that we define the start of the float regime from the second semester of 2022. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

A Tables

Table A.1: Descriptive Statistics of the Bangladeshi Garment Industry

	Median	Mean	Standard Deviation	Minimum	Maximum	N
Products (HS6)	201	201	6.37	191	213	1,251,292
Sellers	2,923	2,944	299	2,507	3,503	1,251,292
Buyers	6,255	5,298	1,354	3,251	6,530	1,251,292
Products by Buyers	14	21.14	21.98	1	133	1,251,292
$\ln(\Delta ER)$	0.00	-0.01	0.06	-0.28	0.51	1,251,292
Air Share (%)	0.00	9.69	24.61	0	100	1,251,292

Notes: Semiannual statistics for the cleaned regression sample of the Bangladeshi garment industry (HS codes 61 and 62) from 2018h1 to 2024h2, for the top 50 import partners by value, using air and sea transport only, after dropping monopoly markets (buyer share $> 99\%$) and applying price winsorization (1–99). Products, Sellers, and Buyers are counts per semester. Buyers by Seller $\times$ Destination is the number of buyers per seller–destination–product–semester cell. Products by Buyers is the number of HS6 products per buyer–semester. Air shares are calculated using values at the buyer–seller level in a market. The exchange rate is defined as units of BDT per one unit of foreign currency. Source: Bangladesh customs data and IMF statistics.

Table A.2: Descriptive Statistics: Mode of Transport and Point of Exit

Mode of Transport	Mean	Median	Standard Deviation	Minimum	Maximum	Total
Air	4.42	3.47	3.48	0.32	16.93	6.09
Sea	92.64	95.58	11.79	18.08	99.68	91.12
Other	3.00	0.50	11.64	0.00	81.02	2.79
Point of Exit						
Chittagong	92.10	94.67	10.51	26.63	99.70	89.65
Dhaka	6.13	4.93	4.50	0.28	24.78	8.73
Other	1.92	0.15	10.66	0.00	72.57	1.62

Notes: Statistics on the mode of transport and port of exit for the Bangladeshi garment industry. The table shows the mean, median, standard deviation, minimum, maximum values, and the total share of shipments for each category, in percentage, for the years 2018-2024 across different countries of destination. Source: Bangladesh customs data.

Table A.3: Effect of Air Use on Exchange Rate Pass-through: Year

Dep. Var.	$\Delta \ln P$				
	(1)	(2)	(3)	(4)	(5)
Δ_e	0.072**	0.092***			
	(0.029)	(0.031)			
L.Air		0.006***	0.004**	0.005**	0.004*
		(0.002)	(0.002)	(0.002)	(0.002)
L.Air $\times$ Δ_e		-0.048**	-0.070***	-0.061***	-0.073***
		(0.020)	(0.019)	(0.018)	(0.019)
Obs.	279,781	279,781	279,781	279,781	279,781
FEs	t, dj	t, dj	dtj	b, s, dtj	bs, dtj
R^2	0.06	0.06	0.12	0.17	0.25

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as an Year. Standard error in parentheses are clustered at the country-year level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.4: Effect of Air Use on Exchange Rate Pass-through: Alternative FEs

Dep. Var.	$\Delta \ln P$		
	(1)	(2)	(3)
L.Air	0.003***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)
L.Air $\times$ $\Delta \ln ER$	-0.057***	-0.053***	-0.050***
	(0.019)	(0.017)	(0.018)
Obs.	600,692	590,449	589,315
FEs	st, dtj	bt, st, dtj	bs, bt, st, dtj
R^2	0.18	0.24	0.29

Notes: This Table reports the estimates for equation 1 with alternative fixed effects. Columns (1) has seller-time (st) and destination-time-product (dtj) fixed effects. Column (2) add buyer-time (bt) controls while column (4) adds to the baseline specification st and bs fixed effects. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.5: Effect of Air Use on Exchange Rate Pass-through: Cluster

Dep. Var.	$\Delta \ln P$			
	(1)	(2)	(3)	(4)
L.Air	0.003**	0.004***	0.003*	0.004**
	(0.001)	(0.001)	(0.001)	(0.001)
L.Air $\times$ $\Delta \ln ER$	-0.055***	-0.050**	-0.055**	-0.050**
	(0.019)	(0.020)	(0.022)	(0.018)
Obs.	604,751	589,315	604,751	589,315
FEs	bs, dtj	bt, st, bs, dtj	bs, dtj	bt, st, bs, dtj
R^2	0.16	0.29	0.16	0.29
Cluster	Destination	Destination	Destination Time	Destination Time

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. In columns (1) and (2) standard error in parentheses are clustered at the country level while in columns (3) and (4) two-way clustered standard errors, at the destination and semester, are reported. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.6: Effect of Air Use on Exchange Rate Pass-through: Sample Composition

Dep. Var.	$\Delta \ln P$			
	(1)	(2)	(3)	(4)
L.Air	0.003***	0.003**	0.003**	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
$\Delta \ln ER \times$ L.Air	-0.061***	-0.045*	-0.129***	-0.063***
	(0.018)	(0.025)	(0.031)	(0.021)
Obs.	547,428	604,751	601,566	352,599
FEs	bs, dtj	bs, dtj	bs, dtj	bs, dtj
R^2	0.17	0.16	0.16	0.18
Sample	No US	BDT-USD ER	USD only	Importer duty

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Column (1) excludes transaction to the US. Column (2) instead uses the exchange rate between the Taka (BDT) and Dollar (USD) instead of the exchange rate with domestic currencies. Column (3) focuses on transaction in USD only. Columns (4) keeps only transactions that are arranged by the importer based on the Incoterm classification. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.7: Effect of Air Use on Exchange Rate Pass-through: Buyer Market Power

Dep. Var.	$\Delta \ln P$			
	(1)	(2)	(3)	(4)
$\Delta \ln ER$	0.051**			
	(0.022)			
L.Air	0.004***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
$\Delta \ln ER \times$ L.Air	-0.058***	-0.059***	-0.061***	-0.055***
	(0.017)	(0.018)	(0.018)	(0.018)
L.Mkt Share	-0.005**	-0.005*	-0.002	-0.002
	(0.002)	(0.003)	(0.003)	(0.003)
Obs.	604,751	604,751	604,751	604,751
FEs	t, dj	dtj	b, s, dtj	bs, dtj
R^2	0.03	0.09	0.11	0.16

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. L.Mkt Share is the buyers' share in the market (destination-product-time) defined as in Juarez (2024). Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.8: Effect of Air Use on Exchange Rate Pass-through: Air Intensity

Dep. Var.	$\Delta \ln P$	
	(1)	(2)
L.Air (Above Median)	0.005***	
	(0.002)	
L.Air (Above Median) $\times$ $\Delta \ln ER$	-0.087***	
	(0.033)	
L.Air Share		0.013***
		(0.005)
L.Air Share $\times$ $\Delta \ln ER$		-0.137*
		(0.071)
Obs.	604,751	604,751
FEs	bs, dtj	bs, dtj
R^2	0.16	0.16

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate. The dummy L.Air takes value 1 if in the previous period there was a share of transactions via air above the median of those with a positive share. L.Air Share represents the share of transaction via air in the previous period. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.9: Effect of Air Use on Exchange Rate Pass-through: Timing

Dep. Var.	$\Delta \ln P$	
	(1)	(2)
L.Air	0.002**	-0.001
	(0.001)	(0.002)
$\Delta \ln ER \times$ L.Air	-0.060***	-0.079***
	(0.020)	(0.022)
Obs.	604,751	523,774
FEs	bs, dtj	bs, dtj
R^2	0.16	0.16
Dummy	1 Year	2021

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate. In column (1) L.Air is a dummy that takes value 1 if in the previous year there was a positive share of transactions via air. In column (2) L.Air is a dummy that takes value 1 if in 2021 there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

Table A.10: Effect of Air Use on Exchange Rate Pass-through: Air and Time definitions

Dep. Var.	$\Delta \ln P$			
	(1)	(2)	(3)	(4)
L.Air	0.005***	0.002	0.004*	0.005***
	(0.001)	(0.002)	(0.002)	(0.001)
L.Air $\times$ $\Delta \ln ER$	-0.097***	-0.047	-0.073***	-0.030
	(0.022)	(0.035)	(0.019)	(0.023)
Obs.	589,315	589,315	279,781	922,506
FEs	bs, dtj	bs, dtj	bs, dtj	bs, dtj
R^2	0.16	0.16	0.25	0.12
Sample	Air_{bdsjt}	Air_{bdt}	Year	Quarter

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. In column (1), the share is calculated at the buyer-seller-destination-period-product level. In column (2), the share is calculated at the buyer-destination-period level. Columns (3) and (4) use the baseline definition of shares (buyer-seller-destination-period) but defining a period first as a year and then as a quarter. Products are defined at the HS6 level. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

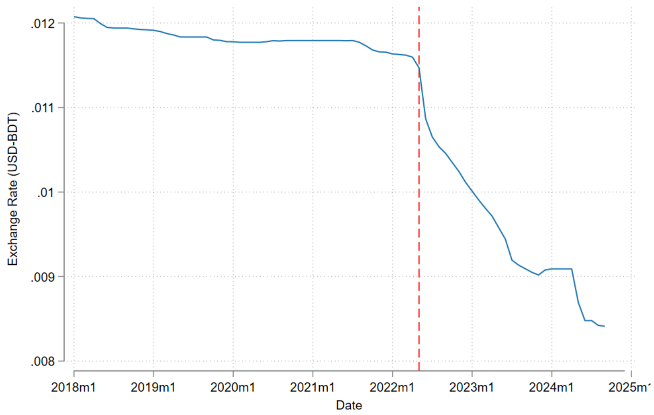
Table A.11: Effect of Air Use on Exchange Rate Pass-through: Panel

Dep. Var.	$\Delta \ln P$	
	(1)	(2)
L.Air	0.000	0.001
	(0.001)	(0.001)
$\Delta \ln ER \times$ L.Air	-0.054***	-0.050***
	(0.018)	(0.016)
Obs.	356,613	375,961
FEs	bs, dtj	bs, dtj
R^2	0.15	0.16

Notes: This Table reports the estimates for equation 1. The dependent variable corresponds to the log change of prices between seller s and buyer b for product j in destination d at time t. $\Delta \ln ER$ is the bilateral exchange rate and L.Air is a dummy that takes value 1 if in the previous period there was a positive share of transactions via air. The share is calculated at the buyer-seller-destination-period level. Products are defined at the HS6 level and a period is defined as a semester. Column (1) restricts the sample to buyer-seller-destination-products observed in at least six semesters. Column (2) restricts the sample to buyer-seller-destination-products observed both before and after May 2022. Standard error in parentheses are clustered at the country-semester level. $*p < 0.10$; $**\,p < 0.05$; $***p < 0.01$.

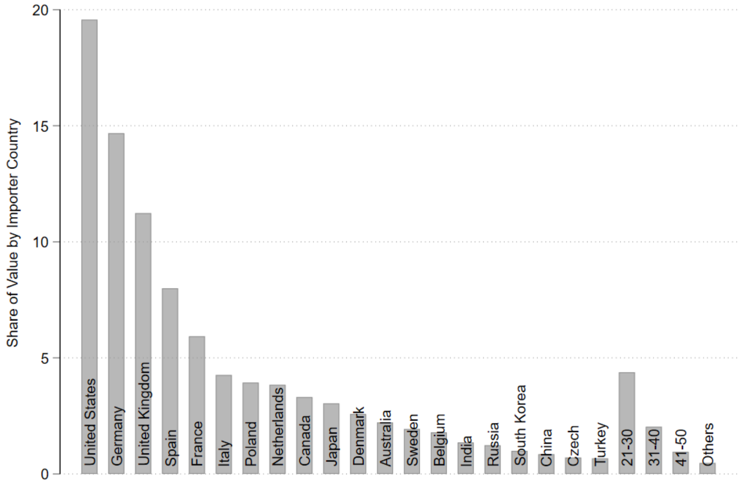
B Figures

Figure B.1: Exchange Rate Between the BDT and the USD



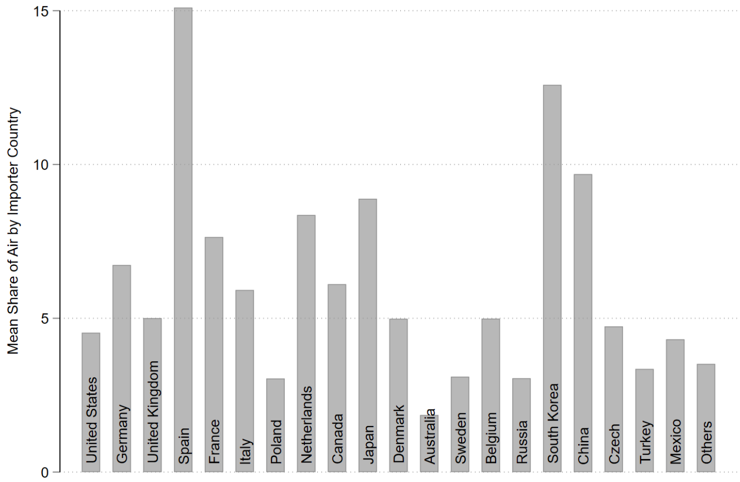
Notes: Evolution of the exchange rate between BDT and USD from January 2018 to December 2024. The figure shows the nominal exchange rate expressed as Bangladeshi Taka (BDT) per US dollar. Source: IMF International Financial Statistics.

Figure B.2: Importing Countries



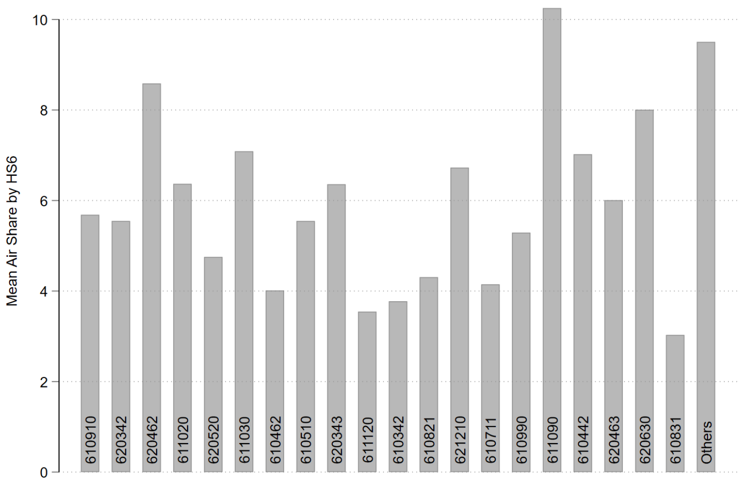
Notes: The figure shows the share of value imported by top destinations. Source: Bangladesh Customs Data.

Figure B.3: Air Share and Importing Countries



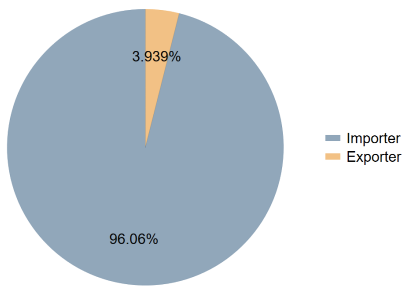
Notes: Average share of air transport by country of destination. The average is computed over the period 2018-2024. Countries are sorted based on their total trade volume. Source: Bangladesh Customs Data.

Figure B.4: Air Share and Products



Notes: Average share of air transport by HS6 product code. The average is computed over the period 2018-2024. Products are sorted based on their total trade volume. Source: Bangladesh Customs Data.

Figure B.5: Share of Value by Delivery Duties



Notes: The figure shows the share of trade value in USD by delivery terms. According to the Incoterms definitions (International Chamber of Commerce, 2021), delivery terms specify which party is responsible for the costs and risks associated with the shipment. Transactions with missing delivery terms are classified as "unknown." Source: Bangladesh Customs Data.