Keeping the Enemies Closer?
Exporting Behaviour of Firms under Conflict*

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Abstract

This paper uses the terrorist attack in India in 2016 as a quasi-natural experiment to investigate the effect of terrorist activities on exporting behaviour of firms. Using transaction-level international trade data for the universe of exporting firms in Pakistan, we employ a difference-in-differences identification strategy to show that exporters experience a smaller exports value, quantity, and unit value growth in the Indian market after the attack, relative to other countries. Our results shed light on both the intensive and extensive margins of trade, and document heterogeneous responses to the shock across firms, products, and shipping locations. Smaller exporters experienced a larger drop in exports volume and price, while more import-intensive firms, particularly those importing from India, did not witness a decrease in demand. Similarly, the study detects asymmetric responses across products and shipping ports based on proximity to the location of the attack.

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*All questions should be directed to the corresponding author. The views expressed in the paper are those of the authors alone. Declarations of interest: The authors report there are no competing interests to declare.

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1 Introduction

The economic cost of conflict has been the subject of a vast literature. A number of studies explore the plausibility of a relationship between terrorist activities and international trade. Terrorist incidents not only result in direct economic costs (for example, by damaging infrastructure), but also create substantial economic distortions by giving rise to greater risk and uncertainty, as well as by steering resources to implement necessary response measures (Nitsch & Rabaud 2022).[1] A terrorist attack also damages social goodwill and erodes intergroup trust that takes very long to build (Korovkin & Makarin 2023). Consequently, due to elevated out-group hostility as well as a higher transaction cost associated with 'trading with the enemy', the flow of goods across borders diminishes.

This paper examines the effects of a terrorist incident on trade patterns of firms exporting to a terror-inflicted country, and emphasises on the differential microeconomic consequences of a major terrorist event. Although a number of studies investigate trade disruptions brought about by conflict (Bandyopadhyay et al. 2018; Nitsch & Schumacher 2004), conflict-ridden countries often do not possess detailed microlevel data to detect variation in these effects across firms, product lines, or geographic regions, and therefore, offer limited granularity to aggregate outcomes. Furthermore, due to the varying nature and scale of war or physical violence, the results obtained are often not generalizable to different settings. While a majority of existing studies analyse the consequences of a longer-term conflict or a full-scale war, this paper focuses on the impact of a single large-scale terrorist attack.[2] We use detailed transaction-level trade data for Pakistan to highlight the underlying mechanisms for the asymmetric impact of a terrorist incident. Our paper attempts to fill an important gap in the literature by showing that, in contrast to the aftermath of a war or conflict that lasts for several years, the aggregate economic impact of a terrorist incident is likely to hide a substantial degree of heterogeneity in exporting dynamics of firms.

We use the attack on an army base in Uri, a town in the Indian-administered Kashmir, on September 18, 2016, as a quasi-natural experiment. The historical context of our experiment and the nature of the terrorist incident offer a unique setting for several reasons. First, the attack is widely perceived to be unanticipated, and took place against the backdrop of stable macroeconomic conditions. A large-scale attack on security forces came as a surprise and deeply shocked the public. Second, immediately after the incident, mainstream media in both countries engaged in angry rhetoric towards each other. There was an obvious expression of hostility rooted in public sentiment. This allows us to disentangle the effects

of a rise in intergroup tensions from the physical effects of violence, since the attack was confined to a single location in the Indian territory. Third, the attack had immediate economic repercussions. India revoked its participation in the 19th South Asian Association for Regional Cooperation (SAARC) summit after the attack, which was scheduled to take place in Pakistan in November 2016. In the aftermath of the attack, extensive security checks and inspection of shipments caused significant congestion at India-Pakistan border crossings, slowing down cross-border transactions.[3] Fourth, trade between the two countries did not cease after the attack, which allows us to study the differential effects of a terrorist attack on Pakistan's exports to India versus the rest of the world. It also allows us to examine the differential consequences across firms and product lines, often in opposing directions and not directly evident in aggregate trends. Finally, we complement these features with the customs database for Pakistan which provides export information for all Pakistani firms from 2015 through 2017, i.e., for over a year before and after the attack.

The econometric approach used resembles earlier studies on causal inference (Korovkin & Makarin 2023; Fernandes & Winters 2021; Auer et al. 2021), using a high-dimensional fixed effects model and difference-in-differences estimates. The administrative data compiled by the Federal Board of Revenue Pakistan (FBRP) reports the universe of Pakistan's exports and imports transactions, and contains detailed information about each transaction, including firm identification, product category, destination country, and shipping port location. This enables us to perform a rigorous econometric analysis, controlling for unobserved firm, product, and location characteristics. In order to rationalise our identification strategy, we show that the effect of the terrorist attack on our variables of interest is not mitigated by confounders, i.e., there were no other major economic changes in India in the aftermath of the attack that could potentially be responsible for the effects documented in our study. We offer several robustness checks, including placebo tests and alternative levels of data aggregation, to substantiate our findings.

Our key finding is that, consistent with the results presented in earlier studies, firms respond significantly to a terrorism shock by lowering their exports, export quantities, and export prices in the Indian market after the attack. However, in contrast to the existing literature, the estimates obtained from aggregated trade data yield less significant results. This observation aligns with the temporary nature of disruption reflected in the total volume of Pakistan's exports to India after the attack, as depicted in Figure 1. It plots the percentage of Pakistan's total exports shipped to India, and although there is a drop in the share of exports after the attack, it recovers in subsequent months and returns to pre-attack lev-

els.[4] Interestingly, as we explore additional layers of granularity in the data, our estimates become economically and statistically significant. We hypothesise that the rise in political and economic uncertainty in the aftermath of the attack, and the added risk associated with importing from Pakistan, lowered the demand for Pakistani products by Indian buyers. At the same time, the decline in exports to India can also be explained through the cost channel. More stringent security measures introduced at the border caused major delays, increasing the transaction cost of sending shipments to India. As a robustness check, we replicate our analysis using alternative counterfactuals (such as, Afghanistan, Bangladesh, and other SAARC countries) to account for regional trade dynamics. The results remain broadly consistent with our baseline estimates, reinforcing the key result that the post-attack decline in exports to India is not driven by global or regional trade fluctuations.

(Insert Figure 1 here)

We observe stronger effects of the terrorist attack on the intensive margin as opposed to extensive margins of exports. Furthermore, we test whether the effects of the incident on firm-level exports also hold on the import side. The subsequent analysis draws on customs data to identify possible channels for the response (or the lack thereof) observed in baseline estimates. In the first step, we show that not all firms witnessed a decline in demand by their Indian customers; the effect of the shock was more pronounced for smaller businesses. On the other hand, the average effects did not hold for larger firms that heavily relied on imported inputs, specifically those manufactured in India. This result offers useful insights relevant to recent advances in the literature regarding the role of globally connected firms (Bernard et al. 2018). We also disaggregate data along various dimensions of product types and shipping locations. Due to its geographic location and close proximity to Uri where the attack took place, it is expected that the bilateral exchange of goods through Lahore ports was much more drastically affected. To our knowledge, this is the first study to shed light on this particular source of economic distortions created by terrorist activities. We also document evidence of diversion through third-country hubs, such as the UAE, underscoring the heterogeneous capacity of firms to adapt to terrorist incidents via indirect channels.

Our study makes several contributions to the literature. First, we utilise highly detailed trade data to examine the effects of a terrorist event on the exporting behaviour of firms. A majority of earlier studies rely on yearly panel datasets of aggregate trade flows to show that terrorism has a negative effect on trade (Nitsch & Schumacher 2004; Blomberg & Hess 2006). Some studies focus on broader macroeconomic consequences of terrorism on gross domes-

tic product (Gaibulloev & Sandler 2008), foreign direct investment (Abadie & Gardeazabal 2008), and international trade (Blomberg & Hess 2006). Egger & Gassebner (2015) use more disaggregated data at monthly frequency, and report that terrorist incidents have no measurable immediate impact on trade. Our baseline results corroborate earlier findings using more detailed data, and offer numerous additional noteworthy and, in some instances, contrasting results.

Second, we introduce previously unexplored dimensions relevant to the current literature on the economic impact of terrorism, presenting various novel results. Unlike conflict or a full-scale war, a terrorist activity may not have a noticeable medium to long-term impact on the overall volume of trade. On the other hand, aggregate trends hide variation in micro-level responses; larger firms, especially those also importing from India, emerge as *winners* as a result of the incident.

Third, in contrast to a majority of studies that investigate the consequences of either domestic terrorism or a transnational terrorist event involving multiple nations, this paper considers a unique setup whereby the transnational terrorist attack involves only two countries.[5] India and Pakistan are two of the largest economies in South Asia, constituting nearly a fifth of the world population, and sharing a common culture, history, and border. Our study resembles earlier work by centering on the impact of religious fundamentalist terrorism, which has allegedly been the dominant source of terrorist events since the mid-1990s, but differs due to the distinctive background and perceived objective of the attack. Unlike the terrorist incidents evaluated in earlier literature that typically resulted in introducing counter-terrorism measures against a specific religious group or organization, the terrorist event considered in this paper initiated a political propaganda and pro-war rhetoric targeting only the two trading partners involved. This is also important because a majority of studies analysing transnational terrorism investigate the impact on bilateral trade between a developed and a developing nation. Our analysis, on the other hand, underlines trade relationship between two developing countries in the wake of an attack allegedly carried out by one of the two countries.

The rest of the paper is organised as follows. The following section provides a brief historical context to the terrorist event investigated in this study. Section 3 describes the data and identification strategy used. The empirical methodology and baseline results are presented in Section 4, while the asymmetric effects across products, firms, and shipping ports are discussed in Section 5. The last section concludes.

2 Context

2.1 Pakistan-India trade relationship

In August 1947, the British colonial government's partition of the Dominion of India resulted in the foundation of two independent countries, Pakistan and India. Despite the political, social, and economic tensions between the two countries, particularly due to the controversial annexation of princely states and the dispute over Jammu and Kashmir, bilateral trade ties often thrived between the two nations (Kugelman 2013). The General Agreement on Tariffs and Trade (GATT) signed by 23 countries including Pakistan and India on October 23, 1947, was ratified by both countries in July 1948. For many years, India continued to be Pakistan's largest trading partner, and in 1948-49, more than half of Pakistan's exports were sent to India and 32 percent of Pakistan's imports originated from India. Over the following two decades, the two countries initiated several bilateral trade agreements. Nonetheless, trade relations were often disrupted due to political tensions. For instance, in 1949, India devalued its currency, but Pakistan did not follow suit. In retaliation, India imposed an import duty on Pakistani jute, and Pakistan imposed restrictions on imports of Indian manufactured goods.

In 1996, India extended the MFN status to Pakistan, signalling lower tariffs and fewer trade barriers. Pakistan granted Most Favoured Nation status to India in 2011. In 2005, a road route through the Attari-Wagah border in Lahore, Pakistan, was opened. As explained in Section 5.3, this was a significant move since the land route provided a more feasible and cost-effective means of transportation.[6] Between 2004 and 2008, trade between the two countries more than tripled from $616 million to $2.2 billion (Taneja et al. 2013). In 2008–09, in the wake of the Mumbai terror attacks, nevertheless, bilateral trade fell to $1.8 billion.

Many non-tariff barriers to trade continue to hinder the exchange of commodities between the two countries. These include transport and transit obstacles, lengthy licensing, visa and customs restrictions, resulting in long wait times at border. Due to unresolved political issues, unfettered bilateral trade between the two states continues to face acute challenges. The subsequent political and economic backlash in the wake of a terrorist incident often results in jeopardising the progress already made in improving bilateral trade relations between the two countries. For example, India revoked Pakistan's MFN status following the Pulwama attack in 2019.

In 2015, the year before the Uri attack, India was the eighth largest import partner for Pak-

istan, and the fourteenth largest export partner. Pakistan typically exports crude materials and fuel, cement, ceramic products, organic chemicals, salt, fruits, and grain to India, while imports from India often include tea, spices, food products, cotton, plastic products, dyes, and pharmaceuticals. The Supplementary Material presents sectoral shares for Pakistan's exports to India using customs data for August 2016, the month before the terrorist incident.

2.2 The 2016 Uri attack

On September 18, 2016, four armed persons stormed the Indian military headquarters in Uri during early hours of the day. Uri is a town in the Baramulla district of Indian-administered Kashmir, located approximately 10 kilometres east of the Line of Control (LoC) dividing the disputed region. According to BBC, it was the deadliest attack on security forces in Kashmir in almost two decades, killing 19 soldiers and injuring at least 30.[7] It is perceived that attacks on security forces and military bases enable terrorists to maximise the direct and indirect costs of the attack, thereby, maximizing the financial and psychological damage caused by a single event. The attack was allegedly planned and executed by Jaish-e-Mohammed, a Pakistan-based militant organization designated as a terrorist organization by several countries as well as the United Nations. India blamed Pakistan for the attack, but Pakistani officials rejected India's allegations of involvement in the attack.

At the time of the attack, the region was undergoing high levels of violent unrest in the aftermath of the killing of a terrorist leader, Burhan Wani, on July 8, 2016. The killing ignited violent protests against the Indian government. The political and social unrest preceding the attack resulted in heightened security measures and surveillance at the border and at the Indian army headquarters in Kashmir. In the midst of intensified military operations and supervision, the attack on the army base in Uri was unforeseen and caught the Indian armed forces as well as the general public by surprise. While the persistent risk of terrorist incidents in the region was well recognised, the timing, scale, and intensity of the attack were difficult to anticipate. Even in conflict-prone regions, the precise occurrence of large-scale incidents is often unpredictable (Kydd & Walter 2006; Enders & Sandler 2011). An organised attack at an intensely secured location deeply shocked the public and markets in both countries, and more importantly, for this study, occurred against the backdrop of a stable macroeconomy.

In the wake of the attack, mainstream media in both countries engaged in angry rhetoric towards each other. Soon after, India revoked its participation in the 19th SAARC summit, that was scheduled to be held in Islamabad, Pakistan, in November 2016. Several other

countries, including Afghanistan, Bangladesh, and Bhutan, followed suit and withdrew from the summit, leading to its postponement. The Indian government asserted to take drastic diplomatic and economic actions against Pakistan. In the aftermath of the attack, extensive security checks caused significant congestion at the Attari-Wahga border in the midst of an already poor infrastructure.

3 Data and identification

3.1 The FBRP data

We use administrative data collected by the Federal Board of Revenue Pakistan (FBRP) from January 1, 2015, to December 31, 2017. Our dataset reports the universe of Pakistan's export and import transactions, and contains comprehensive information about the date of the transaction, product exported, destination country, shipping port, unit value of exports, and the total value and physical quantity exported. The quantity exported is expressed in two different units, namely, the shipment weight and number of units. Both the total and free-on-board (FOB) export values are reported in terms of the Pakistani rupee. For each transaction, we observe an anonymised identification code for the exporter. This information allows us to track exports by a Pakistani exporter over time. The import data also includes comparable information for each import transaction (Khan et al. 2024).

The data encompasses 19,593 Pakistani exporters, exporting through 55 shipping ports to 190 foreign destinations. It uses the standard international trade classification system, and comprises of 4540 exported product categories defined at the eight-digit level (SITC8). In the baseline analysis, we aggregate the data at the firm-product-country-port level. That gives us a total of 310,994 observations. The unit export price is proxied by the unit value of a firm-product-country-port quadruple in a given month, whereby unit value is computed as the ratio of export value and export quantity. Since export quantity is reported in both metric tons as well as the number of units, two different proxies of unit export price are obtained, computed using the number of units exported (uv_u) and the weight of the shipment (uv_w). The Supplementary Material presents summary statistics by various product and firm characteristics. About 8.9 percent of Pakistani exporting firms export to India, and the proportion of Pakistani firms importing from India before the attack is roughly 8.3 percent. As explained later, a unique feature of the FBRP dataset is that more than half of exporters in Pakistan are classified as a pure exporter, i.e., a small exporting firm that sells solely in the international market, with no domestic sales (Liaqat & Hussain 2020).

3.2 Identification

Our primary goal is to estimate the effect of the terrorist attack on export margins of Pakistani firms. The attack was widely perceived to be unanticipated, and therefore, considered as being exogenous to Pakistani exporters. In other words, it is assumed that conditional on the set of controls, the primary explanatory variables of interest are uncorrelated with the residual term. Thus, we treat the terrorist incident in Uri as a quasi-natural experiment, and use a difference-in-differences methodology to estimate the differential impact of the attack on Pakistani exports to India, relative to exports to the rest of the world. We take into account seasonal effects and cyclicality of exports, and with the use of a high-dimensional fixed effects model, are able to control for unobserved firm, product, and country characteristics.

Our identifying assumption is motivated by earlier studies using causal inference. In order to rationalise our empirical approach, it is important to show that the effect of the terrorist attack on the variables of interest is not mitigated by confounders, i.e., there were no other major economic changes in India in the aftermath of the attack that could potentially be responsible for the effects documented in this study. This approach resembles earlier work assessing, for example, the differential impact of sudden currency movements on trade volume in the aftermath of the Brexit referendum (Fernandes & Winters 2021), or the unexpected removal of EUR/CHF floor by the Swiss National Bank in 2015 (Auer et al. 2021).

We observe that the attack occurred against the backdrop of stable macroeconomic conditions, with no evidence of prior trends, and did not bring about an economic downturn in India; any possible effects on Indian GDP and inflation rate over the months following the attack were relatively small. The Supplementary Material reports key indicators for the Indian economy: real GDP, inflation rate, Policy Uncertainty Index, and the exchange rate between the Indian and Pakistani rupee, over 2015 to 2018. GDP and price levels continued to grow in line with previous trends after September 2016. Furthermore, there was no drastic change in the rate of exchange between the Indian and Pakistani rupee after the attack. Interestingly, the data reveals a temporary rise in the Policy Uncertainty Index for India, which captures the number of news articles comprising of terms such as ‘uncertainty’, as well as policy-related words, such as ‘policy’ or ‘regulation’.

4 Estimation results

We begin the analysis using aggregate data at the product and country levels, and introduce additional layers of granularity as we proceed. This section also presents several extensions to the baseline results, and sets the stage for an in-depth exploration of mechanisms in the following section.

4.1 Product-country level estimation

We first estimate the effects of the attack on Pakistan's exports volume and export price at the product-country level. This step also enables us to compare our estimates based on aggregated data with those presented in existing studies. We collapse the customs dataset at product-country-month level, and sum up exports transactions across firms for a given product-country pair. The following specification is estimated:

$$\Delta \ln X_{pct} = \beta(\text{Post}_t \times \text{Ind}_c) + \delta_{pt} + \delta_c + \epsilon_{pct}, \tag{1}$$

where

$$\Delta \ln X_{pct} = \ln X_{pc,t} - \ln X_{pc,t-1}$$

The dependent variables, $\Delta \ln X_{pct}$, are log differences in exports value (in Pakistani rupee), export quantity, and export price, between month t and $t-1$, over September 2015 to September 2017, for product p exports (defined at the eight-digit level) to country c. We use two measures of exports value available in the dataset, total exports and FOB exports. Export quantity is also measured in two different units, namely, number of units and weight of the shipment. Our primary coefficient of interest is β. Post_t assumes the value of one for all months after the terrorist incident, and zero otherwise. Ind_c takes the value of one for exports made to India, and zero otherwise. Therefore, β captures the differential effect of the shock on exports to India, relative to other countries. δ_{pt} and δ_c represent product-month and country fixed effects, respectively, included to absorb trends at the product-by-time and country levels. ϵ_{pct} captures standard errors clustered at the country-level to take into account correlation of observations within a country.

The log-differenced dependent variables help exclude the effect of time-invariant product-country characteristics. To address concerns related to zeros in monthly export data, we implemented several alternative transformations of the dependent variable before differencing, namely, $\ln X_{pct}$, $\ln(X_{pct}+1)$, and the inverse hyperbolic sine transformation. To further mitigate this concern, we accounted for missing monthly observations by computing lagged

differences relative to the last available non-missing value. All baseline results are robust to these alternate specifications.

(Insert Table 1 here)

The results from estimating Eq. 1 are reported in Table 1. We obtain negative coefficients for the $\text{Post}_t \times \text{Ind}_c$ interaction term, indicating that the growth in exports value, quantity, and unit value to the Indian market dropped after the attack; in the wake of the Uri terrorist attack, the average growth in exports volume as well as price charged in the Indian market decreases, relative to exports to other countries. Nonetheless, the estimates shown in Table 1 remain statistically insignificant in most cases, with the exception of columns (4) and (5). This suggests that, in contrast to the results obtained at a more granular level described later in the paper, product-level exports from Pakistan to India did not experience a statistically significant decline in the Indian market relative to the control group countries. We explore whether there are indeed economically meaningful and statistically significant consequences of the attack on individual firms in the next subsection.

4.2 Firm-country level estimation

Since profit-maximizing firms are the economic unit of interest for our purpose, it is relevant to evaluate how firm-level exports to a country react to the shock. To study firm-level responses, the customs dataset is collapsed at the firm-country-month level, and later also at firm-country-product-month level:

$$\Delta \ln X_{fct} = \beta(\text{Post}_t \times \text{Ind}_c) + \delta_f + \delta_c + \delta_t + \epsilon_{fct}, \tag{2}$$

and

$$\Delta \ln X_{fct} = \ln X_{fc,t} - \ln X_{fc,t-1}$$

The dependent variables, ΔlnX_{fct}, are once again, log differences in exports value, quantity, and price, for firm f's exports to country c. Thus, β captures the differential effect of the shock on firm-level exports to India, relative to other countries. δ_f and δ_c represent firm and country fixed effects, respectively, and δ_t are a full set of monthly fixed effects. Table 2 illustrates that the coefficients on the $\text{Post}_t \times \text{Ind}_c$ interaction term are negative and statistically significant. As a result of the terrorist attack, the average growth in exports volume as well as the price charged in the Indian market decreases, relative to other countries. With the exception of one of the measures of unit export value ($\Delta \ln(uv_w)$ in column (6)), all coefficients

are statistically significant. The estimates reported in Table 2 suggest that exports to India experienced an almost 20 percentage point lower average growth after the attack, relative to exports to the rest of the world. In addition, there is a 12 percentage point decline in the growth rate of export quantity, as reported in column (3). These results imply that Pakistani firms exporting to India did experience a lower export growth in the Indian market, relative to the control group, compared to the less robust effects observed in the previous section pertaining to product-level estimation. In contrast to the trends observed at the aggregate level (Figure 1) that are either short-lived or less drastic, there seems to be more pronounced effects of the incident at the firm-level.

(Insert Table 2 here)

We repeat the above analysis at the firm-product-country level, and obtain consistent estimates (see Supplementary Appendix A). The next subsection describes the benchmark results of this study, examining a more disaggregated level of customs data. In the discussion that follows, we focus on only one measure of exports value, quantity, and price, and consider FOB exports value, export quantity and unit values based on shipment weight only for robustness purposes.

4.3 Intensive margins: Baseline results

Next, the following specification is estimated after collapsing the data at the firm-product-country-port-month level:

$$\Delta \ln X_{fpcst} = \beta(\text{Post}_t \times \text{Ind}_c) + \delta_{fpcs} + \delta_t + \epsilon_{fpcst}. \tag{3}$$

The dependent variable, $\Delta \ln X_{fpcst}$, is once again the log difference in export value, export quantity, or export price, between month t and $t-1$, for firm f's exports of product p, to country c through shipping port s. δ_{fpcs} represents firm-product-country-port fixed effects. Table 3 shows that the coefficients on the interaction term, $\text{Post}_t \times \text{Ind}_c$, are all negative and statistically significant. In particular, relative to exports to other countries, the total export value to India experienced a 6.4 percentage point lower growth after the shock. The log difference in export price charged to Indian buyers is on average 1.4 percentage points smaller after the incident. As a robustness check, in columns (4)-(6) of Table 3, we report estimates obtained after including a different set of fixed effects, firm-product (δ_{fp}) and country-port (δ_{cs}) pair dummies, to absorb trends in exports and prices at the firm-product

and destination-shipping port levels in our differenced equation. Once again, we observe that exports to India were negatively affected by the terrorist incident.

(Insert Table 3 here)

Table 3 provides estimates obtained for the complete sample, and therefore, consist of data for all firms. The complete sample comprises of three categories of firms: firms exporting only to the Indian market; firms exporting to the Indian market as well as to other countries; and firms that do not export to India over the time period under consideration. In the following exercise, we estimate Eq. 3 on a restricted sample, thereby including only firms that carry out an exchange of goods with their Indian counterparts as well as at least one other foreign destination. The results are presented in columns (7)-(9) of Table 3. We find that the estimates obtained are slightly larger in magnitude compared to those obtained for the full sample.

Our baseline results can be interpreted in the following way. We hypothesise that due to a combination of both demand and supply channels, there is a decline in exports of Pakistani products to India. As proposed in the literature, a terrorist incident results in greater uncertainty, and hence, raises the transaction costs of trading with the terror-inflicted country (Bandyopadhyay et al. 2018). There is a considerable rise in the cost of doing business due to greater inspections and safeguards at the border. Trade policy uncertainty also tends to deter trade (Handley & Limao 2015). This explanation is also consistent with Korovkin & Makarin (2023): terrorist incidents disrupt trade by damaging intergroup social capital that manifests itself through a decline in demand for the other group's products and reputational damage to firms trading with the enemy.[8] Theoretically, this finding can be rationalised by a downward shift in the demand for Pakistani goods, which lowers both export price and quantity for exporters. The significant decline in unit values of Pakistani exports to India suggests that in addition to the demand channel, Pakistani exporters may have possibly reduced their markup in the Indian market following the attack, in order to partly absorb the effect of the shock in the form of lower exports revenue. Therefore, a reduction in exports to India relative to other countries could possibly be due to both lower quantities as well as lower unit export prices.

The regression results continue to hold after using a different level of product and time aggregation; in alternative specifications of Eqs. 2-3, we use 3-digit SITC product categories instead of SITC8 products, and collapse the data at quarterly instead of monthly level,

to substantiate our findings.[9] As a further robustness check, we estimate Eq. 3 including interactions of the post-attack dummy variable with indicators for exports to other foreign destinations instead of India. In particular, we include interactions for exports to SAARC countries excluding India, many of which are key buyers of Pakistani goods.[10] The coefficient of the interaction term, $\text{Post}_t \times \text{SAARC}_c$, can be interpreted as the difference in the growth of exports to these countries in the wake of the attack, compared to the control group. Interestingly, the estimates generated for placebo specifications are statistically insignificant, indicating that there is no evidence of trade diversion or spillover effects to control group trade partners (see Supplementary Material).

4.4 Extensions

Extensive margins: We examine the differential extensive margin effects, if any, on Pakistani exports to India in the aftermath of the attack. In other words, we study the effect of the shock on export participation in India for Pakistani firms assessed by the number of exporters and products exported to the Indian market. In the first step, we compute the number of exporters for a given product-country-port triple exporting in each month over 2015-2017. In a simple modification of Eq. 3 at the product-country-port-month level, where the dependent variable is log differenced number of exporting firms, the coefficient of the interaction term can be interpreted as the average differential effect of the attack on the growth of number of exporters selling in India relative to other destinations. Similarly, the data can be disaggregated at the firm-country-port-month level to assess extensive margin measured by number of products.

The results, as explained in Supplementary Appendix B, reveal no significant differential effect on the number of exporting firms selling in India after the attack. On the other hand, there is a significant decline in product scope, determined by the number of products exported, for India relative to other countries. This indicates that the shock did not induce exit by firms from the Indian market. However, owing to a combination of lower markups as well as a rise in the marginal cost of selling across the border in the wake of greater supervision, it may no longer be profitable to sell some products to Indian firms.

Imports from India: Do the effects outlined above also hold for firms importing from India? Interestingly, we find no significant and consistent impact on firms' imports sourced from India, relative to other countries. We draw on importing information available in the FBRP dataset to estimate a specification similar to Eq. 3. The coefficients of the inter-

action term indicate that there is no noticeable impact of the shock on imports.[11] What factors could contribute to this lack of response on the import side? Bandyopadhyay et al. (2018) show that there is generally more pressure to lower imports from a terrorism-plagued country than exports to the country. One possible explanation for the apparent absence of disruption in firm-level imports may be supply chain resilience of larger, more productive importing firms. Later in the paper, we explore variation in impact of the shock across smaller versus larger, globally well-connected exporters, that also have relatively higher degrees of importing intensity.

Alternative counterfactual: A potential concern with our empirical design is the choice of counterfactual. Our baseline specification compares Pakistan's exports to India with its exports to the rest of the world. While this provides a commonly used benchmark for such event-study analyses, Pakistan's political and trade relations with major partners such as the U.S. and EU differ substantially from those with India, which raises the question of whether a more appropriate comparison group could be considered. To address this, we examine several alternative counterfactuals, such as, Afghanistan, Bangladesh, and the set of SAARC countries excluding India, and repeat the above estimations.

Afghanistan offers a natural comparison given the similarity of its political tensions with Pakistan, although official trade data are known to understate actual flows due to pervasive informal trade. Although the number of observations is relatively small in some cases and the results are often not significant, the estimated coefficients are generally consistent with our findings. Bangladesh, on the other hand, provides a closer economic benchmark as a South Asian neighbour with geographic and cultural ties but a less politicised relationship. In this case, the results align very closely with the baseline estimates and remain statistically significant. Finally, we consider all other SAARC countries, which offers a wider regional benchmark with countries at a similar level of development and geographic proximity. The results obtained are once again consistent with the above-mentioned findings. These robustness checks, therefore, reinforce our key findings.

Ruling party in India: While our dataset is restricted to 2015-2017, a period when the Bharatiya Janata Party (BJP) was in power, it is natural to ask whether the trade response would have been different under a Congress-led government. Although we cannot directly implement a placebo test due to data limitations, to explore this possibility, we turn to aggregate monthly bilateral trade flows from the World Integrated Trade Solution (WITS) over 2010-2025 that span both Congress and BJP-led administrations. A time-series plot of Pak-

istan's exports to India around major terrorist incidents in the Indian-administered Kashmir during this period shows that exports decline (albeit temporarily) following large-scale attacks under both regimes, consistent with the view that terrorism shocks unambiguously disrupt bilateral trade. Nonetheless, as highlighted in this study, aggregated trade data may mask heterogeneity in adjustment patterns across products and firms.[12]

5 Heterogeneity analysis

We have demonstrated that firms in Pakistan witnessed a drop in exports to India after the terrorist attack in Uri in 2016. In this section, we show that the average effects do not necessarily hold for certain types of goods and for specific groups of exporters. We also document a substantial amount of variation in estimates obtained across various ports of shipment in Pakistan.

5.1 Heterogeneous firms

First, we examine whether there is a variation in the response of exports and unit prices to the shock across exporters. A large body of literature shows that firms often respond differently to economic shocks, depending on their size, productivity, pricing power, and hence, their ability to adjust markups in the face of a shock (Melitz & Ottaviano 2008). We capitalise on the level of detail available in the customs database, and estimate specifications involving several measures of firm's performance and market power:

$$\Delta \ln X_{fpcst} = \beta_0(\text{Post}_t \times \text{Ind}_c) + \beta_1(\text{Post}_t \times \varphi_f) + \beta_2(\text{Post}_t \times \text{Ind}_c \times \varphi_f) + \delta_{fpcs} + \delta_t + \epsilon_{fpcst} \quad (4)$$

The firm's performance measure, φ_f, is proxied by four separate indicators: (1) an indicator variable equal to one for a pure exporter, and zero otherwise; (2) a dummy variable equal to one if the firm f imports one or more of its raw materials from India, and zero otherwise; (3) import intensity of the firm, measured by the ratio of total import value to firm's total exports; and (4) share of imports sourced from India, i.e., the intensity of Indian-imports by the firm. The coefficient of the three-way interaction term, $\text{Post}_t \times \text{Ind}_c \times \varphi_f$, is our primary estimate of interest: β_2 summarises the differential effect of the shock depending on the firm characteristics defined above. Once again, we include interaction fixed effects as before, and cluster robust standard errors at the country level. The results are depicted in Tables 4 and 5.

Columns (1)-(3) in Table 4 present the estimates obtained for export value, quantity, and unit value, respectively, when φ_f is defined as an indicator variable equal to one if the exporting firm is a small exporter with no domestic sales. These firms are typically referred to as 'pure exporters', although the terms born-to-export as well as born-global firms have also been used in the literature (Eaton et al. 2011; de Astarloa et al. 2015). Based on Pakistan's customs data, Liaqat & Hussain (2020) explain that pure exporters are significantly smaller in terms of the overall levels of sales, export earnings, and import spending, compared to exporting firms that also sell in the local market. We find that the estimate of β_2 is always negative and highly significant. This suggests that the reduction in exports following the terrorist attack is significantly larger in magnitude for pure exporters compared to larger exporting firms. This finding is indicative of the expectation that larger firms, which are also shown to be more productive, higher performance firms, are more capable of absorbing the effect of the shock compared to smaller firms.

(Insert Table 4 here)

The following three columns in Table 4 provide an assessment of the effects for firms that used imported intermediate goods originating from India before the attack took place. The estimates reported in columns (4)-(6) imply that a Pakistani exporting firm that also imports raw materials from India experienced a statistically significant *increase* in exports and unit export price in the Indian market after the incident. This finding is in contrast to the results highlighted so far, and offers useful insights related to the recent international trade literature. It has been well documented that large exporters tend to be simultaneously large importers. Recent work also shows that importers share many of the characteristics of exporting firms in terms of their larger size and greater productivity (Bernard et al. 2007; Muûls & Pisu 2009). Some studies explore the significance of superstar firms in international trade, i.e., a handful of large firms that have many more connections and that experience higher growth (Chaney 2014). Furthermore, exporting and importing decisions have been shown to be interdependent (Bernard et al. 2018). Our estimates indicate that, contrary to the average effect, larger Pakistani exporters, and especially those sourcing some of their inputs from India, witnessed an increase in demand after the terrorist incident.

(Insert Table 5 here)

The above findings are further corroborated by estimates reported in Table 5, whereby firm performance is proxied by import intensity of the exporter. Import intensity is computed as

the ratio of imports to total exports by the firm in columns (1)-(3), and columns (4)-(6) are based on import intensity specifically for Indian inputs, measured by the share of imported inputs sourced from India. In order to preclude endogenous changes owing to the shock, import intensity is based on 2015 data, before the attack took place. The results illustrate that more import-intensive exporters face a significantly smaller decline in exports to India. Furthermore, particularly relevant is the role of imported inputs sourced from India. The estimates provided in columns (4)-(6) suggest that Pakistani exporters purchasing larger volumes of imported inputs from India witnessed a statistically significant rise in exports after the attack.

What explains a rise in demand of exports for firms sourcing inputs from India in the wake of the attack? This could suggest a potential role of the structure of firms' global supply, networks, and value chain effects (Liaqat et al. 2021). Since there is a growing significance of globally well-connected firms in international trade, it is likely that with the average fall in demand for Pakistani exports after the terrorist incident, at least part of the demand for Pakistani products was diverted towards more prominent and well-established Pakistani businesses. The overall rise in demand for these exporters could be substantial, even offsetting marginal cost changes due to the terrorist event. Another related argument proposed in the literature alludes to the effect of risk on trade (Heise et al. 2015). As indicated earlier in the institutional context and in an often uncertain economic and political backdrop, Indian buyers of Pakistani exports may be motivated to multi-source from several exporters. In the event of the attack, there is a sizeable shift in demand towards superstar Pakistani firms, simply due to a relatively lower risk associated with trading with them. Hence, risk management acts as an additional channel for the rise in demand of their exports.

5.2 Product-level variation

We now examine if there is any variation in the effects of the shock across products. Figure 2 shows the percentage change in Pakistan's exports to India by SITC4 sectors over the month immediately after the attack. Interestingly, some industries witnessed a bigger drop in exports compared to, say, beverages and chemical products. These include crude materials, fuels, and food products. As exports to India are highly concentrated in these sectors, it is reasonable to expect a stronger impact on export volumes in these sectors. We test this more formally by re-estimating Eq. 3 separately for various quantiles of sectoral export concentrations, and obtain stronger results for the top exported commodities, such as, kerosene, petroleum and diesel oil.

(Insert Figure 2 here)

Next, we consider three product classifications based on the import demand elasticity for Pakistani goods in the Indian market, the coefficient of variation in unit export prices, and the degree of product differentiation. In general, firms may have a greater pricing power for goods with lower import demand elasticity. This may also be true for differentiated products, as opposed to homogeneous goods. The results for this sub-section are depicted in Table 6.

In the first step, we use the estimates for India's import demand elasticity at the HS 3-digit level provided by Broda & Weinstein (2006). This data is matched with the product codes available in the customs database. In the estimation of our baseline specification, we now interact $\text{Post}_t \times \text{Ind}_c$ with the log of the elasticity of substitution, BW_σ. Columns (1)-(3) of Table 6 report the first set of estimates obtained for the measures of elasticity of substitution. The table reveals that the coefficients of $\text{Post}_t \times \text{Ind}_c \times (\text{BW}_\sigma)_p$ have anticipated signs and are statistically significant. The estimate is positive and significant for export value and export price, but positive and insignificant for export quantity. This indicates that export price decreases by a smaller amount the greater the import demand elasticity of the good. Likewise, the reduction in exports value in the Indian market after the attack is relatively less compared to that in other countries for these goods. Pakistani exporters selling more differentiated goods or products customised to their buyers' needs, witness a smaller drop in demand, and hence lesser price adjustment, relative to more standardised products. Eq. 3 is also estimated separately for homogeneous and differentiated products using Rauch (1999) classification to substantiate these findings (Supplementary Appendix D).

(Insert Table 6 here)

In columns (4)-(6) of Table 6, we provide estimates obtained using a different product characteristic, namely, the frequency of export price changes. Gopinath & Itskhoki (2010) highlight the role of price adjustments in assessing the effect of shocks. We compute the coefficient of variation of log monthly unit export prices before the attack. The variability in unit values can be used as a proxy for how frequently firms adjust export prices for certain products (Berman et al. 2012). This measure, CV $(\ln uv_u)_p$, is interacted with the treatment interaction term. We find that the reduction in export price after the shock for products with more frequent price adjustments is greater relative to other products. The interaction term is negative and significant for export price, but positive and highly significant for exports and

export quantity. It appears that Pakistani exporters lowered export price for these goods significantly more in the aftermath of the shock, compared to other products with more rigid prices, and resultantly, witnessed an increase in the quantity demanded of their exported goods (see column (5) of Table 6). This explanation relates to the hypotheses proposed by Gopinath & Itskhoki (2010) but differs in interpretation. Our findings can be rationalised by the expectation that goods with a high frequency of price adjustments are perhaps associated with having more variable markups. Thus, one would expect that firms with an initially greater frequency of price adjustments, adjust prices more after the shock.

5.3 Shipping locations

Lastly, we explore how the Uri attack had a varied impact on exports depending on the location of shipping ports used to transport goods to India. As explained earlier, the Attari-Wahga border in Lahore offers a convenient and cost-effective means for cross-border shipments between India and Pakistan. Lahore, Punjab, had been the center of trade and commerce for the entire region even before the partition, including the Indian Punjab and Jammu and Kashmir valleys. As a result of the launch of the road route in 2005 at the eastern border of Pakistan, the share of road-based trade between India and Pakistan rose significantly.

Due to the geographic location of the port, i.e., its close proximity to the Baramulla district of Indian-administered Kashmir where the 2016 Uri attack took place, it is expected that the bilateral exchange of goods at the Lahore port was much more drastically affected compared to other ports. In the aftermath of the attack, there were significant delays at the Lahore port due to stricter security measures and regulations introduced at the border after the incident. This resulted in substantially increasing the cost of transporting goods to India via the Attari-Wahga border. Consequently, a large number of export shipments originating from Punjab and other regions in the vicinity, were redirected to the second most feasible route, that is, through Karachi ports located in southern Pakistan. Figure 3 shows a decline in exports delivered through Lahore ports after September 2016.

(Insert Figure 3 here)

To check whether exporting response varied across the two busiest shipping locations in Pakistan in the aftermath of the attack, we estimate specifications including an interaction term of $\text{Post}_t \times \text{Ind}_c$ and indicator variables for the Lahore and Karachi ports separately.

The coefficient of the three-way interaction term, thus, estimates the differential effect of the attack on exports to India shipped via each location. These results are depicted in Table 7. In columns (1)-(3), Port_s is equal to one for shipments sent through Lahore ports, and zero otherwise, whereas in columns (4)-(6), the dummy variable is equal to one for shipments made through the southern border. The estimates underscore interesting results. We observe that after the attack, there is a significant decrease in exports for shipments made through the Attari-Wahga border in Lahore. On the other hand, there is a sizeable increase in exports value, quantity, and unit price in the Indian market shipped via Karachi after the terrorist incident. Despite an increase in the cost of transportation due to re-routing shipments from Lahore to a relatively distanced port, many Pakistani exporters chose this option instead of having to incur additional costs associated with greater uncertainty and risk at the eastern border. Once again, this result may perhaps be driven by more productive firms, indicating their ability to incur additional transportation costs required to absorb the effect of the shock.

(Insert Table 7 here)

Another potential concern is that Pakistani firms may have responded to the attack by diverting trade with India through third-countries, particularly the UAE, a known intermediary in South Asian trade. Similarly, the observed rise in exports through Karachi ports in the southern part of the country could be indicative of probable diversion channels. To investigate this, we focus on exports to the UAE and repeat our baseline estimation. Interestingly, exports to the UAE exhibit a striking dual pattern. At the aggregate level, we find a significant rise in export volumes after the attack. However, a disaggregated analysis, comparable to the one depicted in Table 3, reveals a trend similar to our baseline findings, i.e., a significant decline in exports. Consistent with the discussion in the earlier section, this suggests that the aggregate results are driven by a small set of relatively larger firms with the scale and networks to reroute trade through Karachi, perhaps through a third-country, while the average firm lowered exports after the incident.[13] Together, these findings highlight the heterogeneous capacity of firms to adapt to political shocks through indirect channels.

6 Concluding remarks

In this study, we analyze the effects of a terrorist incident on trade patterns of firms exporting to a terror-inflicted country. Using the 2016 attack on an army base in Uri in the Indian-administered Kashmir as a quasi-natural experiment, we offer empirical evidence indicating

that firms respond significantly to a terrorism shock by lowering their exports, export quantities, and export prices in the Indian market after the attack. Unlike a full-scale war or conflict, although a terrorist activity may not have a noticeable longer term impact on the volume of aggregate trade, the aggregate trends hide a substantial amount of variation in responses. We examine the heterogeneity in these effects across firms, products, and geographic locations, and present numerous novel results. This analysis helps shed further light on the demand and cost channels as possible mechanisms explaining our key findings. Our results are based on a rigorous econometric methodology and identification strategy, and we provide several robustness tests.

Our study focuses on the impact of religious fundamentalist terrorism but differs from earlier work due to the distinct background of the attack. The results presented offer critical insights into the economic impact of terrorism. Owing to the uncertainty and massive opportunity cost of security measures introduced in the wake of an attack, the 'deadweight loss' arising due to terrorism is particularly sizeable for developing countries. Our results suggest an important role of governments and policy makers in conflict-inflicted countries in helping mitigate the unfavourable effects of terrorism. By using effective communication instruments and containing angry rhetoric, it may be possible to attempt to lower uncertainty and project more confidence in resuming economic activity. This is a critical policy implication of our work that could potentially help counter the hostile economic blow of conflict.

Endnotes

[1]Bardwell & Iqbal (2021) estimate the economic impact of terrorism to the world economy over 18 years from 2000 to 2018 to be close to $855 billion.

[2]"Terrorism is the premeditated use or threat to use violence by individuals or subnational groups to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims," (Enders & Sandler 2011).

[3]Another example is the attack of September 11, 2001, that lead to stricter inspection of shipping containers entering the United States (Enders & Sandler 2011).

[4]The Supplementary Material also reports time-series plots of Pakistan's total exports to India before and after the attack.

[5]A transnational terrorist incident, based on the definitions in Enders et al. (2011) which were used to categorise the Global Terrorism Database into domestic and transnational terrorist incidents, affects the property of another country. If a victim's or perpetrator's nationality is not that of the venue country, then the attack is classified as transnational.

[6]The share of road-based trade rose from zero in 1995-96 to 23% in 2014-15.

[7] *Militants attack Indian army base in Kashmir killing 17* (2016)

[8]One example is a 2007 report by an Indian think tank that described Indian importers of goods from Pakistan to be kept under surveillance by Indian intelligence agents.

[9]Although we do not include these results in the paper, estimates based on SITC3 product groups and quarterly data can be made available on request.

[10]SAARC has eight member countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri-Lanka.

[11]See Supplementary Appendix C.

[12]We thank an anonymous referee for this comment.

[13]We thank an anonymous referee for this suggestion. The regression results are provided in Supplementary Appendix E.

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Declaration of interest

The authors report there are no competing interests to declare.

References

Abadie, A., & Gardeazabal, J. (2008). Terrorism and the world economy. *European Economic Review*, *52*(1), 1–27.

Auer, R., Burstein, A., & Lein, S. M. (2021). Exchange rates and prices: Evidence from the 2015 Swiss Franc appreciation. *American Economic Review*, *111*(2), 652–686.

Bandyopadhyay, S., Sandler, T., & Younas, J. (2018). Trade and terrorism: A disaggregated approach. *Journal of Peace Research*, *55*(5), 656–670.

Bardwell, H., & Iqbal, M. (2021). The economic impact of terrorism from 2000 to 2018. *Peace Economics, Peace Science and Public Policy*, *27*(2), 227–261.

Berman, N., Martin, P., & Mayer, T. (2012). How do different exporters react to exchange rate changes? *The Quarterly Journal of Economics*, *127*(1), 437–492.

Bernard, A., Bøler, E., & Dhingra, S. (2018). Firm-to-firm connections in Colombian imports. *World Trade Evolution*, 333.

Bernard, A., Jensen, J. B., Redding, S. J., & Schott, P. K. (2007). Firms in international trade. *Journal of Economic Perspectives*, *21*(3), 105–130.

Blomberg, S. B., & Hess, G. D. (2006). How much does violence tax trade? *The Review of Economics and Statistics*, *88*(4), 599–612.

Broda, C., & Weinstein, D. E. (2006). Globalization and the gains from variety. *The Quarterly Journal of Economics*, *121*(2), 541–585.

Chaney, T. (2014). The network structure of international trade. *American Economic Review*, *104*(11), 3600–3634.

de Astarloa, B. D., Eaton, J., Krishna, K., Roberts, B. A., Rodrıguez-Clare, A., & Tybout, J. (2015). *Born to export: Understanding export growth in Bangladesh's apparel and textiles industry* (Tech. Rep.). Working paper.

Eaton, J., Kortum, S., & Kramarz, F. (2011). An anatomy of international trade: Evidence from French firms. *Econometrica*, *79*(5), 1453–1498.

Egger, P., & Gassebner, M. (2015). International terrorism as a trade impediment? *Oxford Economic Papers*, *67*(1), 42–62.

Enders, W., & Sandler, T. (2011). *The political economy of terrorism.* Cambridge University Press.

Enders, W., Sandler, T., & Gaibulloev, K. (2011). Domestic versus transnational terrorism: Data, decomposition, and dynamics. *Journal of Peace Research*, *48*(3), 319–337.

Fernandes, A. P., & Winters, L. A. (2021). Exporters and shocks: The impact of the Brexit vote shock on bilateral exports to the UK. *Journal of International Economics*, *131*, 103489.

Gaibulloev, K., & Sandler, T. (2008). Growth consequences of terrorism in Western Europe. *Kyklos*, *61*(3), 411–424.

Gopinath, G., & Itskhoki, O. (2010). Frequency of price adjustment and pass-through. *The Quarterly Journal of Economics*, *125*(2), 675–727.

Handley, K., & Limao, N. (2015). Trade and investment under policy uncertainty: theory and firm evidence. *American Economic Journal: Economic Policy*, *7*(4), 189–222.

Heise, S., Pierce, J. R., Schaur, G., & Schott, P. K. (2015). *Trade policy and the structure of supply chains* (Tech. Rep.). Citeseer.

Khan, B. M., Hussain, K., & Liaqat, Z. (2024). Trade misreporting: Evidence from pakistani importers. *The World Economy*, *47*(2), 390–414.

Korovkin, V., & Makarin, A. (2023). Conflict and intergroup trade: Evidence from the 2014 Russia-Ukraine crisis. *American Economic Review*, *113*(1), 34–70.

Kugelman, M. (2013). *Pakistan-india trade: What needs to be done? what does it matter?* Woodrow Wilson International Center for Scholars, Asia Program.

Kydd, A. H., & Walter, B. F. (2006). The strategies of terrorism. *International Security*, *31*(1), 49–80.

Liaqat, Z., & Hussain, K. (2020). En route to the world: understanding firms that solely export. *Economics Bulletin*, *40*(4), 2872–2886.

Liaqat, Z., Hussain, K., & Khan, B. M. (2021). On-the-match price renegotiation: Evidence from Pakistan's import data. *Economics Letters*, *202*, 109837.

Melitz, M. J., & Ottaviano, G. I. (2008). Market size, trade, and productivity. *The Review of Economic Studies*, *75*(1), 295–316.

Militants attack Indian army base in Kashmir killing 17. (2016). https://www.bbc.com/news/world-asia-india-37399969.

Muûls, M., & Pisu, M. (2009). Imports and exports at the level of the firm: Evidence from Belgium. *The World Economy*, *32*(5), 692–734.

Nitsch, V., & Rabaud, I. (2022). Under attack: Terrorism and international trade in France, 2014–2016. *Oxford Economic Papers*, *74*(4), 976–998.

Nitsch, V., & Schumacher, D. (2004). Terrorism and international trade: an empirical investigation. *European Journal of Political Economy*, *20*(2), 423–433.

Rauch, J. E. (1999). Networks versus markets in international trade. *Journal of International Economics*, *48*(1), 7–35.

Taneja, N., Prakash, S., & Kalita, P. (2013). *India's role in facilitating trade under SAFTA* (Tech. Rep.). Working Paper.

Table 1 Aggregate effects, product(SITC8)-country level estimations

	Δln(Exports) (1)	Δln(FOB) (2)	Δln(Units) (3)	Δln(Weight) (4)	Δln(uv_u) (5)	Δln(uv_w) (6)
$\text{Post}_t \times Ind_c$	-1.026	-0.783	-0.609	-0.401*	-0.417*	-0.661
	(0.717)	(0.514)	(0.507)	(0.229)	(0.219)	(0.516)
Fixed Effects	(δ_{pt}, δ_c)	(δ_{pt}, δ_c)	(δ_{pt}, δ_c)	(δ_{pt}, δ_c)	(δ_{pt}, δ_c)	(δ_{pt}, δ_c)
Observations	145011	145011	145011	145011	145011	145011
R-squared	.149	.148	.171	.179	.122	.13

Notes: Observations are collapsed at product-country-month level. δ_{pt} and δ_c absorb trends at the product-month and country level, respectively. Columns (1)-(2) report estimates for log-differenced exports value, while the dependent variables in columns (3)-(4) are measures of export volume, i.e., the number of units and weight of the shipment, respectively. The final two columns report log-differenced unit export value results, where unit export value is computed based on the number of units exported and the weight of export shipment. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 2 Firm-country level estimations

	Δln(Exports) (1)	Δln(FOB) (2)	Δln(Units) (3)	Δln(Weight) (4)	Δln(uv_u) (5)	Δln(uv_w) (6)
$\text{Post}_t \times \text{Ind}_c$	-0.211**	-0.168**	-0.128**	-0.085***	-0.083*	-0.128
	(0.095)	(0.079)	(0.054)	(0.018)	(0.044)	(0.082)
Fixed Effects	$(\delta_f, \delta_c, \delta_t)$	$(\delta_f, \delta_c, \delta_t)$	$(\delta_f, \delta_c, \delta_t)$	$(\delta_f, \delta_c, \delta_t)$	$(\delta_f, \delta_c, \delta_t)$	$(\delta_f, \delta_c, \delta_t)$
Observations	214897	214897	214897	214897	214897	214897
R-squared	.016	.016	.017	.0187	.0153	.0148

Notes: Observations are collapsed at firm-country-month level. δ_f, δ_c, and δ_t absorb trends at the firm, country, and month level, respectively. Columns (1)-(2) report estimates for log-differenced exports value, while the dependent variables in columns (3)-(4) are measures of export volume, i.e., the number of units and weight of the shipment, respectively. The final two columns report log-differenced unit export value results, where unit export value is computed based on the number of units exported and the weight of export shipment. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 3 Firm-product(SITC8)-country-port level estimations

	Benchmark results			Alternative specification			Restricted sample		
	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\text{Post}_t \times Ind_c$	-0.066***	-0.052***	-0.014***	-0.033***	-0.022***	-0.011***	-0.067***	-0.053***	-0.014***
	(0.004)	(0.005)	(0.002)	(0.007)	(0.007)	(0.002)	(0.006)	(0.007)	(0.002)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fp}, \delta_{cp}, \delta_t)$	$(\delta_{fp}, \delta_{cp}, \delta_t)$	$(\delta_{fp}, \delta_{cp}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$
Observations	283838	283838	283838	299840	299840	299840	136483	136483	136483
R-squared	.0862	.0892	.111	.0504	.0532	.0796	.0739	.0774	.0996

Notes: Observations are collapsed at firm-product-country-port-month level. A product is defined as SITC 8-digit category. δ_{fpcs} absorb trends at the firm-product-country-port level, and δ_t are monthly fixed effects. All dependent variables are log-differenced values of exports, quantity, and unit value. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 4 Heterogeneity across firms

	Pure Exporters			Indian Importer		
	$\Delta ln(exp)$ (1)	$\Delta ln(q)$ (2)	$\Delta ln(uv)$ (3)	$\Delta ln(exp)$ (4)	$\Delta ln(q)$ (5)	$\Delta ln(uv)$ (6)
$\text{Post}_t \times \text{Ind}_c$	0.019***	0.023***	-0.005**	-0.129***	-0.101***	-0.029***
	(0.004)	(0.005)	(0.002)	(0.008)	(0.007)	(0.002)
$\text{Post}_t \times$ Pure exporter	-0.009	-0.006	-0.003			
	(0.013)	(0.011)	(0.005)			
$\text{Post}_t \times \text{Ind}_c \times$ Pure exporter	-0.180***	-0.161***	-0.020***			
	(0.013)	(0.012)	(0.005)			
$\text{Post}_t \times \text{Importer}_{(Ind_c, attack=0)}$				0.006	0.008	-0.002
				(0.011)	(0.010)	(0.003)
$\text{Post}_t \times \text{Ind}_c \times \text{Importer}_{(Ind_c, attack=0)}$				0.181***	0.140***	0.041***
				(0.011)	(0.010)	(0.003)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$
Observations	283838	283838	283838	283838	283838	283838
R-squared	.0862	.0892	.111	.0862	.0892	.111

Notes: Observations are collapsed at firm-product-country-port-month level. A product is defined as SITC 8-digit category. δ_{fpcs} absorb trends at the firm-product-country-port level, and δ_t are monthly fixed effects. All dependent variables are log-differenced values of exports, quantity, and unit value. Columns (1)-(3) report results for export volume, quantity and unit values for pure exporting firms in Pakistan. Columns (4)-(6) show results for export volume, quantity and unit values for firms importing from India before the attack. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 5 Role of imports

	Imports			Intensity of Indian imports		
	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Post}_t \times \text{Ind}_c$	-0.986***	-1.109***	0.123**	-0.079***	-0.063***	-0.016***
	(0.129)	(0.126)	(0.047)	(0.005)	(0.006)	(0.002)
$\text{Post}_t \times \text{Imports}_f$	0.006	0.004	0.002	0.018	0.015	0.004
	(0.010)	(0.009)	(0.004)	(0.030)	(0.031)	(0.007)
$\text{Post}_t \times \text{Ind}_c \times \text{Imports}_f$	0.077***	0.082***	-0.005	0.249***	0.208***	0.041***
	(0.009)	(0.009)	(0.004)	(0.030)	(0.032)	(0.007)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$
Observations	31263	31263	31263	283838	283838	283838
R-squared	.126	.128	.182	.0862	.0892	.111

Notes: Observations are collapsed at firm-product-country-port-month level. A product is defined as SITC 8-digit category. δ_{fpcs} absorb trends at the firm-product-country-port level, and δ_t are monthly fixed effects. All dependent variables are log-differenced values of exports, quantity, and unit value. Columns (1)-(3) report results for exports volume, quantity and unit values using interaction with import intensity of the firm. Columns (4)-(6) show results for export volume, quantity and unit values using the share of Indian imports by the firm before the attack. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 6 Product categories

	Demand elasticity			Price volatility		
	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Post}_t \times \text{Ind}_c$	-0.093***	-0.063***	-0.029***	-0.107***	-0.107***	-0.000
	(0.011)	(0.013)	(0.004)	(0.006)	(0.007)	(0.004)
$\text{Post}_t \times BW_\sigma$	-0.001	0.002	-0.003			
	(0.005)	(0.006)	(0.002)			
$\text{Post}_t \times \text{Ind}_c \times BW_\sigma$	0.018***	0.008	0.010***			
	(0.005)	(0.006)	(0.002)			
$\text{Post}_t \times \text{CV ln}(uv)$				-0.013	-0.066	0.054
				(0.029)	(0.043)	(0.034)
$\text{Post}_t \times \text{Ind}_c \times \text{CV ln}(uv)$				0.295***	0.403***	-0.108***
				(0.030)	(0.042)	(0.034)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$
Observations	279684	279684	279684	280225	280225	280225
R-squared	.0863	.0893	.111	.085	.0879	.108

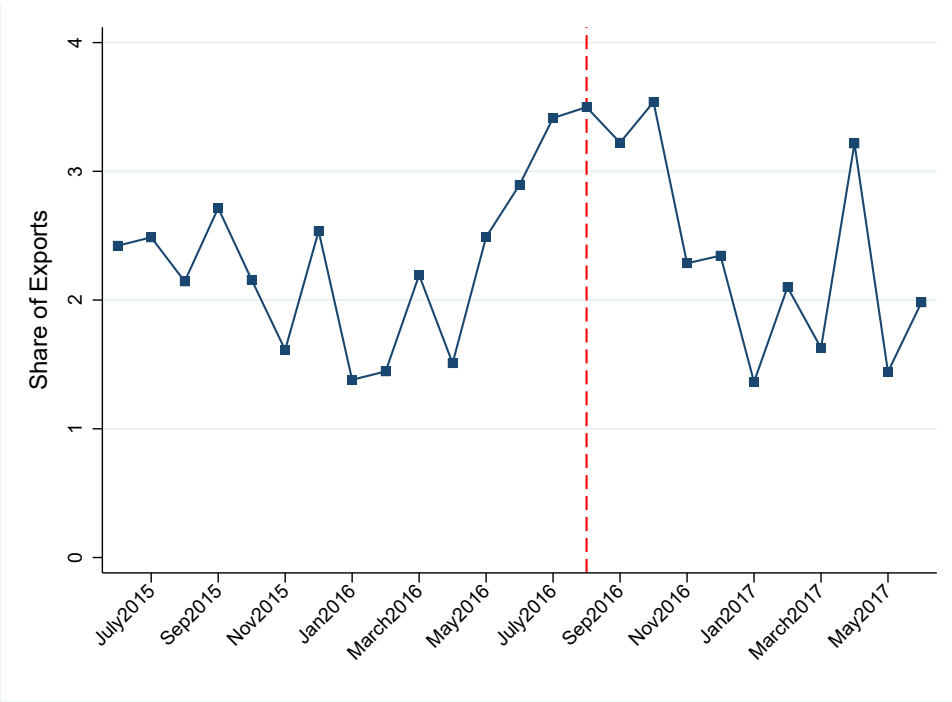
Notes: Observations are collapsed at firm-product-country-port-month level. A product is defined as SITC 8-digit category. δ_{fpcs} absorb trends at the firm-product-country-port level, and δ_t are monthly fixed effects. Columns (1)-(3) report results for log-differenced export volume, quantity and unit values using Indian elasticity of demand. Columns (4)-(6) show results for export volume, quantity and unit values including price volatility measures. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 7 Shipping locations

	Eastern border			Southern border		
	$\Delta ln(exp)$ (1)	$\Delta ln(q)$ (2)	$\Delta ln(uv)$ (3)	$\Delta ln(exp)$ (4)	$\Delta ln(q)$ (5)	$\Delta ln(uv)$ (6)
$\text{Post}_t \times \text{Ind}_c$	0.022***	0.021***	0.002	-0.121***	-0.084***	-0.036***
	(0.004)	(0.005)	(0.002)	(0.007)	(0.010)	(0.005)
$\text{Post}_t \times \text{Border}$	-0.013	-0.014	0.001	0.027***	0.037***	-0.010*
	(0.012)	(0.013)	(0.009)	(0.007)	(0.011)	(0.006)
$\text{Post}_t \times \text{Ind}_c \times \text{Border}$	-0.164***	-0.132***	-0.032***	0.144***	0.100***	0.044***
	(0.011)	(0.013)	(0.009)	(0.008)	(0.012)	(0.006)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$
Observations	283838	283838	283838	283838	283838	283838
R-squared	.0862	.0892	.111	.0862	.0892	.111

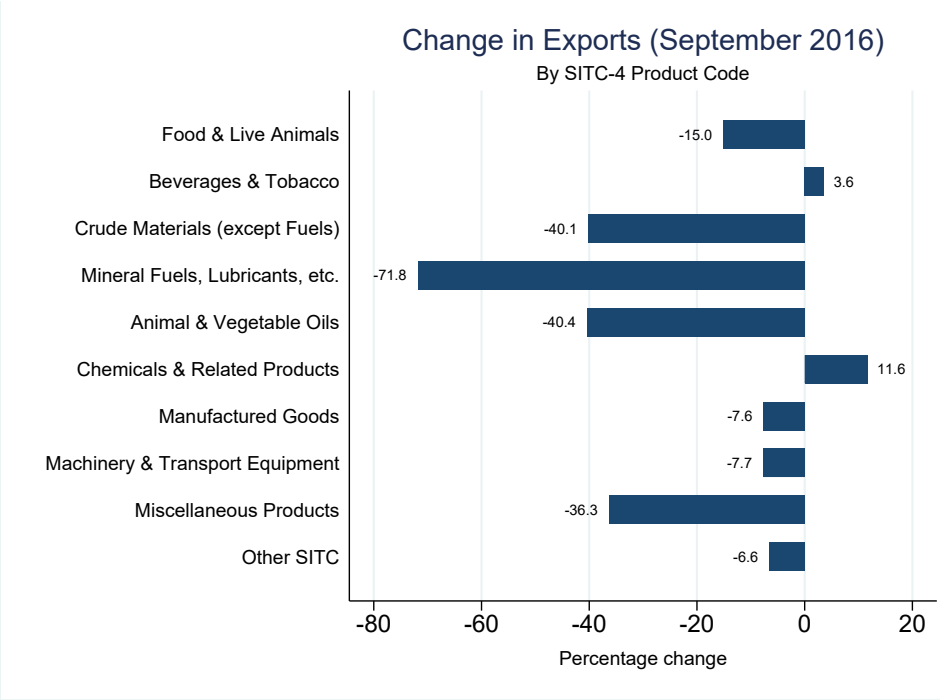
Notes: Observations are collapsed at firm-product-country-port-month level. A product is defined as SITC 8-digit category. δ_{fpcs} absorb trends at the firm-product-country-port level, and δ_t are monthly fixed effects. Columns (1)-(3) report results for log-differenced export volume, quantity and unit values for Lahore ports. Columns (4)-(6) show results for export volume, quantity and unit values for Karachi ports. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Fig. 1 Exports to India



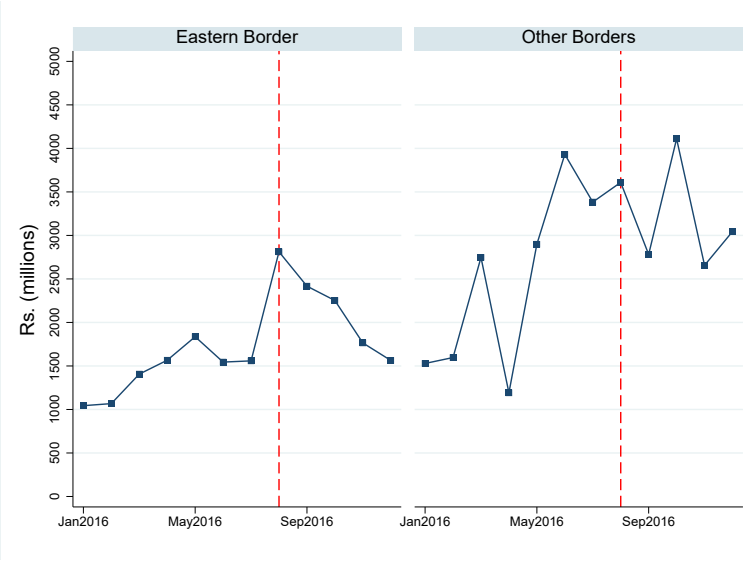
Notes: Based on authors' calculations using FBRP data. The vertical axis measures the percentage of Pakistan's total exports that are shipped to India. The red vertical line shows the time of Uri attack.

Fig. 2 Change in exports to India, by industry



Notes: Based on authors' calculations using FBRP data. Each bar shows the percentage change in Pakistani exports to India for the stated SITC-4 product category over August, 2016, to September, 2016.

Fig. 3 Exports to India, by shipping location



Notes: The vertical red line shows the timing of the Uri attack. The data plotted are monthly exports in millions of Pakistani rupees.