LCERPA

Laurier Centre for Economic Research & Policy Analysis

LCERPA Working paper No. 2025-2

Keeping the Enemies Closer: Exporting Behavior of Firms under Conflict

Zara Liaqat
Wilfrid Laurier University

Karrar Hussain
American University Bulgaria

Keeping the Enemies Closer: Exporting Behavior of Firms under Conflict*

Zara Liaqat† Karrar Hussain‡

Wilfrid Laurier University American University Bulgaria

Abstract

This paper uses the terrorist attack in India in 2016 as a quasi-natural experiment to investigate the effect of an uncertainty shock on exporting behavior 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.

JEL classification: F1; F14; F52

Keywords: Conflict, international trade, uncertainty, transactional relationships, India-Pakistan

*All questions should be directed to the corresponding author: karrar.hussain@fau.de. The authors wish to thank participants of the 57th Annual Conference of the Canadian Economics Association, Winnipeg, Manitoba, Applied Development Economics Conference 2024, Lahore, and seminars organized by the Consortium for Development Policy Research (CDPR), Pakistan, Economics Department, Wilfrid Laurier University, and FAU Erlangen-Nürnberg, Germany, for their extremely useful suggestions. We are especially thankful to Andreas Landmann, Christine Binzel, Subhayu Bandyopadhyay, Todd Sandler, Javed Younas, and Farooq Naseer for many insightful conversations about this project. Excellent research assistance was provided by Anqi Yang. This work was supported by the Laurier Centre for Economic Research & Policy Analysis (LCERPA) grant for student training and research assistance. The views expressed in the paper are those of the authors alone. Declarations of interest: none.

†Lazaridis Hall 2019, Department of Economics, Wilfrid Laurier University, 75 University Avenue West, Waterloo Ontario, Canada, N2L3C5. Email: zliaqat@wlu.ca

‡American University Bulgaria, 1 Georgi Izmirliev Sq., 2700 Blagoevgrad, Email: Khussain@aubg.edu

1 Introduction

The economic cost of hostility and 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 and Rabaud (2022)).[1] A terrorist attack also damages social goodwill and erodes intergroup trust that takes very long to build (Korovkin and 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 slows down.

This paper examines the effects of a terrorist incident on trade patterns of firms exporting to a terror-inflicted country, and emphasizes 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 and Schumacher (2004)), conflict-ridden countries often do not possess detailed microlevel data to detect the 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 analyze 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 on firms. 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 sudden and unanticipated, and took place against the back-

[1] Bardwell and 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 and Sandler (2011)).

drop of stable macroeconomic conditions. A large-scale attack on security forces, allegedly executed by a militant organization based in Pakistan, 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 SAARC (South Asian Association for Regional Cooperation) 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 and Makarin (2023); Fernandes and Winters (2021); Auer et al. (2021)). Our methodology builds on a widely used technique in the international trade and development economics literature, 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, narrowly defined product category exported, destination country, shipping port location, and exports volume and unit value. This enables us to perform a rigorous econometric analysis, controlling for unobserved firm, product, and location characteristics. In order to rationalize 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 empirical findings.

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

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 overall volume of Pakistan's exports to India after the attack.[4] Interestingly, as we explore additional layers of granularity in exports data, our estimates become economically and statistically significant. At the firm-level, we document that there was a 6.6 percentage point decrease in the average growth of exports to India after the shock, relative to exports to other destinations. We hypothesize 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. This explanation is consistent with Korovkin and Makarin (2023), i.e., 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. 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, and thereby, slowing down the flow of goods across border.

We observe stronger effects of the terrorist attack on the intensive margins as opposed to the extensive margins of exports. There is no statistically significant differential effect on the number of exporting firms selling in the Indian market after the attack relative to other countries. On the other hand, we do observe a significant decline in export product scope, measured by the number of product categories exported by a given firm to the Indian market relative to other countries. Furthermore, we test whether the effects of the terrorist incident on firm-level exports also hold on the import side. Our estimates reveal that there is no notable impact on firms' imports sourced from India, relative to other countries. The subsequent analysis sheds further light on the underlying mechanisms, and documents that the overall effect of the shock, for both exports and imports, would eventually depend on the characteristics of firms affected by the shock.[5]

[4] See Figures A1 and A2 in the Appendix.

[5] Later in the paper, we show that a possible explanation for the lack of disruption in firm-level imports may be supply chain resilience of larger, more productive importing firms. It is likely that in times of conflict, some companies have contingency plans in place to mitigate risks, such as, finding alternate routes and choosing more feasible shipping locations distant from the location of the attack.

The final section of the paper makes full use of the richness of our data, and demonstrates that there is a significant amount of heterogeneity in the average effects outlined above. This investigation draws on customs data to identify possible channels for the response (or the lack thereof) observed in the baseline estimations. 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 identified above did not hold for larger firms that heavily relied on imported inputs, specifically those manufactured in India. This result contrasts the key findings reported earlier, and may be suggestive of a less robust decline in overall exports detected at the aggregate level. It also offers useful insights relevant to recent advances in the literature regarding the role of globally well-connected firms (Bernard et al. (2018a)). It appears that at least part of the demand for Pakistani products was diverted towards bigger and more well-established Pakistani exporters. In the light of the discussion above regarding higher risk and uncertainty in the wake of the attack, a shift in demand towards more prominent firms may simply be indicative of a relatively lower risk associated with trading with them. Furthermore, if large exporters tend to be simultaneously large importers (Bernard et al. (2018b); Bernard et al. (2018a)) and more likely to be embedded in global production networks, the lack of response observed on the import side does not seem to be completely surprising.

We also disaggregate data along various dimensions of product types, and show that there are diverse responses across products depending on the import demand elasticity for Pakistani goods in the Indian market, frequency of price adjustments, and the degree of product differentiation. The heterogeneous responses can be rationalized through the monopolistic competition model of Melitz and Ottaviano (2008), whereby firms facing different demand elasticities react differently to shocks affecting the marginal cost of production.[6] Our findings indicate that Pakistani exporters selling more differentiated goods or products customized to their buyers' needs, witness a smaller drop in export quantity demand relative to more standardized products.

In the final step, we show the variation across shipping locations used to transport goods to India, and compare firm-level export shipment values across two major ports in Pakistan (Lahore and Karachi). 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

[6]Nitsch and Rabaud (2022) also highlight a significant degree of heterogeneity across countries, products, and firms, in their analysis of the impact of a series of three terrorist incidents in France on cross-border trade over January 2015 to July 2016.

was much more drastically affected.[7] Consequently, a large number of export shipments were redirected to Karachi, in southern Pakistan. Our empirical estimation confirms this phenomenon and provides additional support to the uncertainty channel described above. Despite an increase in the cost of transportation due to rerouting shipments to a relatively distant port, many firms chose this option instead of having to incur additional costs associated with longer wait times at the port closer to the location of the attack. To our knowledge, this is the first study to shed light on this particular source of economic distortions created by terrorist activities.

Our study makes several contributions to the literature. First, we utilize highly detailed trade data to examine the effects of a terrorist event on the exporting behavior of firms. A majority of earlier studies rely on yearly panel data sets of aggregate bilateral trade flows to show that terrorism has a statistically significant negative effect on trade (Nitsch and Schumacher (2004); Blomberg and Hess (2006)). Some studies focus on broader macroeconomic consequences of terrorism on gross domestic product (Gaibulloev and Sandler (2008)), foreign direct investment (Bandyopadhyay and Sandler (2014); Abadie and Gardeazabal (2008)), and international trade (De Sousa et al. (2018); Blomberg and Hess (2006); Nitsch and Schumacher (2004)). Mirza and Verdier (2014) show that a percentage increase in the number of terrorist events decreased US imports from the terrorist perpetrator's country by 0.01 percent. Egger and Gassebner (2015) use more disaggregated data at monthly frequency, and report that terrorist incidents have no measurable immediate impact on trade. In another related study, Bandyopadhyay et al. (2018) suggest a potential source of measurement issues arising due to data aggregation. Our baseline results corroborate earlier findings using more detailed data, and offer numerous additional noteworthy and, in some instances, contrasting results.

Second, we make a methodological contribution to the current literature.[8] Due to the unexpected nature of the attack assumed to be systematically unrelated to the outcome variable, and that the 'treatment' is adopted at a given time only for a single country, our approach can be used to provide a causal interpretation (Goodman-Bacon (2021)). Our work is related to the strand of empirical studies that quantify the short-term impact of terrorist activities at a disaggregated level using monthly and quarterly data, as opposed to a more longer-term

[7] There is anecdotal evidence of significant delays at Lahore ports due to stricter security measures introduced at the border after the incident.

[8] Abadie and Gardeazabal (2003) conduct a synthetic control study based on per capita GDP data over 1955-2000 to analyze the terrorist conflict in the Basque region of Spain. They apply an event study approach to evaluate the daily returns of stocks at the time of the conflict.

assessment of their economic consequences.

Third, we introduce previously unexplored dimensions relevant to the current literature on the economic impact of terrorism, presenting the following 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; the significant decline in firm-level exports to India after the attack is primarily driven by smaller firms. On the contrary, larger firms, especially those also importing from India, emerge as *winners* as a result of the incident. Finally, we propose that there is no significant response on the imports side, even at the highest level of disaggregation. Due to data limitations, we are unable to directly relate exporting strategies to various firm-level characteristics. Nonetheless, we utilize the comprehensive information available in the customs data, and rely on various proxies of, say, firm size and productivity, to offer suggestive evidence for broader exporting choices of firms in a small open economy.

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.[9] India and Pakistan are the two 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 analyzing transnational terrorism either theoretically or empirically, investigate the impact on bilateral trade between a developed and a developing nation.[10] Our analysis, on the other hand, underlines bilateral trade relationship between two developing countries in the wake of a terrorist event allegedly carried out by one of the two countries.

[9] A transnational terrorist incident, based on the definitions in Enders et al. (2011) which were used to categorize 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.

[10] For example, Bandyopadhyay et al. (2020) investigate the asymmetric terms-of-trade externalities arising due to terrorist activities in the context of a developed nation that exports a manufactured good to and imports a primary product from a developing nation.

The rest of the paper is organized 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 Historical and institutional 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 Favored Nation status to India in 2011. In 2005, the Maritime Protocol (1975) was amended. The protocol allowed only Indian and Pakistani vessels to transport cargo between the two countries, and did not permit either country's vessels to carry cargo destined to a third country from the ports of either country. During the same year, 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.[11] Between 2004 and 2008, trade between the two countries more than tripled from $616 million to $2.2 billion (Taneja et al. (2013)).

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

In 2008–09, in the wake of the Mumbai terror attacks, nevertheless, bilateral trade fell to $1.8 billion, before trending upward again. Numerous other developments also took place around the same time. For instance, a new checkpoint was launched at the Attari-Wagah land border crossing to improve capacity.

Although bilateral trade picked up dramatically in the second quarter of 2022 due to a growing willingness to ease tensions between the two countries, there have been no major developments in promoting trade relations since August 2019, after India suspended Article 370 of the Constitution that gave special status to the disputed state of Jammu and Kashmir. 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 territorial tensions have triggered three wars between the two countries. The subsequent political and economic backlash in the wake of a terrorist incident often results in jeopardizing the progress already made in improving bilateral trade relations between the two countries. For example, the Composite Dialogue launched in 2004 was suspended after the 2008 Mumbai attacks, and the process was restarted only in 2011. Similarly, as described later, India revoked Pakistan's MFN status following the Pulwama attack in 2019, and contemplated imposing additional duties on imports from Pakistan.

In 2015, the year before the Uri attack, India was the eighth largest import partner for Pakistan, and the fourteenth largest export partner. Pakistan typically exports 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. Figure A3 in the Appendix presents the sectoral shares for Pakistan's exports to India using customs data for August 2016, the month before the terrorist incident. Food and live animals, crude materials, and chemical products capture a majority of Pakistani exports to India.

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 (see Figure A4). 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 (BBC (2016)). 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.[12] India blamed the attack on Pakistan, but Pakistan rejected India's allegations of involvement in the attack.

The disputed region of Muslim-majority Kashmir has been a flashpoint between the two countries since independence. Two years earlier, in December 2014, a militant attack on an army camp in Uri killed nine members of the security forces. It is perceived that attacks on security forces and military bases enable terrorists to maximize the direct and indirect costs of the attack, thereby, maximizing the financial and psychological damage caused by a single event. In particular, militant groups in the region have repeatedly resorted to attacks that target security forces as a means of pressuring governments to concede to the militants' political demands.[13]

At the time of the 2016 Uri 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. A large-scale organized 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. There was an obvious expression of hostility rooted in public sentiment, with each side viewing the other unfavorably. In the days after the attack, the Indian army conducted retaliatory surgical strikes in Pakistan-administered Kashmir, against terrorists who were allegedly preparing to carry out more attacks. Soon after, India revoked its participation in the 19th SAARC (South Asian Association for Regional Cooperation) summit, that was scheduled to be held in Islamabad, Pakistan, in November 2016. Several

[12]Religious fundamentalist terrorism aiming to achieve political objectives, and often seeking to destabilize a community, has become a dominating root of transnational terrorism since 1992 (Enders et al. (2016)).

[13]In June 2015 in Manipur, an attack on a troop convoy resulted in the death of at least 20 Indian soldiers.

other countries, including Afghanistan, Bangladesh, and Bhutan, followed suit and withdrew from the summit, leading to its postponement. The Indian government also announced a suspension of cooperation over the Indus Waters Treaty signed between the two states in 1960, and asserted to take drastic diplomatic and economic actions against Pakistan, such as, reviewing Pakistan's MFN trade status. It was in 2019, however, when Pakistan's Most Favoured Nations trade benefits were revoked by India following another suicide attack in February 2019 (BBC (2019)).

The land route for Pakistan-India trade is through the Attari-Wahga border crossing. In the aftermath of the attack, extensive security checks caused significant congestion in the midst of an already poor infrastructure at the crossing. It is anticipated that the increase in transaction costs along the direct route often leads to transporting goods through indirect routes, such as, through the seaport at Karachi. As described by Bandyopadhyay et al. (2018), such an event occurring in the territory of a trading partner necessitates additional safeguards of all imports sourced from this trade partner. The added security measures increase the costs of all imports. In the case of two developing nations, i.e., India and Pakistan, this is an especially costly diversion not only due to enhanced security at the border and the projection of military power, but also because of the massive opportunity cost of military expenditure.

3 Data and identification

3.1 The FBRP customs data

The objective of this study is to investigate the consequences of the 2016 Uri attack in Indian-administered Kashmir on Pakistan's exports to India, compared to exports to other countries. We use administrative data collected by the Federal Board of Revenue Pakistan (FBRP) from January 1st, 2015, to December 31st, 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 anonymized identification code for the exporter. This information allows us to track exports by a Pakistani exporter over time. The import data also includes comparably detailed information for each import transaction, such as, the

product imported, value of imports, and country of origin.

The data encompasses 19,593 Pakistani exporters, exporting through 55 shipping ports to a total of 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). Our dataset is unique because it directly reports the unit value for each transaction, mitigating potential composition bias associated with the computation of unit values based on the value and quantity of exports. The unit price is independently verified and electronically recorded by the customs officer. Due to the nature of the data collection process, it is subject to much less measurement error compared to what is typically the case for a developing country.

In the baseline analysis, we aggregate the data at the firm-product-country-port level. That gives us a total of 310, 994 observations. Table A1 in the Appendix presents summary statistics based on the FBRP export data for the variables used in our estimations. It also lists the descriptive statistics by various product and firm characteristics used in Section 5. The dependent variables in our analyses are the log changes in exports value, export quantity, and export unit value of a firm-country-product-port quadruple, relative to the previous month, encompassing 12 months of differenced data before and after the terrorist incident in September 2016. That yields a total of 283, 838 observations in the baseline estimation. The table reports that approximately 8.9 percent of Pakistani exporting firms export to India, and the proportion of Pakistani firms importing from India before the attack took place is about 8.3 percent. There are 1757 Pakistani firms exporting roughly 632 SITC8 products to India over the time period considered. As explained later, a unique feature of the FBRP dataset is that more than half of the exporting firms 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.

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. We generate weighted averages of log unit values within firm-product-country-port quadruples using export quantity shares as weights, and then compute monthly changes. 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). Table A1 reports the average monthly percentage changes in both measures of unit export values. While the median and average

growth rates differ for uv_u and uv_w, the magnitude of the change is noticeably small in both cases. Thus, we use monthly observations on export quantity, value, and price charged by a given Pakistani exporter selling the same product through a given shipping port to their Indian buyers and to those in other countries.

In Section 4.5, our baseline estimation also examines the differential extensive margin effects, if any, on Pakistani exports to India in the aftermath of the 2016 terrorist attack. We study the effect of the shock on export participation in India by Pakistani firms, assessed by the number of exporters and products exported to the Indian market. Table A1 depicts the descriptive statistics obtained for average monthly percentage change in the number of exporting firms and products by disaggregating the data, firstly, at the product-country-port level, and subsequently, at the firm-country-port level. In the next step, we compute the number of exporters for a given product-country-port triple exporting in each month, as well as the number of products exported within each firm-country-port group each month. As the table reports, the magnitude of average monthly changes on the extensive margin is negligible for both log differenced number of products and exporting firms. The mean growth in the number of exporting firms for a given product-country-port group is only 0.13 percent over the time period considered, and significantly lower for products exported, indicating no substantial changes in product scope, on average. Nonetheless, these estimates are purely descriptive, and subsequent sections shed further light on export changes on the extensive margins in the aftermath of the attack.

3.2 Identification

Our primary goal is to estimate the effect of the terrorist attack on the intensive and extensive margins of exports by Pakistani firms to their Indian buyers. The attack is widely perceived to be unanticipated, and therefore, considered as being exogenous to Pakistani exporting firms. In other words, it is assumed that conditional on the set of controls, the primary explanatory variable of interest is uncorrelated with the residual term. At the same time, the scale of the attack, as previously described, and the significance of India-Pakistan bilateral trading relationship makes it a unique and interesting setting to investigate the economic consequences of an unexpected terrorist incident. Thus, we treat the terrorist incident in Uri as a quasi-natural experiment, and use a difference-in-differences methodology in order to estimate the differential impact of the attack on Pakistani exports to India, relative to exports to the rest of the world.

Our identifying assumption is motivated by earlier studies centering on causal inference in the related literature. In order to rationalize 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 our study. In other words, the attack was unanticipated and was not accompanied by shifts in economic conditions that could potentially affect Pakistan's exports to India. This approach resembles earlier work assessing, for example, the differential impact of sudden currency movements on trade volumes and prices in the aftermath of the Brexit referendum (Fernandes and Winters (2021)), or the unexpected removal of EUR/CHF floor by the Swiss National Bank in January 2015 (Auer et al. (2021)).

Figure A5 in the Appendix shows key indicators for the Indian economy: real GDP, CPI inflation, India news-based policy uncertainty index, and the exchange rate between the Indian and Pakistani rupee, over 2015 to 2018. It exhibits that the Indian GDP and inflation rate continued to grow in line with previous trends after September 2016 when the attack took place. The second graph in the lower panel also illustrates that there was no drastic change in the rate of exchange between Indian and Pakistani rupee in the aftermath of the attack. Nonetheless, the Pakistani rupee depreciated slightly relative to the Indian rupee after September 2016, but the magnitude and persistence of the decline in the value of rupee was negligible. Moreover, roughly ninety percent of export transactions between India and Pakistan are denominated in terms of the US dollar. As a result, the short-term and modest exchange rate change observed in the value of Pakistani rupee relative to Indian rupee is unlikely to have substantial direct consequences on trade volumes. In the context of our paper, this is a crucial point, since major changes in exchange rate in the wake of the shock raises additional concerns about changes in the volume and value of tradeable goods and services, and therefore, the extent of pass-through to destination prices in India. Since no sizeable changes are observed in both, the exchange rate as well as the GDP deflator for India in the wake of the terrorist attack, our specification allows us to cleanly identify the effect of the proposed shock on Pakistan's export price and export volume to India. Figure A5 also plots the Policy Uncertainty Index for India over this period, which captures the number of news articles comprising of terms such as 'uncertainty', as well as policy-related words, such as 'policy' or 'regulation'. The figure reveals that the index did rise in September 2016, but later declined at the end of the year. Therefore, the terrorist incident did not bring about a major economic downturn in India, and any possible effects on Indian GDP and inflation rate over the months following the attack were relatively small.

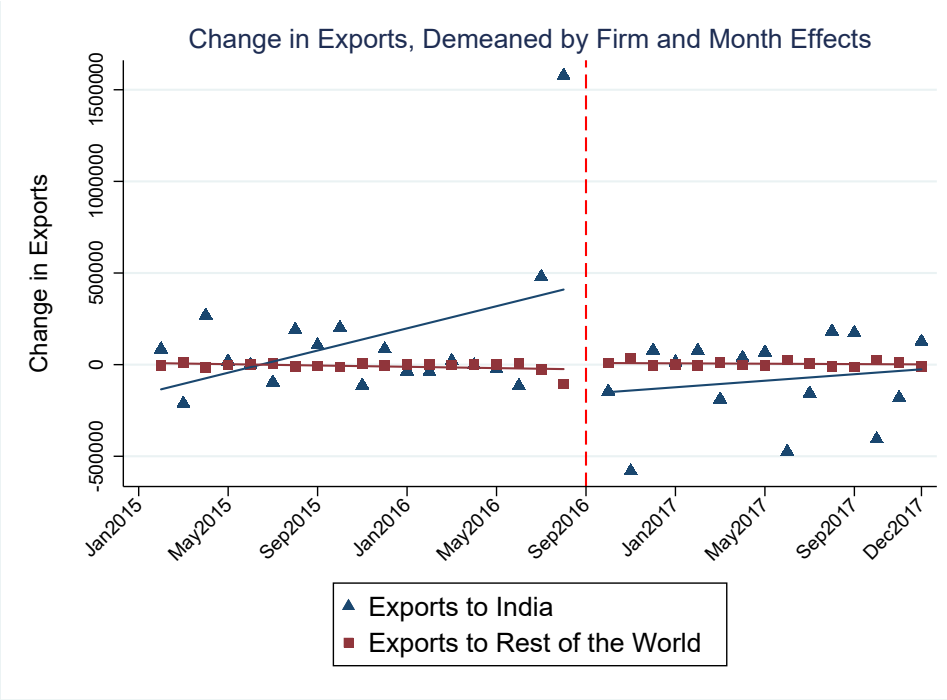
Our empirical methodology takes into account seasonal effects and the cyclicality of exports, and with the use of a high-dimensional fixed effects model, we are able to control for unobserved firm-product-country characteristics. We use trend-adjusted difference-in-differences estimates to allow for variation in the rates of growth across export destinations. The specification includes our independent variable of interest as the interaction term between two indicator variables, namely, Post_t and Ind_c. Post_t assumes the value of one for all months after the terrorist incident, and zero before the attack, while Ind_c is equal to one for exports made to India, and zero otherwise. Thus, the coefficient of interaction term captures the differential effect of the terrorism shock on exports to India, relative to other countries.

We use log-differenced dependent variables in all specifications. This has been made possible due to the availability of export data for at least 12 months before and after the terrorist incident. It is expected that within the same firm-product pair, the relative marginal cost of production is constant across markets (Fernandes and Winters (2021)), in which case, it is possible that the impact of the terrorist incident on exports to the Indian market can be reliably identified using this specification.

Figure 1 previews our main results by tracking the change in firm-level exports to India relative to the rest of the world, before and after the terrorist attack. The data plotted are the monthly median residuals from a firm-level regression of the change in total exports on firm fixed effects. The residuals are then broken down by export destination country, i.e., India versus other countries, and are cleaned of seasonality with month fixed effects. The graph also illustrates linear fit to the scatterplots before and after the attack. After the attack, there is a substantial reduction in exports to India relative to exports to other countries. As explained later, we also carry out placebo tests for treatment in countries other than India, providing additional support for our identification assumptions.

As discussed above, terrorist incidents can affect trade volumes in numerous ways, in the form of explicitly increasing trade costs due to enhanced border security and customs clearing processes, and also indirectly due to political and economic uncertainty following the incidence of an attack. The difference-in-differences estimation technique adopted combines all of these possible effects, and the significance of estimates generated may be attributed to one or more of these factors. Due to the level of detail available in the data and disaggregation at firm-product-country-port level, the estimation approach used helps disentangle the effect of the shock, eliminating the need to obtain acceptable proxies for various demand

Figure 1: Median change in firm-level exports



Notes: The vertical red line shows the timing of the Uri attack. The data plotted are the monthly median residuals from a firm-level regression of the change in total exports on firm fixed effects. Data are then broken down by export destination country, i.e., India versus Rest of the World, and are cleaned of seasonality with month fixed effects. The graph also illustrates linear fit to the scatterplots before and after the attack.

side and cost channels.

To summarize, the terrorist attack happened in an otherwise stable macroeconomic environment with no evidence of prior trends, and the economic conditions in India did not change significantly during our sample period. The increased uncertainty after the attack indicated in Figure A5 captures the effect of the shock and allows us to identify the impact of the terrorist incident on Pakistani exports to India. Moreover, the inclusion of an exhaustive sets of interaction fixed effects in the empirical specification used further helps account for firm, product, port, or country characteristics. A simple split of trade patterns along export destinations reveals that the conflict had a differential impact on firms along regional lines. In the next section, we discuss our difference-in-differences estimates to analyze this divergent response in greater detail.

4 Estimation results

In this section, we present the difference-in-differences estimation approach adopted in this study, and discuss the baseline estimation results. We begin the analysis using aggregate data at the product and country levels, in line with the existing empirical literature, and introduce additional layers of granularity as we proceed. This is done by disaggregating the FBRP data at the firm and shipping port levels, as well as inspecting changes on both the intensive and extensive margins of exports. The section concludes with a closer examination of import dynamics of firms in the wake of the terrorist attack, and sets the stage for an in-depth exploration of heterogeneity in responses in Section 5.

4.1 Product-country level estimation

We start our empirical analysis by estimating the aggregate effects of the attack on Pakistan's exports volume and export price at the product-country level, before examining the impact on firms. 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 the product-country-month level, and sum up exports transactions across firms and shipping locations for a given product-country pair. At this level of aggregation, the following specification is then 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, ΔlnX_{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. Lastly, the unit export price at the product-country-month level is computed as the trade-weighted average of log unit values, using export quantity shares as weights. The log-differenced dependent variables help exclude the effect of time-invariant product-country characteristics.

As explained above, 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 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 Pakistani exporters in the next subsection.

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. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

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 (Fernandes and Winters (2021)). To study firm-level responses, the customs dataset is first collapsed at the firm-country-month level, and then at firm-country-product-month level in the next subsection. This aggregates exports across products and shipping locations for a given firm. The following specification is estimated:

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

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. ϵ_{fct} denotes clustered standard errors.

Table 2 illustrates that the coefficients on the $\text{Post}_t \times \text{Ind}_c$ interaction term are negative and statistically significant. In other words, as a result of the Uri 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 (see column (1)). In addition, there is a 12.8 percentage point decline in the growth rate of export quantity, as reported in column (3). Similarly, the log difference in export price to India is 8.3 percentage points smaller after the shock, on average, relative to the export price to other destinations (column (5)). These results imply that Pakistani firms exporting to India did experience a lower export value and quantity growth in the Indian market, relative to the control group countries, 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 (for example, total exports to India depicted in Figure A1) that are either short-lived or less drastic, there seems to be more pronounced effects of the incident at the firm-level.

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. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

4.3 Firm-country-product level estimation

Next, we conduct the above analysis at the firm-product-country level. For the purpose of this exercise, the data is collapsed to the firm-country-product-month level, and we estimate the following specification:

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

Eq. 3 controls for firm-product-time fixed effects, δ_{fpc}, to account for trends in exports and export prices at the firm-product-country level, given the differenced equation. Time-invariant characteristics are absorbed in the differenced specification. Once again, the standard errors are clustered by country. 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 later in the paper.

Table 3 reports the results from estimating Eq. 3. Consistent with the results reported above, we observe that firm-product level growth in export value, quantity and price to the Indian market were all negatively affected by the Uri terrorist incident. The coefficients of the treatment interaction, which captures the differential effect of the shock on exports to India, are all negative and significant at 1% level. Overall, the estimates are smaller in magnitude compared to the ones reported in Table 2, and imply a 10.3 percentage point lower export value growth and a 7.3 percentage point lower export quantity growth, as indicated

in columns (1) and (3), respectively. Column (5) shows that the log change in export price is about 3 percentage points lower for exports to India, relative to other markets. Columns (2), (4), and (6) report the estimates based on alternative sets of fixed effects, δ_{fp}, δ_{cp}, and δ_t, to account for trends in exports and prices at the firm-product, country-product, and monthly levels, respectively. The estimates obtained are very similar in magnitude and significance to the ones that absorb unobserved trends at the firm-SITC8-country level.

Table 3: Firm-country-product(SITC8) level estimation

	Exports value: $\Delta ln(exp)$		Export quantity: $\Delta ln(q)$		Unit value: $\Delta ln(uv)$	
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Post}_t \times \text{Ind}_c$	-0.103***	-0.096***	-0.073***	-0.069***	-0.030***	-0.027***
	(0.026)	(0.025)	(0.017)	(0.017)	(0.011)	(0.010)
Fixed Effects	(δ_{fpc}, δ_t)	$(\delta_{fp}, \delta_{cp}, \delta_t)$	(δ_{fpc}, δ_t)	$(\delta_{fp}, \delta_{cp}, \delta_t)$	(δ_{fpc}, δ_t)	$(\delta_{fp}, \delta_{cp}, \delta_t)$
Observations	287626	296016	287626	296016	287626	296016
R-squared	.0354	.0259	.0402	.0303	.0349	.026

Notes: Observations are collapsed at firm-product-country-month level. A product is defined as SITC 8-digit category. The dependent variables in columns (1)-(2), (3)-(4), and (5)-(6), are log-differenced exports value, export quantity, and unit export value, respectively. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

To summarize, the evidence presented in Tables 2 and 3 depicts that Pakistani exporters lowered export values and prices in the Indian market after the terrorist attack. The next subsection describes the benchmark results of this study, examining a more disaggregated level of the customs data.

4.4 Intensive margins: Baseline results

In this section, we estimate the effects of the terrorism shock on Pakistani firms' exports and prices at the firm-product-country-port-month level. The following specification is estimated after collapsing the data at this level of aggregation:

$$\Delta \text{lnX}_{fpcst} = \beta(\text{Post}_t \times \text{Ind}_c) + \delta_{fpcs} + \delta_t + \epsilon_{fpcst}. \tag{4}$$

The dependent variable, $\Delta \text{lnX}_{fpcst}$, 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. The log differenced dependent variables help exclude

the effect of time-invariant firm-product-country-port characteristics. δ_{fpcs} represents firm-product-country-port fixed effects. ϵ_{fpcst} is the disturbance term.

Column (1) in Table 4 reports the estimates obtained for the coefficient of the interaction term when the dependent variable is log differenced total export value, while column (2) pertains to export quantity, measured by number of units. Column (3) provides estimates for unit value of exports computed using number of units (uv_u). The table shows that the coefficients on the interaction term, $\text{Post}_t \times \text{Ind}_c$, are all negative and statistically significant. In other words, the growth in exports value, quantity, and unit values to India dropped after the terrorist attack. In particular, relative to exports to other countries, the total export value to India experienced a 6.6 percentage-point lower average growth after the shock, and the growth rate of export quantity declined by nearly 5 percentage points. The log difference in export price charged to Indian buyers is on average 1.4 percentage points smaller after the incident compared to export price charged to other countries. The results shown in columns (2) and (3) continue to hold after replacing the unit of export quantity measurement from number of exported items to the weight of the shipment.[14]

These results imply that after the terrorist incident, Pakistani firms exporting to India adjusted their price downwards and witnessed a smaller export value and quantity growth in the Indian market relative to the control group countries, after controlling for trends in export volumes and prices at firm, product, country, and shipping port levels in the above-mentioned differenced equation, and after absorbing the time-invariant characteristics. The fall in the value of exports to India compared to other destinations is due to both lower quantities and lower unit export prices. As a robustness check, in columns (4)-(6) of Table 4, 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 export value, quantity, and price in the Indian market were all negatively affected by the terrorist incident, consistent with the results described above and identifying the effects from the variation within a firm-product. However, the magnitudes of estimates generated are slightly smaller in this case.

Table 4 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 coun-

[14]These results can be made available upon request.

Table 4: 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. The restricted sample includes only firms exporting to and importing from India. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

tries; and firms that do not export to India over the time period under consideration. In the following exercise, we estimate Eq. 4 on a restricted sample, thereby including only the set of firms that carry out an exchange of goods with their Indian counterparts as well as with one or more of the other foreign destinations. The restricted sample, therefore, is defined as the set of transactions involving only those firms that export both to the Indian buyers as well as to at least one other country over the span of 2015 to 2017. In this case, the effects are identified as differences before and after the attack in monthly log export changes in India, relative to other destinations, only for the firms that export to both India and other countries. The results are presented in columns (7)-(9) of Table 4.

We find a negative coefficient on the interaction term for all dependent variables; the estimate of the treatment interaction term of interest capturing the differential effect of the shock on exports to India for firms selling to India as well as other destinations, is negative and significant at 1% level. Moreover, the estimates obtained are slightly larger in magnitude compared to those obtained for the full sample. The estimates in columns (7) and (8) suggest a 6.7 percentage-point lower export value and a 5.3 percentage-point lower export quantity growth to India after the shock relative to other markets. The export price growth is also lowered by 1.4 percentage points on average (column (9)). This is consistent with the previous finding that Pakistani exporters adjusted export prices to their Indian buyers downwards after the terrorist incident.

Our baseline results can be interpreted in the following way. We hypothesize that due to a combination of both demand and supply channels explained below, there is a decline in the exports of Pakistani goods in the Indian market. As proposed in the existing 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); Nitsch and Schumacher (2004)). 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 and Limao (2015); Carballo (2018)). The insecurity lowers the attractiveness of this market for international firms (Nitsch and Schumacher (2004)). This explanation is also consistent with Korovkin and 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.[15] Theoretically, this finding can be rationalized by a downward shift of the demand for Pakistani goods,

[15]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.

which lowers both export price and quantity for Pakistani exporters. In other words, the added risk associated with importing from their Pakistani counterparts induces Indian buyers to source inputs from other countries, or switch to locally available substitutes of the imported variety. Therefore, export quantity is expected to decrease, which is consistent with our result of a negative impact on the volume of exports to India.

The significant decline in unit values of Pakistani exports to India is an interesting finding, suggesting that in addition to the demand channel explained above, 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, the fall in the value of exports to India relative to other countries is due to both lower quantities as well as lower unit export prices. This finding is consistent with the results obtained by Nitsch and Rabaud (2022), documenting that the fall in trade mainly takes place along the intensive margin. They show that there is an immediate as well as a lasting decrease in cross-border trade after a series of three terrorist incidents in France over the period from January 2015 to July 2016.

Most existing studies investigating the impact of terrorism and conflict on international trade employ datasets at the country or industry levels. However, we document that aggregate data can hide a substantial amount of heterogeneity across firms and products. In addition, finely disaggregated data allows for export prices to be measured more precisely. At the level of disaggregated data used in this section, i.e., firm-product-country-port level, one can assume that the relative marginal cost is constant, and thus, the effect of the shock on export price charged to Indian buyers relative to those in other countries can be cleanly identified. Furthermore, we employ very demanding regression specifications to estimate trend-adjusted difference-in-differences regressions, controlling for the possibility of variations in export and price growth trends at a highly disaggregated level. The regression results presented in the paper continue to hold after using a different level of product and time aggregation; in alternative specifications of Eqs. 2-4, we use 3-digit SITC product categories instead of SITC8 commodity groups, and collapse the data at quarterly instead of monthly level, to substantiate our findings at various levels of disaggregations.[16]

As a further robustness check of our identification, we estimate Eq. 4 including interactions of the post-attack dummy variable with indicators for exports to other foreign destinations

[16]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.

instead of India. In particular, we include interactions for exports to SAARC (South Asian Association for Regional Cooperation) countries excluding India, many of which are key buyers of Pakistani goods.[17] 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 terrorist attack, compared to the control group of other countries excluding India. The results obtained are provided in the Appendix (see Table A2). Interestingly, the estimates generated for the interaction terms are statistically insignificant for this group of countries. This outcome highlighted by the placebo specifications used in our analysis provides further support for our identification strategy, indicating that there is no evidence of trade diversion or spillover effects to control group trading partners.[18]

4.5 Extensive Margins

In this section, we examine the differential extensive margin effects, if any, on Pakistani exports to India in the aftermath of the 2016 terrorist 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 estimating Eq. 4 at the product-country-port-month level, where the dependent variable is log differenced number of exporting firms, the coefficient of the interaction term, $\text{Post}_t \times \text{Ind}_c$, can be interpreted as the average differential effect of the terrorist incident on the growth of number of exporters selling in the Indian market relative to other destinations. A significant and positive coefficient would be indicative of a rise in the number of firms exporting to the Indian market in the wake of the attack, relative to other countries. Similarly, the data can be disaggregated at the firm-country-port-month level to compute the number of products exported within each of these groups. In the latter case, the dependent variable is the log differenced number of products exported by a given firm-country-port triple each month. The coefficient of the interaction term, thus, quantifies the growth of number of products exported to India compared to other destinations for a given firm-country-port triple. Both of these exercises, consequently, shed light on export changes on the extensive margins in the aftermath of the attack.

We run the following regression separately for the two extensive margins described above:

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

[18] Fernandes and Winters (2021) use similar placebo specifications to show that Portuguese exporters reduced export volume and export price in the UK market after the Brexit referendum.

$$\Delta \ln X_{icst} = \beta(\text{Post}_t \times \text{Ind}_c) + \delta_{its} + \delta_c + \epsilon_{icst}, \tag{5}$$

where

$$\Delta \ln X_{icst} = \ln X_{ics,t} - \ln X_{ics,t-1}, \quad i \in \{p, f\}$$

The results are presented in Table 5. Columns (1)-(2) report estimates corresponding to the complete sample, whereas in columns (3) and (4), we once again confine the sample to the set of firms exporting to both, India as well as at least one other country, i.e., the restricted sample. The results for the first measure of extensive margin, namely, the number of exporting firms for a given product-country-port-month group, are reported in columns (1) and (3), while the estimates pertaining to the number of products exported for a specific firm-country-port-month are provided in columns (2) and (4). A product is defined at SITC 8-digit category, as before, and robust standard errors are clustered by the destination country.

Table 5: Extensive margins

	Full sample		Restricted sample	
	$\Delta ln(\#firms)$	$\Delta ln(\#prods.)$	$\Delta ln(\#firms)$	$\Delta ln(\#prods.)$
	(1)	(2)	(3)	(4)
$\text{Post}_t \times Ind_c$	0.007	-0.013**	0.0001	-0.013**
	(0.006)	(0.005)	(0.008)	(0.005)
Fixed Effects	(δ_{pts}, δ_c)	(δ_{fts}, δ_c)	(δ_{pts}, δ_c)	(δ_{fts}, δ_c)
Observations	170,459	119,320	73,707	74,982
R-squared	0.177	0.304	0.213	0.252

Notes: For columns (1) and (3), observations are collapsed by product-country-port-month and the dependent variable is number of firms. For columns (2) and (4), observations are collapsed by firm-country-port-month and the dependent variable is number of products. Columns (1)-(2) report results for the entire sample, and columns (3)-(4) show results for the restricted sample of Indian exporters. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Columns (1) and (3) reveal no significant differential effect on the number of exporting firms selling in the Indian market after the attack relative to other countries. On the other hand, there is a significant decline in export product scope, determined by the number of products exported, for India relative to other countries at 5% level of significance. We find that the interaction term of interest is negative and statistically significant in columns (2) and (4), and that these findings also hold for the restricted sample, limiting the analysis to firms exporting to both India as well as to other foreign destinations.

In short, we observe stronger effects of the terrorist attack on intensive margins as opposed to extensive margins of exports. The shock did not induce export exit by firms from the Indian market, and no noteworthy differential effect is detected after the shock. This is contrary to the findings proposed by Bandyopadhyay et al. (2018) based on a theoretical framework, whereby there are changes on the extensive margins due to the exit of exporting firms from the market of terrorism-inflicted country. They suggest that this is the result of terrorism-related costs raising the threshold productivity level required to enter that export market. Our finding may be partially attributable to the temporary nature of the outcomes of the shock. On the other hand, we do observe a significant decline in the number of products exported to India relative to other countries after the shock within a given firm-country-port-month group. Owing to a combination of lower markups, as explained above, as well as a rise in the marginal cost of selling across the border in the wake of greater supervision at the border, it may no longer be profitable to sell some products to the terrorist-inflicted destination. The decline in potential export profits earned on certain product lines may result in temporarily suspending foreign sales of these goods.

4.6 Effects on imports

Do the effects outlined above also hold for Pakistani firms importing from India? Interestingly, we find no significant and consistent impact on firms' imports sourced from India, relative to other countries, in the aftermath of the attack. The FBRP data provides information on transactional imports, including the country of origin, SITC 8-digit imported product, port of entry, and the total value of imports. It also includes information on the number of imported units or the weight of the shipment, in line with the information available for exports, which is used to compute average unit import values based on either the number of units imported or the weight of the shipment received. We draw on this information to estimate the following specification at the firm-product-country-port level, similar to Eq. 4:

$$\Delta \ln \mathrm{M}_{fpcst} = \beta(\mathrm{Post}_t \times \mathrm{Ind}_c) + \delta_{fpcs} + \delta_t + \epsilon_{fpcst}. \tag{6}$$

where

$$\Delta \ln M_{fpcst} = \ln M_{fpcs,t} - \ln M_{fpcs,t-1}$$

The dependent variable, $\Delta \ln \mathrm{M}_{fpcst}$, is the log differenced import value, quantity, or unit

value, between month t and $t-1$, for firm f's imports of product p, from country c through shipping port s. β captures the differential effect of the shock on imports from India, relative to other countries. Once again, δ_{fpcs} represents firm-product-country-port fixed effects, and ϵ_{fpcst} is the disturbance term clustered at the country-level. Table 6 shows the results. Column (1) reports the estimates obtained for the coefficient of the interaction term when the dependent variable is log differenced total imports value, while columns (2) and (3) pertain to import quantity, measured by number of units and weight, respectively. Finally, columns (4) and (5) depict estimates for unit value of imports computed using import shipment weight (uv_w) and number of units (uv_u). The coefficients on the interaction term, $\text{Post}_t \times \text{Ind}_c$, indicate no consistent direction or significance of the effect. That is, there is no noticeable impact of the terrorist shock on imports value, quantity, and unit value changes after the terrorist attack. These findings continue to hold for an alternative specification that controls for δ_{fp}, δ_{cs}, and δ_t fixed effects (see columns (6)-(10)).

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 (Section 5), we explore variation in the impact of the shock across smaller versus larger, globally well-connected exporters, that also have relatively higher degrees of importing intensity. It is likely that during times of conflict, some companies have contingency plans in place to mitigate risks, such as, finding alternate routes. Thus, the overall effect of terrorism and the uncertainty shock associated with it on firm-level outcomes would eventually depend on the characteristics of firms affected by the shock (such as, their scale and productivity). We return to this discussion in Section 5.

Moreover, the effects of the terrorist incident may be more concentrated in specific industries or sectors rather than on overall imports, and would also depend on the nature of goods imported and corresponding elasticity of demand.[19] In the current study, we emphasize on exporting patterns, and therefore, set aside a thorough investigation of import changes for future research. Nonetheless, our results are novel in highlighting heterogeneity in importing response across conflict-inflicted countries affected by the same shock but systematically different in terms of their market size and stage of development.

[19]For instance, some imports may be essential commodities, such as food, energy, or critical components for manufacturing.

Table 6: Estimation results for imports, Firm-product(SITC8)-country-port level estimates

	Benchmark results					Alternative specification				
	$\Delta ln(imp)$	$\Delta ln(q)$	$\Delta ln(w)$	$\Delta ln(uv_w)$	$\Delta ln(uv_u)$	$\Delta ln(imp)$	$\Delta ln(q)$	$\Delta ln(w)$	$\Delta ln(uv_w)$	$\Delta ln(uv_u)$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\text{Post}_t \times Ind_c$	0.006	-0.002	-0.002	0.001	0.008**	0.003	-0.001	-0.003	-0.000	0.004
	(0.007)	(0.006)	(0.006)	(0.002)	(0.004)	(0.007)	(0.006)	(0.007)	(0.004)	(0.003)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fp}, \delta_{cs}, \delta_t)$	$(\delta_{fp}, \delta_{cs}, \delta_t)$	$(\delta_{fp}, \delta_{cs}, \delta_t)$	$(\delta_{fp}, \delta_{cs}, \delta_t)$	$(\delta_{fp}, \delta_{cs}, \delta_t)$
Observations	455604	455604	425863	425863	455604	487965	487965	457215	457215	487965
R-squared	.11	.111	.104	.127	.119	.0864	.0888	.0779	.101	.0892

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. Dependent variables are log-differenced values of imports, import quantity, and unit values. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

5 Heterogeneous effects

We have demonstrated that exporting firms in Pakistan reduced average exports volume and unit price growth to their Indian buyers 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. Our findings indicate significant heterogeneity in responses to the terrorist event across firms, sectors, as well as shipping routes.

5.1 Heterogeneity across 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 and Ottaviano (2008)). Larger, more productive, and well-connected 'global' firms are able to adjust their markups more than smaller firms, or firms selling only locally. We capitalize on the level of detail available in the FBRP customs database, and estimate specifications for the change in log export price, value or quantity, and interaction terms involving several measures of firm's performance and market power:

$$\Delta \ln X_{fpcst} = \beta_0(\text{Post}_t \times \text{Ind}_c) + \beta_1(\text{Post}_t \times \varphi_f) + \beta_2(\text{Post}_t \times \text{Ind}_c \times \varphi_f) + \delta_{fpcs} + \delta_t + \epsilon_{fpcst} \quad (7)$$

The firm's performance measure, φ_f, is proxied by four separate indicators: (1) an indicator variable equal to one for a small 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 summarizes 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 7 and 8.

Columns (1)-(3) in Table 7 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, i.e., the firm sells solely in the international market, 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); Liaqat and Hussain (2020)). Based on Pakistan's customs data, Liaqat and 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.[20] We find that the estimates of β_2 are negative and highly significant for all three dependent variables. This suggests that the reduction in the growth of export value, quantity, and price 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. As a result, export volumes and unit values are more sensitive for smaller exporting firms.

The following three columns in Table 7 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 firms that also import some of their raw materials from India experienced a statistically significant *increase* in exports and unit export price in the Indian market after the terrorist 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.[21] 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 and Pisu (2009); Castellani et al. (2010)). 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. (2018a)). Our estimates indicate that, contrary to the average effect on firm-level exports, larger Pakistani exporters, and especially those sourcing some of their inputs from India, witnessed an increase in demand, thereby

[20] A number of studies examine the rationale for the existence of pure exporters. As pointed out by de Astarloa et al. (2015), pure exporters have emerged in industries for which there is little or no domestic demand. Pure exporters are often low-productivity firms belonging to sectors in which a country's comparative advantage lies (Mariscal and Lu (2017)).

[21] Bernard et al. (2018b) find that large importers and large exporters tend to be the same firms, and are most likely to be embedded in global production networks.

Table 7: 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. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

resulting in larger exports and export price growth in the Indian market after the terrorist incident.

The above findings are further corroborated by estimates reported in Table 8, 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, i.e., before the attack took place. The results show that the response to the terrorist shock varies significantly across firms. More import-intensive exporters face a significantly smaller decline in exports to the Indian market. Furthermore, consistent with the estimates displayed in Table 7, particularly relevant is the role of imported inputs sourced from India. The estimates provided in columns (4)-(6) of Table 8 suggest that Pakistani exporters purchasing larger volumes of imported inputs from India

witnessed a statistically significant rise in their value, quantity, and price of exports in the Indian market after the terrorist attack. The effects are of much larger magnitudes compared to the estimates presented earlier.

Table 8: Heterogeneity across firms - Role of imports

	Imports			Intensity of Indian imports		
	$\Delta ln(exp)$ (1)	$\Delta ln(q)$ (2)	$\Delta ln(uv)$ (3)	$\Delta ln(exp)$ (4)	$\Delta ln(q)$ (5)	$\Delta ln(uv)$ (6)
$\text{Post}_t \times \text{Ind}_c$	-0.986***	-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 export volume, quantity and unit values using interaction with total imports by 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. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

What could explain a rise in demand of exports for firms sourcing inputs from India in the wake of the attack? As explained above, this result can be interpreted in the light of recent advances in the trade literature. With the emergence of detailed international trade data, the focus of recent trade research has shifted on to the role of heterogeneous firms, in conjunction with the fact that exporters and importers are embedded in a network of exchange across borders (Berman et al. (2012); Kugler and Verhoogen (2012); Manova and Zhang (2012)). It could suggest a potential role for 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 in the Indian market after the terrorist incident, at least part of the demand for Pakistani products was diverted towards bigger, and perhaps also more prominent and well-established, Pakistani exporters. The overall rise in demand for these

exporters could be substantial, even offsetting marginal cost changes due to the terrorist event, and therefore, resulting in greater demand and higher export prices.[22]

Another related argument proposed in the literature alludes to the effect of risk on trade. For instance, Heise et al. (2015) study the effect of changes in trade policy uncertainty on firms' sourcing strategy.[23] Chung (2017) uses U.S. census microdata to show that firm-level input demand is more dispersed when the dominant supplier is associated with higher measures of risk. As indicated earlier in the institutional context of India-Pakistan trade relationship and an often uncertain economic and political backdrop, Indian buyers of Pakistani exports often rely on diversification to lower the risk of trading with their Pakistani suppliers, and may therefore 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 exports by these bigger, more established interconnected firms.

To summarize, there is a heterogeneous response to the terrorist shock across Pakistani exporting firms. Smaller exporters experienced a greater reduction in exports volumes and prices in the Indian market, while more import-intensive exporters, specifically those importing from India, witnessed a rise in demand for their exported goods, and therefore, a rise in exports volume and prices.

5.2 Heterogeneity across products

We now examine if there is any variation in the effects of the shock across products.[24] We consider three possible classifications of products based on the import demand elasticity for Pakistani goods in the Indian market, the coefficient of variation in unit export prices, and lastly, 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. Therefore, one would expect that export

[22]Numerous other studies analyze firm's sourcing decisions (Antras et al. (2017); Mariscal and Lu (2017)), and the link between import activities and productivity (Ramanarayanan (2020); Gopinath and Neiman (2014); Blaum et al. (2019); Goldberg et al. (2010)). Due to data limitations, we are unable to directly relate import strategies to various firm-level characteristics.

[23]Gervais (2018) uses bilateral trade data to report the results from regressing measures of average prices and price variability on import shares and the number of suppliers.

[24]Figure A6 in the Appendix shows the monthly percentage change in Pakistani exports to India by SITC4 sectors immediately after the attack. Interestingly, some industries witnessed a much bigger drop in exports compared to, say, beverages and chemical products.

price of goods with a higher import demand elasticity should fall by less in the Indian market after the shock. Similarly, the reduction in demand for non-differentiated goods by Indian buyers after the attack is expected to be larger relative to the full sample. The results for this sub-section are depicted in Tables 9 and 10.

In the first step, we use the estimates for India's import demand elasticity at the HS 3-digit level provided by Broda and Weinstein (2006). This data is matched with the product codes available for Pakistani exporters 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 9 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 customized to their buyers' needs, witness a smaller drop in export quantity demand, and hence lesser price adjustment after the shock, relative to more standardized, less differentiated products. As a result, the impact on exports of these goods is significantly smaller in magnitude compared to the full sample.

In columns (4)-(6) of Table 9, we provide estimates obtained using a different product characteristic, namely, the frequency of export price changes. Gopinath and 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 9).[25]

[25]This explanation relates to the hypotheses proposed by Gopinath and Itskhoki (2010) but differs in interpretation. Our findings can be rationalized by the expectation that goods with a high frequency of price

Table 9: Heterogeneity across products

	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. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

In the final exercise, we estimate Eq. 4 separately for homogeneous and differentiated products, and substantiate the findings reported in Table 9. Each SITC 8-digit product exported by Pakistani firms is classified as either differentiated or non-differentiated good using Rauch (1999) classification scheme. The first three columns in Table 10 show the estimates obtained for the restricted sample of organised exchange and reference priced goods, while columns (4)-(6) report regression coefficients for differentiated commodities. We find that the effect of the shock on exports for non-differentiated goods is largely consistent with the average effects, although the impact of export price is no longer significant. On the other hand, while export unit values of differentiated products decline significantly in the Indian market after the terrorist attack, the coefficient of the interaction term is positive and highly significant for exports and export quantities of these goods. This can be explained by a sizeable decline

adjustments are 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.

in export prices charged to the Indian buyers (a 4.4 percentage-point decrease as opposed to only 1.4 percentage-points for the complete sample). Due to a greater price adjustment, export volume decreased by less for differentiated goods, compared to homogeneous goods. The overall less negative differential impact on the exports of differentiated goods is attributable to product differentiation, and perhaps, brand loyalty for these commodities.

Table 10: Heterogeneity - Product differentiation

	Non-Differentiated goods			Differentiated goods		
	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Post}_t \times \text{Ind}_c$	-0.042***	-0.049***	0.007	0.074***	0.118***	-0.044***
	(0.013)	(0.013)	(0.005)	(0.004)	(0.004)	(0.002)
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	18937	18937	18937	229673	229673	229673
R-squared	.0952	.106	.178	.0847	.0875	.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. Using Rauch (1999) conservative classification, columns (1)-(3) report results for log-differenced exports value, export quantity, and unit export value for the restricted sample of organised exchange goods, and reference priced goods. Columns (4)-(6) show results for exports value, export quantity, and unit export value for restricted sample of differentiated goods. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

This section sheds light on various product characteristics associated with the variation in the effects of the terrorism shock on Pakistani exports to India. By disaggregating the data along various dimensions of product types, we show that there are heterogeneous responses across products depending on import demand elasticity for Pakistani goods in the Indian market, frequency of price adjustments, and the degree of product differentiation. In their study of the impact of terrorist incidents in France, Nitsch and Rabaud (2022) also highlight a significant degree of heterogeneity across countries, products, and firms. The effects appeared to be stronger with respect to partner countries with low border barriers to France, for firms with less frequent trade transactions, and for homogeneous products.

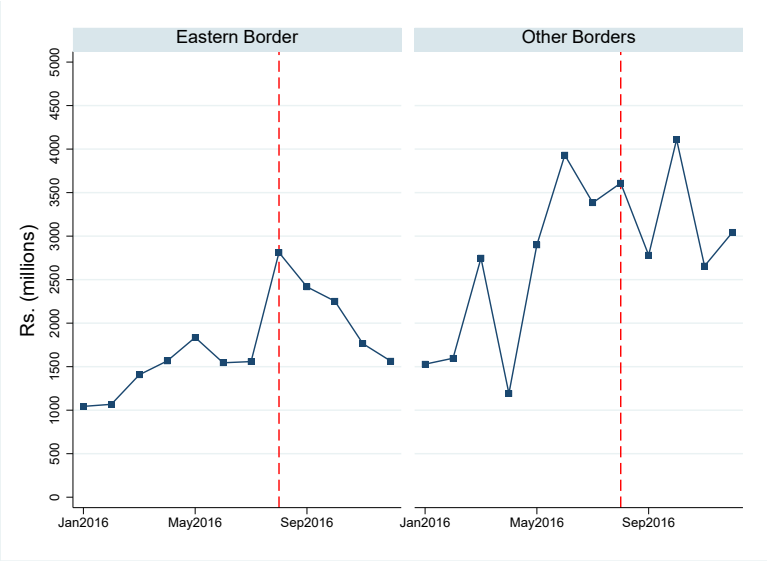
All results presented in this section are robust to alternative measures of exports and export prices. As explained earlier, we use two different measures of unit export value, computed based on, firstly, the total number of units exported, and secondly, the weight of the shipment.

Moreover, for each transaction, the FBRP dataset provides total exports value as well as the free-on-board (FOB) exports value. In alternative estimations, and to provide robustness checks of the findings presented in Section 5, we use FOB export value instead of gross exports, and export quantity and price based on the weight of the shipment instead of number of units exported. In almost all cases, the estimates obtained are consistent with the ones outlined in this section.

5.3 Heterogeneity across ports

Lastly, we show that the effect of the terrorist attack in Uri on Pakistani exports varied across locations of the shipping ports used to transport goods to the Indian market. 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 in Punjab had been the center of trade and commerce for the entire region even before partition, including the Indian Punjab and Jammu and Kashmir valleys. The road and railway routes at Lahore port provide the most efficient and feasible method of transporting goods to the Indian market. 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 from zero in 1995-96 to 23% in 2014-15.

Figure 2: Exports to India, by shipping location



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

Due to the geographic location of the port, i.e., its close proximity to the Baramulla district

Table 11: Heterogeneity across shipping locations

	Eastern border			Southern border		
	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$	$\Delta ln(exp)$	$\Delta ln(q)$	$\Delta ln(uv)$
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Post}_t \times \text{Ind}_c$	0.022***	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 the Lahore ports. Columns (4)-(6) show results for export volume, quantity and unit values for the Karachi ports. All regressions include a constant term. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

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, as compared to other ports in Pakistan. 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 terrorist 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 2 shows a striking increase in average monthly export shipment value by a firm at Karachi ports immediately after the attack. In contrast, the first panel in Figure 2 reveals a decline in export shipments value delivered through the Lahore port after September 2016.

In order to check whether the response of exports, export quantity, and export price varied across the two busiest ports of Pakistan in the aftermath of the Uri attack, we estimate specifications of the change in log export price, value, and quantity, 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, $\text{Post}_t \times \text{Ind}_c \times \text{Border}_s$, estimates the differential

effect of the attack on exports to the Indian market shipped through Border_s. These results are depicted in Table 11. In columns (1)-(3), Port_s is equal to one for shipments sent through the Lahore port, and zero otherwise, whereas in columns (4)-(6), the dummy variable is equal to one for shipments made via southern border. The estimates underscore interesting results. We observe that after the attack, there is a significant decrease in exports, export quantity, and export unit value in the Indian market for shipments made through the Attari-Wahga border in Lahore. This is not surprising owing to the major delays at this port in the wake of the attack, thereby lowering exports of goods delivered through the eastern border.

On the other hand, and in line with the trends displayed in Figure 2, there is a sizable increase in export shipments sent to India through Karachi after the shock. Subsequently, there is a significant rise in exports value, quantity, and unit export price of exported goods 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 Lahore port. Once again, this result seems to be driven by larger firms that witnessed rising demand in the Indian market after the attack, indicating their ability to incur additional transportation costs required to absorb the effect of the shock. This finding also emphasizes the economic distortions and welfare loss arising due to terrorism and conflict, which is particularly more detrimental to terror-inflicted developing countries.

6 Concluding remarks

Terrorist activities create sizeable economic distortions by giving rise to uncertainty, and due to the retaliatory response by the government and consumers in the terror-inflicted nation. Although the direct and immediate economic impact of terrorism on growth, investment, and consumption depends on the scale and frequency of terrorist events, an expression of hostility rooted in public sentiment, the erosion of social goodwill and trust, and a rise in the transaction costs of international trade can slow down the flow of goods across borders.

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 long term impact on the volume of aggregate trade, 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. For example, even though there is a significant decline in firm-level exports from Pakistan to India in the wake of the attack, this effect is primarily driven by smaller firms. This analysis helps shed further light on the demand and cost channels as possible mechanisms explaining our key findings. Interestingly, the attack shifted exporting dynamics in favor of some firms and product lines. 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 historical context of our experiment offers a unique setting, since India and Pakistan are the two largest economies in South Asia, representing over a fifth of the global population. 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 policymakers in conflict-inflicted countries in helping mitigate the unfavorable 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.

References

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

Viewpoint: How far might India go to 'punish' Pakistan? https://www.bbc.com/news/world-asia-india-47250994, 2019.

A. Abadie and J. Gardeazabal. The economic costs of conflict: A case study of the Basque country. *American Economic Review*, 93(1):113–132, 2003.

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

P. Antras, T. C. Fort, and F. Tintelnot. The margins of global sourcing: Theory and evidence from US firms. *American Economic Review*, 107(9):2514–2564, 2017.

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

S. Bandyopadhyay and T. Sandler. Immigration policy and counterterrorism. *Journal of Public Economics*, 110:112–123, 2014.

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

S. Bandyopadhyay, T. Sandler, and J. Younas. Terms-of-trade and counterterrorism externalities. *Oxford Economic Papers*, 72(2):293–318, 2020.

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

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

A. Bernard, E. Bøler, and S. Dhingra. Firm-to-firm connections in Colombian imports. *World Trade Evolution*, page 333, 2018a.

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

A. B. Bernard, A. Moxnes, and K. H. Ulltveit-Moe. Two-sided heterogeneity and trade. *Review of Economics and Statistics*, 100(3):424–439, 2018b.

J. Blaum, C. Lelarge, and M. Peters. Firm size, quality bias and import demand. *Journal of International Economics*, 120:59–83, 2019.

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

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

J. Carballo. Global sourcing under uncertainty. 2018.

D. Castellani, F. Serti, and C. Tomasi. Firms in international trade: Importers' and exporters' heterogeneity in Italian manufacturing industry. *The World Economy*, 33(3): 424–457, 2010.

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

E. Chung. Global multisourcing and supply risk diversification. *Available at SSRN 2958499*, 2017.

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

J. De Sousa, D. Mirza, and T. Verdier. Terror networks and trade: Does the neighbor hurt? *European Economic Review*, 107:27–56, 2018.

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

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

W. Enders and T. Sandler. *The Political Economy of Terrorism*. Cambridge University Press, 2011.

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

W. Enders, G. A. Hoover, and T. Sandler. The changing nonlinear relationship between income and terrorism. *Journal of Conflict Resolution*, 60(2):195–225, 2016.

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

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

A. Gervais. Uncertainty, risk aversion and international trade. *Journal of International Economics*, 115:145–158, 2018.

P. K. Goldberg, A. K. Khandelwal, N. Pavcnik, and P. Topalova. Imported intermediate inputs and domestic product growth: Evidence from India. *The Quarterly Journal of Economics*, 125(4):1727–1767, 2010.

A. Goodman-Bacon. Difference-in-differences with variation in treatment timing. *Journal of econometrics*, 225(2):254–277, 2021.

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

G. Gopinath and B. Neiman. Trade adjustment and productivity in large crises. *American Economic Review*, 104(3):793–831, 2014.

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

S. Heise, J. R. Pierce, G. Schaur, and P. K. Schott. Trade policy and the structure of supply chains. Technical report, Citeseer, 2015.

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

M. Kugelman. *Pakistan-India Trade: What Needs to be Done? What Does it Matter?* Woodrow Wilson International Center for Scholars, Asia Program, 2013.

M. Kugler and E. Verhoogen. Prices, plant size, and product quality. *The Review of Economic Studies*, 79(1):307–339, 2012.

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

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

K. Manova and Z. Zhang. Export Prices Across Firms and Destinations. *The Quarterly Journal of Economics*, 127(1):379–436, 01 2012. ISSN 0033-5533. doi: 10.1093/qje/qjr051. URL https://doi.org/10.1093/qje/qjr051.

A. Mariscal and D. Lu. How firms accumulate inputs: Evidence from import switching. In *2017 Meeting Papers*, number 263. Society for Economic Dynamics, 2017.

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

D. Mirza and T. Verdier. Are lives a substitute for livelihoods? terrorism, security, and US bilateral imports. *Journal of Conflict Resolution*, 58(6):943–975, 2014.

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

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

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

A. Ramanarayanan. Imported inputs and the gains from trade. *Journal of International Economics*, 122:103260, 2020.

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

N. Taneja, S. Prakash, and P. Kalita. India's role in facilitating trade under SAFTA. Technical report, Working Paper, 2013.

Appendices

Table A1: Summary statistics

	Obs.	Mean	Median	Std. dev.	P10	P90
Product-country						
$\Delta\ln(\#firms)$	149307	0.00395	0	0.55161	-0.69315	0.69315
Firm-country						
$\Delta\ln(\#products)$	202806	0.00605	0	0.52158	-0.69315	0.69315
Firm-product-country						
Δln(Exports)	257,920	0.00414	0.00654	1.52113	-1.74815	1.74155
Δln(Quantity)	257,920	0.00372	0	1.64850	-1.76102	1.75609
Δln(Unit values)	257,920	0.00043	0.00198	1.15197	-1.09737	1.10831
Firm characteristics:						
Pure exporter	19,593	0.63860	1	0.48042	0	1
Indian importer$_{(Ind_c, attack=0)}$	19,593	0.08289	0	0.27572	0	0
Indian exporter	19,593	0.08947	0	0.28543	0	0
Input importer$_{(Ind_c, attack=0)}$	19,593	0.02124	0	0.11543	0	0
Product characteristics:						
BW Elasticity	1,016,484	1.86551	1.48558	0.87782	1.02099	3.22015
CV ln(Unit value)	14,259	0.08460	0.06704	0.07682	0.01258	0.17463

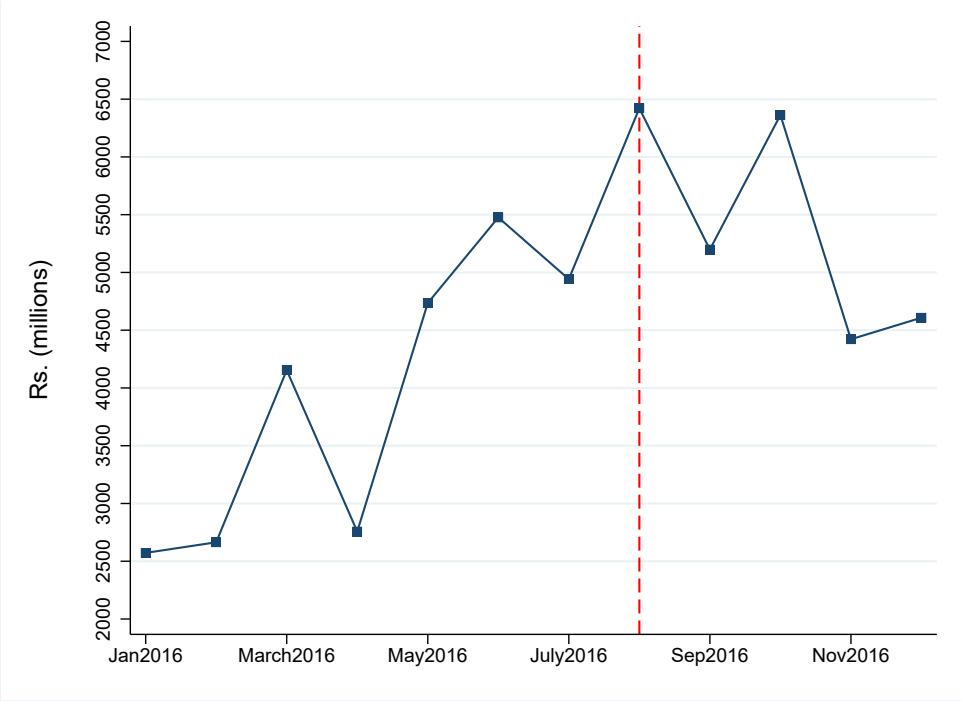
Notes: Based on authors' calculations using FBRP data.

Table A2: Placebo tests

	SAARC (excluding India) countries				
	$\Delta ln(exports)$	$\Delta ln(units)$	$\Delta ln(weight)$	$\Delta ln(uv_u)$	$\Delta ln(uv_w)$
	(1)	(2)	(3)	(4)	(5)
$\text{Post}_t \times SAARC_c$	-0.002	-0.010	-0.009	0.008	0.006
	(0.005)	(0.009)	(0.007)	(0.010)	(0.008)
Fixed Effects	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$	$(\delta_{fpcs}, \delta_t)$
Observations	276,997	276,997	276,905	276,997	276,905
R-squared	0.0862	0.0889	0.0842	0.11	0.101

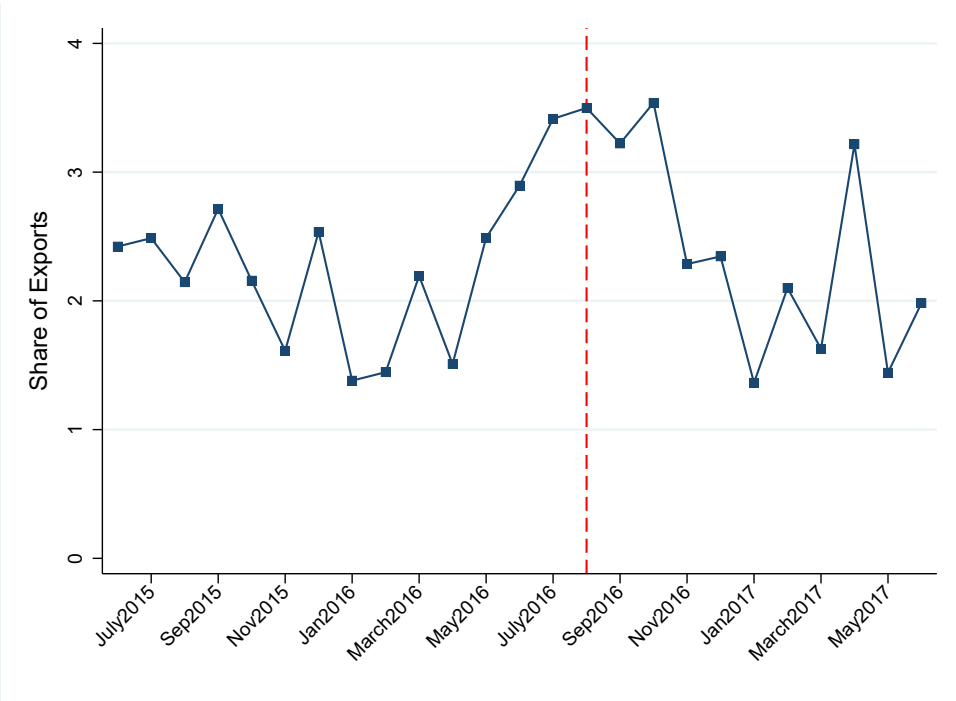
Notes: Observations are collapsed by firm-product-country-port-month. δ_{fpcs} are firm-product-country-port fixed effects, and δ_t are time dummies. Columns (1)-(5) report results for total exports value, exports quantity in number of units, quantity in terms of weight, unit values based on number of units and weight, respectively, for the restricted sample. The South Asian Association for Regional Cooperation (SAARC) is an economic and political organization of eight countries in South Asia. Robust standard errors clustered by country are reported in parenthesis. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Figure A1: Aggregate exports to India



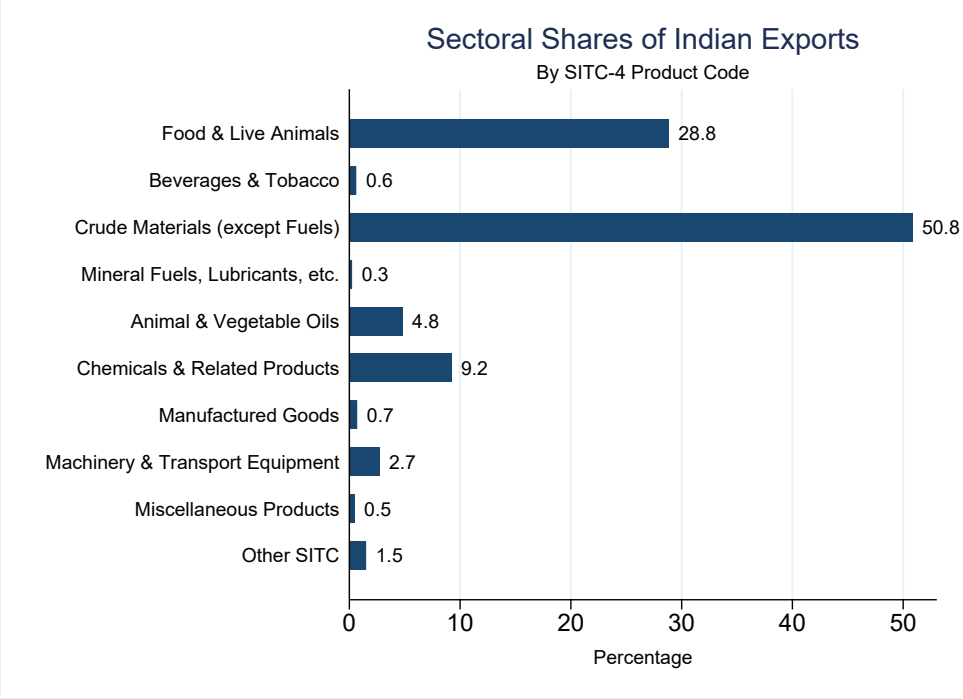
Notes: Based on authors' calculations using FBRP data. Total exports from Pakistan to India shown on the vertical axis are measured in Pakistani rupees. The red vertical line shows the time of Uri attack.

Figure A2: Share of Indian exports



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

Figure A3: Sectoral shares for Indian exports, August 2016

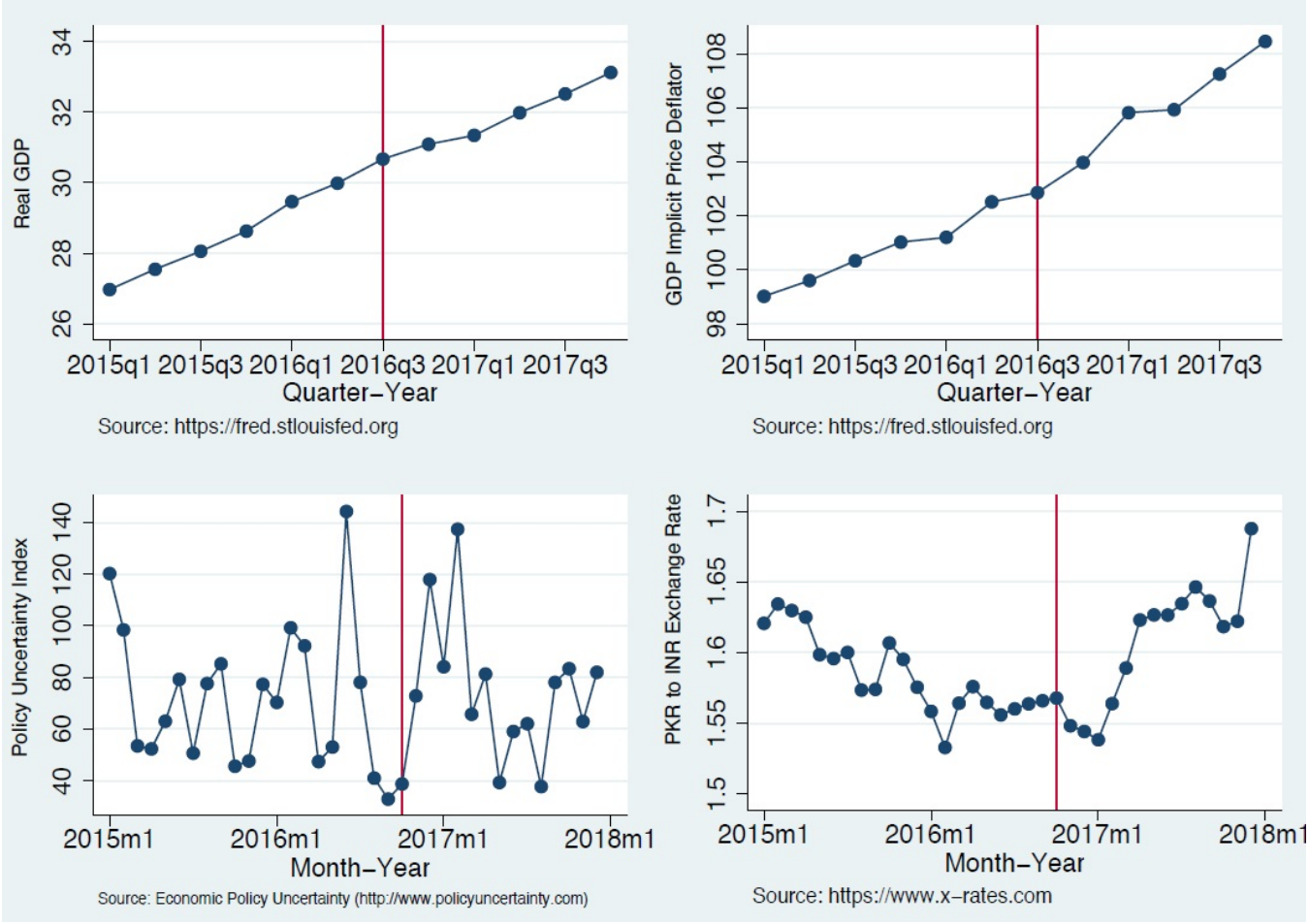


Notes: Based on authors' calculations using FBRP data. Each bar shows the share of total exports from Pakistan to India captured by the given SITC-4 product category for August, 2016.

Figure A4: Uri, Indian-administered Kashmir

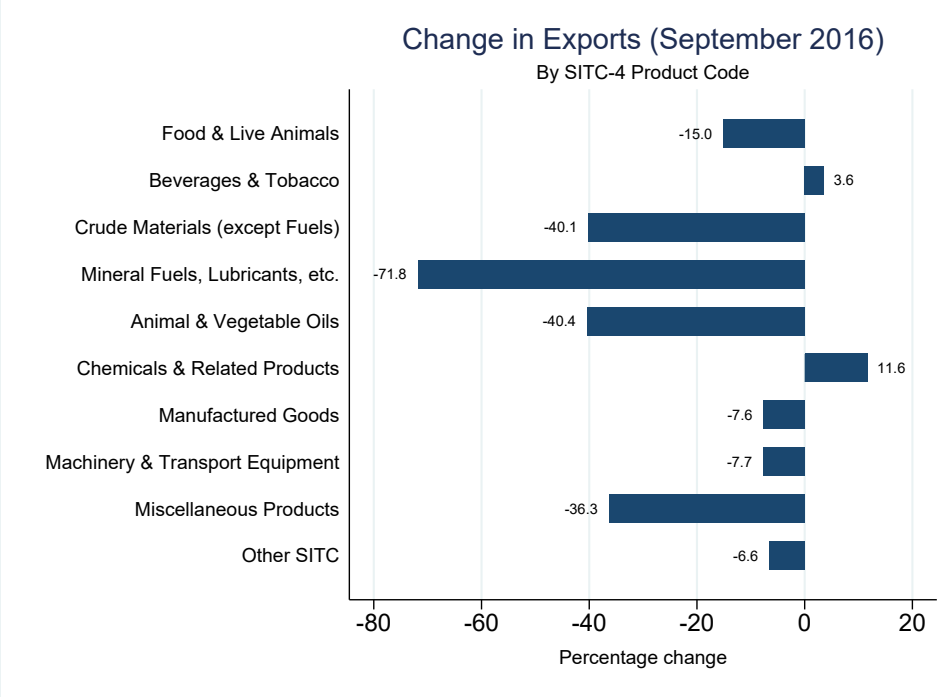
Source: *Kashmir as a Borderland*, The Politics of Space and Belonging across the Line of Control, pp. 12, Amsterdam University Press, 2019.

Figure A5: Macroeconomic indicators for Indian economy: Real GDP, Inflation rate, Exchange rate, and Uncertainty



Notes: The vertical red line shows the timing of the Uri attack.

Figure A6: Change in Exports, 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.