Trade and Terrorism: A Disaggregated Approach

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Abstract

This paper constructs a model of trade consequences of terrorism, where firms in trading nations face different costs arising from two distinct types of terrorist risks – domestic and transnational. Using dyadic dataset in a gravity model, we test these predictions for terrorism's effects on overall trade, exports, and imports, while allowing for disaggregation by primary commodities and manufacturing goods. The latter is also decomposed by skill intensities. In general, the detrimental impact of transnational terrorism on various classes of traded commodities is twice that of domestic terrorism. As a general rule, terrorism's negative influence on trade is greater on imports than on exports. There is also a marked tendency for medium-skilled and high-skilled manufacturing sectors to sustain a greater harm from terrorism than labor-intensive or low-skilled manufacturing sectors.

Keywords: International trade, domestic and transnational terrorism, imports and exports, gravity model

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1. Introduction

In recent years, terrorists are intent on causing harm to the economies of targeted countries as a means of generating constituency pressure on governments to concede some terrorist demands (Enders and Sandler 2012; Sandler and Enders 2008). Terrorist-induced macroeconomic consequences on gross domestic product (GDP) and economic growth have been identified in the literature (Blomberg et al. 2004; Gaibulloev and Sandler 2008, 2009, 2011; Keefer and Loayza 2008). Such consequences are particularly large for terrorism-plagued countries (Abadie and Gardeazabal 2003; Eckstein and Tsiddon 2004) when compared to the mean or median response for a sample of countries (e.g., Blomberg et al. 2004; Sandler and Enders 2008). In addition, microeconomic consequences of terrorism at the sectoral level have been documented with respect to tourism (Drakos and Kutan 2003; Enders et al. 1992), airline industry (Drakos 2004), foreign direct investment (Abadie and Gardeazabal 2008; Bandyopadhyay et al. 2014; Enders and Sandler 1996), and trade sector (Blomberg and Hess 2006; Nitsch and Schumacher 2004). Today's religious fundamentalist terrorists, who dominate transnational terrorism since 1992 (Enders et al. 2016), are particularly bent on distressing the economies of countries for which they harbor grievances. This is best illustrated by al-Qaida's skyjackings on September 11, 2001 (henceforth, 9/11) that toppled the World Trade Center's towers, an icon of world capitalism, and temporarily for 30-40 days depressed stock exchanges worldwide (Chen and Siems 2004).

To date, there are a small number of studies that empirically studied the effects of terrorism on bilateral trade based on a gravity model, where trade volume increases with the product of the trading countries' economic sizes and decreases with their distance from one another. Gravity models incorporate other trade facilitators (e.g., common language, regional trade agreement, and past colonial relationship) and inhibitors (e.g., landlocked country or

conflict) (Blomberg and Hess 2006; Glick and Rose 2015). Terrorist attacks in trading partners result in larger transaction cost, greater transportation cost, increased uncertainty, lost income, and enhanced business cost (e.g., greater border controls and higher insurance rates) that negatively impact trade (Enders et al. 2006; Nitsch and Schumacher 2004). Past studies generally discovered a significant, but modest, effect of transnational terrorism on overall trade; Mirza and Verdier (2014) showed that a 1% increase in the number of past terrorist events reduced US imports from the terrorist perpetrator's country by 0.01%, while Nitsch and Schumacher (2004) found that a doubling of terrorist attacks in trading partners cut their bilateral trade by almost 4%. Such a doubling may correspond to a large increase in transnational terrorism in some instances. At the monthly level, Egger and Gassebner (2015) discerned no *short-term* effect of transnational terrorism on imports and exports for OECD countries and their trading partners. However, De Sousa et al. (2009) indicated that transnational terrorist attacks from US exporting partners or their neighbors reduced US imports by about 1%.

Our analysis differs from that of the extant literature in a number of crucial ways. Not only do we estimate the influence of overall terrorism on trade, but we also isolate the differing effects of transnational and domestic terrorism on trade. Because domestic terrorist attacks far outnumber transnational terrorist attacks (Enders et al. 2011), earlier studies that solely investigated the latter ignored the potential effect of most terrorist attacks on trade. Our analysis estimates the impact of terrorist attacks on total trade, exports, and imports; except for Egger and Gassebner (2014), previous terrorism studies focused on total trade. In contrast to earlier studies, our study's sample period corresponds solely to the dominance of the religious fundamentalist terrorists during 1995–2012. For example, Egger and Gassebner (2015) investigated 1970–2008; Blomberg and Hess (2006) examined 1968–1999; and Nitsch and Schumacher (2004) studied 1960–1993. These earlier sample periods include mostly years where the leftist terrorist groups

were the dominant influence (Hoffman 2006; Rapoport 2004). We focus on bilateral trade for a world sample, for developing countries, and for OECD countries.[1] Earlier studies did not separately decompose their world sample for developing and developed countries (Blomberg and Hess 2006; Nitsch and Schumacher 2004). Moreover, unlike Mirza and Verdier (2014) and De Sousa et al. (2009), we do not only examine trade between the United States and other countries. In contrast to the literature, we distinguish the impact of terrorism on various manufacturing sectors based on skill intensity. Notably, we present an explicit formal model to underlie and inform our empirical estimates.

Our paper is rich in findings. The augmented gravity model's variables possess the anticipated signs and are robust for the myriad specifications. Generally, the detrimental effect of transnational terrorism on various trade variables is almost double that of domestic terrorism, indicating that transaction cost and other considerations associated with transnational terrorism are more trade inhibiting than those tied to domestic terrorism. Furthermore, we find that the contrasting effects of the two forms of terrorism are more pronounced for developing countries, which may be less able than their developed counterparts to alleviate transnational terrorism and its consequences owing to weaker institutions. Total terrorism has a significant negative impact on trade in all products, primary commodities, and manufactured goods, with a stronger detrimental influence manifested on manufacturing. Typically, terrorism has a larger negative influence on imports than on exports, which may stem from asymmetric cost considerations involving foreign firms trying to do business in a terror-plagued nation. In fact, exports of primary commodities are not affected by domestic terrorism, but are impacted by transnational terrorism. When manufacturing sectors are decomposed by resource or skill intensities, transnational terrorism continues to have a more marked effect on trade than does domestic

[1] See the online appendix for the list of countries (Table 6A) and for the descriptive statistics (Table 5A).

terrorism. There is a noteworthy tendency for higher-skilled manufacturing to sustain a more adverse trade impact from alternative forms of terrorism, with some peaking at a skill level below the greatest.

The remainder of paper has five sections. Some necessary preliminaries – definitions and conceptualizations – are presented in Section 2, followed by the formal theoretical model and its comparative statics in Section 3. Data and methodology are presented in Section 4, while the empirical results and their interpretation are discussed in Section 5. Finally, Section 6 indicates concluding remarks.

2. Preliminaries

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 2012). This political-inspired violence may be directed at people or property.[2] In the latter instance, terrorist attacks may be intended to cause economic stress on a targeted country. A terrorism campaign may cause a constituency to pressure its government to concede to terrorist demands in order to restore tranquility. Terrorist attacks also induce governments to allocate resources to counterterrorism, which for transnational terrorism creates a need to enhance border protection. This then increases the cost of imports by slowing the flow of trade.

Terrorism comes in two varieties. Domestic terrorism is homegrown and has consequences primarily on the host or venue country, its institutions, citizens, property, and policies. The perpetrators and victims are all citizens from the venue country (Enders et al.

[2] Starting in the 1990s, people attacks far outnumbered property attacks (Gaibulloev et al. 2012). Also, transnational terrorist attacks against private parties started to outnumber other target groups (i.e., business, officials, and the military) in 1999 (Brandt and Sandler 2010).

2011). Instances of domestic terrorism include the bombing of the Alfred P. Murrah Federal Building in Oklahoma City by Timothy McVeigh on 19 April 1995; the bombing of Centennial Olympic Park in Atlanta by Eric Robert Rudolph on 27 July 1996; and the package bombing campaign in the United States by the Unabomber from 1978 to 1985. Through its venue, perpetrators, or victims, transnational terrorism involves two or more countries. If the nationality of one or more victims differs from that of the perpetrators, then the terrorist attack is transnational. If, moreover, a victim's or perpetrator's nationality is not that of the venue country, then the attack is transnational. The kidnappings and subsequent beheadings of American, British, and Japanese hostages by Islamic State in Iraq and Syria (ISIS) terrorists during 2014 and 2015 constitute transnational terrorist attacks. Domestic terrorist attacks outnumber transnational terrorist attacks by at least six to one, but generally do not have the same economic consequences (Enders et al. 2011; Gaibulloev and Sandler 2008).

Conceptually, why does terrorism negatively affect trade between trading partners?[3] First, both forms of terrorism increase uncertainty, which raises the cost of traded goods, especially relative to these goods produced in a terrorism-free country. Second, terrorism increases the cost of doing business by raising wages in terrorism-prone industries, augmenting insurance premiums, and increasing security cost, which decreases the competitiveness of goods, produced where terrorism is present or a threat. Third, terrorism, especially of the transnational kind, slows the flow of goods and resources owing to greater inspections and safeguards. Fourth, trade can be reduced from losses in income or assets that result from terrorist attacks. Fifth, terrorism can divert government expenditures from more productive public investment to less productive security activities, thereby reducing economic growth, export production, and import demand (Blomberg et al. 2004; Blomberg and Hess 2006). This diversion is practically onerous

[3] Not all of these reasons are captured by our theory.

for transnational terrorism, where not only borders must be protected, but also military power may have to be projected to a foreign country that harbors a terrorist group.

Terrorism is likely more problematic for imports than for exports, the latter of which are produced at home. Terrorism coming from a trading partner or occurring in a trading partner requires more safeguards of all imports from this partner, because weapons and operatives may come via a third country. The 9/11 attacks caused the United States to scrutinize shipping containers from all trading partners, not just those experiencing terrorism (Enders and Sandler 2012, Chapter 11). These extra security measures raised the cost of all imports. US exports are less scrutinized by its trading partners, since there is no significant transnational terrorist group in resident. This security asymmetry can result in forces that reduce imports relative to exports as foreign firms face greater cost from doing business in a terrorism-afflicted nation, as shown in Section 3.

3. Theoretical model: effects of terrorism on bilateral trade

We adapt the model of Helpman et al. (2008) to the analysis of the effects of terrorism on trade flows.[4] Consumers in nation j $\left(j=1,...,J\right)$ consume a continuum of products, indexed by k, where the set of available products is B^j. The standard utility function that characterizes consumers' preferences in nation *j* is:

$$U^j=\left[\int_{k\in B^j} x^j\left(k\right)^{\frac{\varepsilon-1}{\varepsilon}}dk\right]^{\frac{\varepsilon}{\varepsilon-1}},\quad \varepsilon>1, \tag{1}$$

where ε is a constant elasticity of substitution between products, while $x^j\left(k\right)$ is the consumption of product *k* in nation *j*. Standard utility maximization yields the demand function,

[4] Also see Lawless (2010) for a model along similar lines.

$$x^j(k) = \frac{p^j(k)^{-\varepsilon} Y^j}{\left(P^j\right)^{1-\varepsilon}}, \tag{2}$$

where Y^j is nation *j*'s total expenditure (income) and P^j is its aggregate price index, such that

$$P^j = \left[\int_{k \in B^j} p^j(k)^{1-\varepsilon}\, dk\right]^{\frac{1}{1-\varepsilon}}. \tag{3}$$

Marginal input cost of any good produced in nation *i* is a constant c^i, while productivity of firm *k* is $a(k)$, so that the firm's marginal production cost is $c^i / a(k)$. An exporting firm also incurs an iceberg transportation cost, where for each unit exported to nation *j*, the firm needs to produce $\tau^{ij}\left(>1, i \neq j; \tau^{ii} = 1\right)$ units, since $\tau^{ij} - 1$ units melt away in transportation. We assume that this transportation cost is affected by transnational, rather than domestic, terrorism, because transportation networks between trading nations involve citizens of both nations, some of whom may have transnational terrorist connections. Accordingly, transportation cost is assumed to rise with greater transnational terrorism (ρ^i in nation *i*) in either of two trading nations, such that

$$\tau^{ij} = \tau^{ij}\left(\rho^i, \rho^j\right), \quad \tau^{ij}_{\rho^i} > 0, \text{ and } \tau^{ij}_{\rho^j} > 0. \tag{4}$$

Following Melitz (2003) and Helpman et al. (2008), we assume that there is a fixed cost, F^{ij}, for a firm from nation *i* to export to nation *j*. This cost is likely to be affected by transnational terrorism in the destination market. For example, a Japanese car maker that wants to sell in India must set up dealerships in Indian cities. Terrorist attacks that affect such dealerships involve domestic and foreign interests, thereby making these attacks transnational. Hence, we have

$$F^{ij} = F^{ij}\left(\rho^j\right). \tag{5}$$

The profit, π^{ij}, of a firm in nation *i* that exports to nation *j* is

$$\pi^{ij} = p^j(k)x^j(k) - \frac{c^i}{a(k)}\tau^{ij}\left(\rho^i,\rho^j\right)x^j(k) - F^{ij}\left(\rho^j\right), \tag{6}$$

where $x^j(k)$ is the level of exports by this firm. The demand function in Eq. (2) implies that this firm perceives its price elasticity of demand in the export market as ε. Hence, equating marginal revenue and marginal cost gives the profit-maximizing export and price levels as:

$$p^j(k)\left(1-\frac{1}{\varepsilon}\right) = \frac{c^i}{a(k)}\tau^{ij}\left(\rho^i,\rho^j\right) \Rightarrow p^j(k) = \frac{\varepsilon c^i \tau^{ij}\left(\rho^i,\rho^j\right)}{(\varepsilon-1)a(k)} \equiv p^j\left(k;\rho^i,\rho^j\right). \tag{7}$$

Substituting Eq. (7) in Eq. (2), we obtain the volume of export of nation *i*'s firm *k* to nation *j*. Furthermore, the export revenue of this firm is

$$R^{ij}\left(a(k);\rho^i,\rho^j,P^j,Y^j\right) = p^j\left(k;\rho^i,\rho^j\right)x^j(k) = \left[\frac{p^j(\square)}{P^j}\right]^{1-\varepsilon} Y^j. \tag{8}$$

Using Eqs. (7)-(8) in Eq. (6), we can express firm *k*'s profit from exports to nation *j* as:

$$\pi^{ij}\left(k,\delta^i,\delta^j,\rho^i,\rho^j,P^j,Y^j\right) = \left(\frac{c^i\tau^{ij}(\square)}{a(k)}\right)^{1-\varepsilon}\frac{\mu Y^j}{\left(P^j\right)^{1-\varepsilon}} - F^{ij}(\square), \text{ where } \mu = \varepsilon^{-\varepsilon}(\varepsilon-1)^{\varepsilon-1}. \tag{9}$$

Positive (or zero) export profit (i.e., $\pi^{ij} \geq 0$) can be obtain if and only if

$$a \geq \tilde{a}^{ij}\left(\rho^i,\rho^j,P^j,Y^j\right) = \frac{c^i\tau^{ij}\left(\rho^i,\rho^j\right)}{P^j}\left(\frac{F^{ij}\left(\rho^j\right)}{\mu Y^j}\right)^{\frac{1}{\varepsilon-1}}, \tag{10}$$

where $\tilde{a}^{ij}(\square)$ is the minimum (or threshold) productivity level, required for *i*'s domestic firm to profitably export to country *j*. Firms below this threshold sell only in the domestic market.[5] The productivity of firms is adversely affected by the incidence of both domestic and transnational terrorism at home (Sandler and Enders 2008). Denoting domestic terrorism by δ^i, we define a

[5] As in Helpman et al. (2008), we assume that there are no fixed costs to selling in the domestic market. If price exceeds marginal cost, profits are positive and all firms sell in their domestic market.

probability density function $g\left(a;\delta^i,\rho^i\right)$ with support $\left(0,\infty\right)$ to represent firms' productivity distribution in country *i*. Adverse productivity effects are represented by leftward shifts of the density function due to an increase in δ^i or ρ^i. For a given mass of firms, $\overline{N}_i$, aggregate export revenue of nation *i* from exporting to nation *j* is

$$\tilde{R}^{ij}\left(\rho^i,\rho^j,\delta^i,P^j,Y^j\right)=\int_{\tilde{a}^{ij}}^{\infty}R^{ij}\left(a;\rho^i,\rho^j,P^j,Y^j\right)\overline{N}_i g\left(a;\delta^i,\rho^i\right)da. \tag{11}$$

Using Eq. (7) in Eq. (3), and noting that domestic terrorism of trading partners affect the productivity distribution of their respective domestic firms,[6] we have the aggregate price level in country *j* as:

$$P^j=\left[\int_{k\in B^j}p^j\left(k\right)^{1-\varepsilon}dk\right]^{\frac{1}{1-\varepsilon}}=P^j\left(\rho^i,\rho^j,\delta^i,\delta^j\right), \tag{12}$$

where aggregate price is increasing in all its arguments.[7] Substituting Eq. (12) into Eq. (11), we have

$$\tilde{R}^{ij}=\int_{\tilde{a}^{ij}}^{\infty}R^{ij}\left(\square\right)\overline{N}_i g\left(a;\delta^i,\rho^i\right)da=\tilde{R}^{ij}\left(\rho^i,\rho^j,\delta^i,\delta^j,Y^j\right). \tag{13}$$

Eq. (13) can yield a form of the gravity equation that involves incomes and terrorism parameters of both nations *i* and *j*.[8] Eq. (13) provides an expression for bilateral trade flows in both directions, because $\tilde{R}^{ij}$ is the export flow from *i* to *j*, while $\tilde{R}^{ji}$ represents the export flow in the other direction. The latter denotes *i*'s import expenditure on *j*'s goods. Differentiating Eq. (13) with respect to a change in any terrorism-related parameter θ, we get

$$\frac{\partial\tilde{R}^{ij}\left(\square\right)}{\partial\theta}=\overline{N}_i\int_{\tilde{a}_{ij}}^{\infty}\frac{\partial R^{ij}\left(a\right)}{\partial\theta}g\left(\square\right)da+\overline{N}_i\int_{\tilde{a}_{ij}}^{\infty}R^{ij}\left(a\right)\frac{\partial g\left(a;\delta^i,\rho^i\right)}{\partial\theta}da-\overline{N}_i R^{ij}\left(\tilde{a}_{ij}\right)g\left(\tilde{a}_{ij};\delta^i,\rho^i\right)\frac{\partial\tilde{a}_{ij}}{\partial\theta}. \tag{14}$$

[6] For clarity of exposition, we abstract from terrorism in other countries.
[7] This can be shown by differentiating Eq. (12). The derivations are available from the authors on request.
[8] The derivation follows the method used in Appendix II of Helpman et al. (2008).

The first term on the right-hand-side of Eq. (14) is the change in the value of exports due to the effect of terrorism on export revenues of existing exporting firms at given productivity levels. The second term is the change in exports due to a decline of productivity levels [i.e., a leftward shift of $g(\square)$]. The last term is the change in exports due to the entry (or exit) of country *i*'s exporting firms into (from) country *j*'s market because of greater terrorism-related costs. Expression (14) is quite general, but rather opaque in terms of empirical predictions. To throw more light on these predictions, we evaluate this expression for specific cases.

3.1 *Domestic terrorism*

We first investigate how an increase in domestic terrorism in *i* affects export revenues from country *j*. The aggregate price level in *j* includes prices from that nation's firms as well as prices from all its trading partners, so that a change in the price of *i*'s exports is unlikely to have a major impact on the aggregate price level P^j. Using this fact in Eq. (10), we can see that the cutoff productivity level $\tilde{a}^{ij}(\square)$ is not affected by domestic terrorism, so that we can ignore the last term of Eq. (14). From Eq. (7), it is clear that, at a given productivity level a, the export price p^j is also independent of *i*'s domestic terrorism. Thus, the relative price $p^j(\square)/P^j$ is unaffected, which by Eq. (8) implies that R^{ij} is unaffected. In turn, this means that we can ignore the first term of Eq. (14) as well. Therefore, the sole effect of *i*'s domestic terrorism is

$$\frac{\partial \tilde{R}^{ij}(\square)}{\partial \delta^i} = \overline{N}_i \int_{\tilde{a}_{ij}}^{\infty} R^{ij}(a) \frac{\partial g\left(a;\delta^i,\rho^i\right)}{\partial \delta^i} da \,. \tag{15a}$$

As domestic terrorism rises, productivity levels of domestic firms drop, shifting the probability density function to the left, such that

$$\frac{\partial \tilde{R}^{ij}(\square)}{\partial \delta^{i}} < 0, \tag{15b}$$

which means domestic terrorism in *i* reduces its export revenues from *j*.[9]

Next consider the influence of an increase of *j*'s domestic terrorism on *i*'s export revenues. Productivity in nation *i* is not affected by domestic terrorism in nation *j*, and hence by Eq. (7) we infer that prices of *i*'s exports to *j* are not affected. However, prices of products of *j*'s firms for their own market must rise as their productivity shifts lower due to domestic terrorism,[10] which raises price index P^{j}.[11] Export revenues of *i*'s firms from sales in *j* must rise, because the relative price of their exports falls [see Eq. (8)], and hence the first term of Eq. (14) is positive. There is no effect of nation *j*'s domestic terrorism on nation *i*'s productivity, so the second term vanishes. Finally, Eq. (10) suggests that a rise in P^{j} reduces $\tilde{a}^{ij}$, allowing for more firms in *i* to enter *j*'s market. This implies a positive contribution from the third term in Eq. (14). In sum, a rise in *j*'s domestic terrorism will raise *i*'s export revenues $\tilde{R}^{ij}$. This last statement is equivalent to saying that a rise in *i*'s domestic terrorism increases the value of its imports from nation *j*, which is the same as nation *j*'s export revenues from nation *i* (i.e., $\tilde{R}^{ji}$). At given income levels, greater domestic terrorism reduces the country's export revenues and raises its import expenditure. If however, its trading partner experiences a similar rise in domestic terrorism, these effects may be partially or completely offset.

3.2 *Transnational terrorism*

[9] The proof is based on first-order stochastic dominance, where the productivity distribution after a rise in terrorism is stochastically dominated by the distribution prior to the rise.

[10] In this model, all prices are inversely related to productivity, given constant markups above respective marginal costs. Thus, as productivity in nation *j* falls, prices of goods produced by its domestic firms must rise.

[11] Domestic firms in any nation do not face fixed cost of selling in their own market. Hence, there is a bias toward domestic firms' products in the price index, and hence the effect of *j*'s firms on P^{j} need not be negligible.

From Eq. (7), an increase in *i*'s transnational terrorism, ρ^i, raises *i*'s export price p^j through the transportation cost τ^{ij}. Recalling that nation *i*'s exports is likely a small subset of all products in *j*'s market, we can ignore the effect on the price index P^j. Thus, the relative price of *i*'s exports in *j*'s market, $p^j(\square)/P^j$ rises, which reduces *i*'s export revenues from *j* [Eq.(8)]. Accordingly, the first term in Eq. (14) is negative. The second term is negative too because productivities of *i*'s firms will be reduced by ρ^i. Finally, from Eq. (10), $\tilde{a}^{ij}$ must rise as transportation cost rises. In other words, fewer firms from *i* can export, implying a negative third term in Eq. (14). Thus, a rise in ρ^i reduces nation *i*'s bilateral export revenues from nation *j*.

Next, we turn to the influence of transnational terrorism in *j* on *i*'s export revenues. A rise in ρ^j must raise *i*'s export price by increasing the transportation cost τ^{ij} [see Eq. (7)]. Also nation *j*'s own firms' productivities will fall, thereby raising prices for their domestic market. These effects will contribute to a rise in P^j. If the productivity-induced effect (which affects only *j*'s own firms) is relatively small, and noting that P^j includes prices of imports from many terror-free nations, the rise in P^j will be small. This means that the relative price of exports for nation *i* [i.e., $p^j(\square)/P^j$] rises, reducing its export revenues, so that the first term in Eq. (14) is negative. The second term vanishes because ρ^j has no effect on the productivities of *i*'s firms. Finally, $\tilde{a}^{ij}$ increases as both fixed cost and transportation cost tend to increase for nation *i* due to greater transnational terror in nation *j*. This may be offset a bit due to a rise in P^j, but for reasons discussed above, this effect may be of second-order importance. Hence, the last term in Eq. (14) is likely to be negative too. Therefore, a rise in transnational terrorism in nation *j* is likely to reduce *i*'s exports to *j*. Alternately, an increase in *i*'s transnational terrorism reduces its imports from *j*.

There is a clear asymmetry of trade effects between domestic and transnational terrorism, which dominates our subsequent empirical findings. Domestic terrorism has less pronounced or clear-cut negative influence on bilateral trade than transnational terrorism. The former acts against bilateral trade through a single channel, whereas transnational terrorism negatively impacts bilateral trade through multiple channels. This is particularly true when trading dyads both experience transnational terrorist events.

The preceding discussion highlights the effect of transnational terrorism on bilateral trade. What is critical in this discussion is the respective elasticities of the transportation cost function τ^{ij} (or τ^{ji}) and the fixed cost function F^{ij} (or F^{ji}) with respect to transnational terrorism. For example, if transportation infrastructure is sufficiently protected such that it is largely immune to transnational terrorism, then ρ^{i} (or ρ^{j}) has minimal effect on τ^{ij} (or τ^{ji}). Following our earlier analysis, this suggests that such terrorism has limited effect on exports. However, fixed cost of marketing *i*'s products in *j* (F^{ij}) is likely to be sensitive to transnational terrorism, as nation *i*'s personnel or assets are directly under the threat of transnational terrorism in *j*. We can also infer that this will reduce imports into nation *j* by reducing the number of foreign firms that export to *j*. However, to the extent that imports from terror-free nations may have lower transportation cost (although not lower fixed cost), there may be some shifting of *j*'s imports from terror-prone sources to terror-free sources. To some degree, this may alleviate the effect of terrorism on aggregate multilateral imports of a nation relative to bilateral imports between two terror-afflicted nations. *Ceteris paribus*, the greater the terrorism elasticity of the fixed cost in a nation *i*, and the lower the terrorism elasticities of transportation cost between a pair of trading nations *i* and *j*, the greater the likelihood that bilateral exports of nation *i* (to nation *j*) are less affected by terrorism compared to its bilateral imports.

3.3 *On skill intensity, terrorism, and trade*

Our model does not explicitly deal with the role of skill intensity of products. However, it is reasonable to assume that labor-skilled dependent industries are likely to locate in more urban areas and draw on a network of domestic and foreign workers. This is likely to make more skill-intensive industries' productivity distribution $g\left(a;\delta^i,\rho^i\right)$ more elastic with respect to both forms of terrorism, but perhaps more so for transnational terrorism. In other words, a rise in ρ^i is apt to lead to a larger leftward shift of the productivity distribution of *i*'s firms when the industry is more skill intensive. This shift intensifies the trade-reducing effects through productivity changes discussed above. Thus, one may expect a greater effect of transnational terrorism on more skill-intensive sectors. This empirical hypothesis is later addressed.

4. Data and methodology

Our terrorism event data are drawn from the Global Terrorism Database (GTD), which records domestic and transnational terrorist incidents (National Consortium for the Study of Terrorism and Responses to Terrorism 2014). GTD draws its data from media accounts and, in so doing, indicates key variables for each terrorist incident that include incident date, venue country, victim nationality (up to three per attack), number of casualties (i.e., deaths or injuries), and other characteristics. GTD does not record the nationalities of perpetrators for transnational attacks; hence, we cannot match such attacks to an origin country. Until 2013, GTD did not decompose terrorist incidents into domestic and transnational incidents; hence, we rely on the partitioning of terrorist incidents into domestic, transnational, and ambiguous attacks, devised by Enders et al. (2011). These authors engineered a five-step procedure, based on the nationality of the victims, target types (e.g., diplomatic target, nongovernmental organization, and multilateral institution),

target entities, US-specific attacks, and the venue country, to distinguish domestic and transnational terrorist attacks. Their decomposition of the GTD data is much more complete than the one later devised by GTD in 2013, which is based, in part, on Enders, Sandler, and Gaibulloev's procedure. For example, Enders et al. (2011) decomposition has about 12% of "ambiguous" incidents that could not be pigeon-holed into domestic or transnational attacks, while GTD has over 30% of incidents that cannot be unambiguously classified.

When measuring total terrorist incidents for our estimations, we include domestic, transnational, and ambiguous incidents in the total. For 1995–2012,[12] we derive annual counts for domestic, transnational, and total terrorist events for each sample country, because our unit of analysis is that of a country-year.

Our bilateral data for total product trade, primary commodities trade, and manufactured goods trade come from the online statistics of United Nations Conference on Trade and Development (UNCTAD 2014). These data present merchandise trade in thousands of dollars by trading partners and products, based on SITC Revision 3 commodity classification. UNCTAD secretariat carried out calculations to present the data in its final form based on the information assembled by the UN COMTRADE and the IMF's Direction of Trade Statistics. A unique feature of this dataset is that it also contains information on exports and imports of manufactured goods, produced using varying degree of factor intensities: (i) labor-intensive and resources-intensive goods, (ii) low-skilled and technology-intensive goods, (iii) medium-skilled and technology-intensive goods, (iii.a) medium-skilled electronic goods, excluding parts and components, (iii.b) medium-skilled parts and components of electrical and electronic goods, (iv) high-skilled and technology-intensive goods, (iv.a) high-skilled electronics, excluding parts and

[12] GTD drastically changed its coding conventions for incidents occurring in 2013 and 2014, which resulted in much greater incident counts than in other recent years. Thus, we thought it prudent not to include these two years.

components, and (iv.b) high-skilled parts and components of electrical and electronic goods. We converted these nominal values into real values (constant at year 2000) by dividing each country's exports and imports by its export value index and import value index, respectively. Data for these two indices are taken from the *World Development Indicators* of the World Bank (2014).

Past studies have employed the traditional gravity model to estimate the impact of terrorism on trade (e.g., Bloomberg and Hess 2006; Mirza and Verdier 2014; Nitsch and Schumacher 2004). We apply an enriched gravity model to identify the effect of different types of terrorism on trade by main component groups and by skill composition in manufactured goods. The following model is estimated using the OLS method with robust standard errors clustered by country-pair:

$$\begin{aligned}\ln Trade_{ijt} = {} & \alpha + \beta \ln[(1+T)_{i,t-1} \cdot (1+T)_{j,t-1}] + \gamma_1 \ln(RGDP_{it} \cdot RGDP_{jt}) + \gamma_2 \ln(RGDP_{it}/P_{it} \cdot RGDP_{jt}/P_{jt}) \\ & + \gamma_3 Border_{ij} + \gamma_4 Language_{ij} + \gamma_5 \ln(Dis)_{ij} + \gamma_6 Llock_{ij} + \gamma_7 RTA_{ijt} + \gamma_8 CUR_{ijt} + \gamma_9 Colony_{ij} \\ & + \gamma_{10} CommonColony_{ij} + \gamma_{11} Island_{ij} + \delta \mathbf{Z} + e_{it}, \end{aligned} \quad (16)$$

where *i* and *j* denote countries, and *t* denotes time. $Trade_{ijt}$ indicates real exports plus imports between *i* and *j* at time *t*. The effect of different types of terrorism (*T*) is separately estimated for total product trade, primary commodities, manufactured goods, and for a host of other trade variables in the category of manufactured goods, produced using varying degree of resources. The same effect is also examined separately for exports and imports as well as for trade between developing countries and between developed countries. This allows us to capture the sensitivity of domestic production and demand for foreign goods in response to terrorism risk under varying sets of local environmental conditions.

In Eq. (16), the coefficient of primary interest is β, which represents the partial trade

impact of terrorism. Based on the information in the GTD dataset, we construct three variables of the number of terrorist incidents: total, domestic, and transnational attacks. All three terrorist measures are continuous variables that provide a significant heterogeneity across countries and variation across time. We treat terrorist incidents equally without accounting for their severity; however, the number of terrorist-related casualties provides qualitatively similar results (available upon request). We believe that the distinction by terrorism types offers a more informative analysis of their trade consequences. In order to ensure that terrorism risk is captured in both trading partners, we take log of the product of 1+ terrorist incidents in *i* and *j* at time *t*. The addition of one ensures that taking log does not drop any observation with a zero count. For the sake of clarity, let us assume that country *i* is Pakistan, which experienced lots of terrorism over the sample period, and that country *j* is United Arab Emirates (UAE), which experienced little terrorism over the sample period. Then, all else equal, trade between the two may be mainly influenced by the terrorism risk in only Pakistan. Civil conflict may also affect the trade-terrorism relationship. Because countries rarely experienced recurrent events of civil conflict during 1995–2012, its non-inclusion is not likely to influence the estimated effect of terrorism on trade. However, any such risks are assumed to be captured by country-specific dummies in our model.

Although taking current values of terrorist incidents provides similar results (available upon request), we prefer displaying results when terrorist incidents are lagged by one year. This strategy reduces contemporaneous correlation between trade and terrorism and thus mitigates some concern about reverse causation. Moreover, the lagged terrorism variable makes sense since terrorism-induced trade consequences through various channels are apt to take effect with some lag.

If trade can stimulate domestic firms to become more productive, then it is possible that

trade may reduce violence. This may happen through increased employment opportunities providing incentives to would-be terrorists to participate in the labor market instead or resorting to terrorism. The conventional strategy for identifying the causal effect of terrorism warrants using the instrumental variable method. However, finding unique instruments for different types of terrorism in our models, which contain a variant of trade dependent variables, is not only an insurmountable task, but also these instruments' validity would remain doubtful. Thus, to ensure that our results are nonspurious, we conduct a number of placebo tests.

We initially create one-year lead of our terrorist variables and include these "false" variables along with all other true control variables in our specifications. This assesses whether future terrorist attacks are unrelated to current year fluctuations in trade. Another placebo test re-estimates the model by randomly rearranging terrorist variables for each country-pair while maintaining all other control variables. Of course, there are an infinite number of ways that one may reshuffle the country-pairs. To put it more convincingly that the results are not artifacts of statistical procedure, we reverse the country-pair identification from descending to ascending order. This procedure positions the terrorist variables of the first pair in the original data to the last pair in our "false" setup. In principle, there should be no statistically significant and negative effect of terrorism in both of the placebo tests.

Data for all other variables in Eq. (16) are taken from Glick and Rose (2015). These variables are defined as follows: *RGDP* is real gross domestic product, *P* is population, *Border* is a dummy variable for whether the countries share a common border, *Language* is a dummy variable for whether the countries share a common language, and *Dis* is the log of distance between trading countries. Moreover, *Llock* is a dummy that equals 1 if a trading country is landlocked, *RTA* is a dummy variable that equals 1 if both trading countries belong to the same regional trade agreement, *CUR* is a dummy variable that equals 1 if both countries use the same

currency, *Colony* and *Common Colony* are variants of colonial heritage, and *Island* equals 1 if a trading country is an island.[13] $\mathbf{Z}$ is a comprehensive vector of time dummies, which capture the effect of common global economic shocks, and country-specific dummies, which account for other unobservable influences of trade and terrorism.

5. Results

We begin with results for total terrorism and trade for 151 country sample. For total trade (exports and imports), exports, and imports, Table 1 indicates the effects of last year's total terrorist attacks on trade in all products, primary commodities, and manufactured goods. Within the total sample, there are 127 developing and 24 developed (OECD) countries, for which we are interested in all trading pairs of countries during 1995–2012. The sum of the number of trading pairs for the 18 sample years determines the varying number of observations.

[Table 1 near here]

The most important takeaway from Table 1 is that lagged total terrorism negatively influences total trade in all products, primary commodities, and manufactured goods, with the greatest impact on the latter. For trading partners, a one percent change in last year's total terrorism results in a 0.052 percent reduction in all products trade, a 0.048 percent reduction in primary commodities trade, and a 0.069 percent reduction in manufactured goods trade. This follows because the double log form means that the coefficients are elasticities. For exports, there is a similar effect of total terrorism on trade in all products and manufactured goods, but not on trade in primary commodities. For imports, total terrorism negatively affects trade of all three classes of products. The effect of total terrorism on trade is, however, rather small,

[13] As elaborated in Glick and Rose (2015, p. 4), currency union means that money between two countries was interchangeable at 1:1 par for an extended period of time, so that there is no need to convert prices for trade between them. By transitivity rule, if dyads x-y and x-z are in currency unions, then y-z is a currency union.

consistent with the findings of Mirza and Verdier (2014) for the United States and its trading partners.

In Table 1, the gravity variables are robust over all nine models with the anticipated signs. The estimated coefficients of the log product of real GDP of trading dyads are positive and significant, with elasticities that range from 0.880 to 1.365. Manufactured goods display a more income elastic response than primary commodities for total trade and imports. For the product of real GDP per capita, primary commodities are inferior goods relative to manufactured goods. The estimated positive coefficients of common borders and common language indicate trade facilitation, while the negative coefficients of dyadic distance indicate trade inhibition, consistent with the augmented gravity model's prediction. The results show that trading dyads including a landlocked country are less likely to trade in contrast to trading dyads including an island country. Regional trade agreements greatly promote trade among trading partners, with manufactured goods displaying the largest impact. Currency union coefficients show more mixed results, in terms of significance, for trade promotion. Finally, colonial relationship and common colonizer among trading dyads promote trade.

[Table 2 near here]

Table 2 drills down by distinguishing the impact of domestic and transnational terrorism on total trade. Our formal theory predicts that transnational terrorism is anticipated to have a greater adverse impact than domestic terrorism on trade by raising transportation and fixed costs owing to greater border security and business expense as well as reduced competitors. Part of this cost involves the consequent slower transit of goods. In Table 2, both domestic and transnational terrorism significantly reduce trade. Moreover, as anticipated, the negative influence of transnational terrorism is greater (nearly twice) than that of domestic terrorism. For example, a one percent increases in transnational terrorism results in a fall of 0.094 percent in

trade in all products, a fall of 0.087 percent in trade in primary commodities, and a fall of 0.124 percent in trade of manufactured goods. The same percentage increase in domestic terrorism is associated with a fall of 0.048 percent in trade in all products, a fall of 0.045 percent in trade in primary commodities, and a fall of 0.061 percent in trade in manufactured goods. The identification of transnational terrorism as a more detrimental *marginal* inhibitor of trade relative to domestic terrorism is unique to our study. Domestic terrorism may have a greater *total* detrimental effect on trade since domestic terrorist attacks far outnumber transnational terrorist attacks. Again, the detrimental effect of both forms of terrorism is larger on manufactured goods than on primary commodities, which may correspond to a lack of response owing to fewer alternative sources of supply for primary commodities. As in Table 1, the gravity variables come in as predicted in a very robust fashion. Notably, there is little difference between corresponding gravity coefficients for domestic and transnational terrorism.

[Table 3 near here]

Table 3 drills down yet deeper to distinguish the impact of the two forms of terrorism on exports and imports for 151 sample countries by dyadic trading partners. The number of observations varies according to the number of trading partners for the six models. Transnational terrorism negatively affects exports and imports for all three categories of traded goods for which its influence on imports is about double that on exports. Moreover, transnational terrorism has a larger detrimental influence on exports and imports than the corresponding effect of domestic terrorism. The latter does not affect the export of primary commodities. In Table 3, the largest detrimental trade effect is associated with lagged transnational terrorism, where a one percent increase results in a 0.158 percent fall in the imports of manufactured goods. The gravity controls are robust in the predicted direction, but are suppressed in Table 3 and subsequent tables to conserve space.

[Table 4 near here]

Next, we disaggregate manufactured goods by resource intensity in terms of eight categories as listed in the columns of Table 4, where skill intensity increases in moving from left to right. The three panels of Table 4 display the effects of the two types of terrorism on total trade (Panel A), exports (Panel B), and imports (Panel C). For total trade, both forms of terrorism have a significant negative impact on the eight categories of resource-intensive sectors, with transnational terrorist attacks exerting a larger impact than domestic terrorism. Generally, medium-skilled and high-skilled sectors display a more marked negative impact than labor-intensive or low-skilled sectors, consistent with our theoretical specification. However, the nonlinearity of the impact by skill intensity is not captured by our model. Both forms of terrorism have similar harmful consequences on manufactured exports, with medium-skilled sectors showing the greatest harm. For imports, transnational terrorism has a much greater negative consequence, which can be more than double that of domestic terrorism. Medium-skilled and high-skilled manufacturing sectors are more harmed by terrorism, which in recent times are staged in populated centers that host such sectors. Furthermore, more skill-intensive sectors may take longer to recover from terrorist attacks and may incur more cost from these attacks.

[Table 5 near here]

Next, we decompose our sample countries into 127 developing countries and their developing trading partners, and into 24 OECD countries and their OECD trading partners. This division may isolate any influence that differing institutions in the two sets of countries may exert on the trade-terrorism relationship. The literature on trade and terrorism never examined developing countries as a separate entity. In Panel A of Table 5, transnational terrorism has more than triple the detrimental effect of domestic terrorism on total trade with developing

countries. Moreover, domestic terrorism has no effect on trade in primary commodities for these countries. In Panels B and C, transnational terrorism is associated with a larger detrimental consequence for imports than for exports. Domestic terrorism negatively affects exports of just manufactured, while it negatively affects imports of all products and primary commodities. The really consistent harmful influence on disaggregated trade is associated with transnational terrorism.

[Table 6 near here]

For developing countries and their developing trading partners, Table 6 displays the effects of domestic and transnational terrorism on eight manufacturing sectors' trade, ordered by skill intensity. Once again, transnational terrorism has a marked greater negative influence on total trade and on imports in the eight manufacturing sector than does domestic terrorism (see Panels A and C). These differences in effects are near or much greater than double. In general, both kinds of terrorism have a greater harmful effect on medium-skilled and high-skilled manufacturing sectors than on labor-intensive or low-skilled manufacturing, but the effect is not at all linear. In Panel B, terrorism's influence on developing countries' exports shows a less clear-cut pattern with transnational terrorism displaying a greater effect in more instances; however, half of the coefficients are insignificant.

[Table 7 near here]

Tables 7 and 8 focus on trade between 24 OECD countries and their OECD trading partners, similar to Egger and Gassebner (2014) and De Sousa et al. (2009). In Panel A of Table 7, there is little difference between the negative impacts of transnational and domestic terrorism on total trade, except for primary commodities for which domestic terrorism has no effect on trade. For Panels B and C, there is again little difference between the effect of the two kinds of terrorism on exports and imports for OECD countries and their trading partners. The impact on

trade in primary commodities is significant in only two of the six models that involve transnational terrorism. Finally, domestic and transnational terrorism have a bigger effect on imports than on exports.

[Table 8 near here]

In Table 8, the three panels display the impact of domestic and transnational terrorism on eight manufacturing sectors, ordered by factor or skill intensity. Contrary to earlier findings for developing countries, there is little difference between the effects of domestic and transnational terrorism on total trade, exports, or imports for manufacturing sectors for OECD countries' trading dyads. This may be due to OECD countries deploying better safeguards against transnational terrorism, thereby limiting transportation and fixed costs, compared to developing countries. As in the earlier analogous tables, trade involving medium-skilled and high-skilled industries is more harmed by both forms of terrorism than is trade concerning labor-intensive and low-skilled industries. Domestic and transnational terrorism have a larger detrimental influence on imports than on exports in these manufacturing sectors.

[Table 9 near here]

As discussed in Section 4, we turn to the placebo tests to support our presumed direction of causality. Tables 9 and 10 apply the falsification tests to two trade representations for developing countries and their trading partners: the first involves trade of all products, primary commodities, and manufactured goods, and the second concerns trade for the eight manufacturing sectors. For each exercise, we use the one-period ahead domestic and transnational terrorist attacks as a determinant of today's total trade, exports, and imports. In Table 9, only two coefficients of terrorism are negative and significant at a 0.05 level of significance. This offers support for our assumed direction of causation. In Table 10, only 6 out of 48 coefficients for the one-period-ahead terrorism terms are negative and significant at the

0.05 level, which adds further strong support that lagged, terrorist attacks cause trade losses and not the other way around.

[Table 11 and 12 near here]

Tables 11 and 12 tabulate these two falsification tests for trade involving OECD countries. In Table 11, none of the 18 terrorism coefficients are negative and significant, thus lending strong support to our presumed causation that terrorism impacts trade rather than the reverse. Furthermore, none of the 48 terrorism coefficients are negative and significant in Table 12, again strongly supporting our assumed causality. The second placebo test of reshuffling terrorist variables for country-pairs also shows no negatively significant effect of terrorism on trade. These results are available in the online appendix from Tables 1A through 4A.

6. Concluding remarks

By way of summary, we draw some basic messages from the myriad findings from the 12 tables. First, consistent with the formal model, transnational terrorism generally has a larger detrimental influence on trade than does domestic terrorism, thereby suggesting that the former has greater consequences on transportation cost, fixed cost, and/or the cost of conducting business. In many cases, the adverse effect on trade stemming from transnational terrorism is double that of domestic terrorism. This difference may also arise from transnational terrorism having a greater marginal impact on income losses (see, e.g., Gaibulloev and Sandler 2008), which, in turn, reduces the demand for imports. Second, alternative forms of terrorism have a larger negative effect on manufactured goods than on primary commodities. Third, there is a marked tendency for domestic and transnational terrorism to have a larger negative impact on trade involving medium-skilled and high-skilled industries than trade involving labor-intensive or low-skilled industries. This is consistent with our inference that skill-intensive sectors, usually located in

urban centers, will attract attacks from today's terrorists and that such sectors are less able than less skill-intensive sectors to recover from terrorist attacks. Fourth, imports display a larger adverse consequence from terrorism than is the case for exports. Fifth, gravity model controls are significant and robust with signs in the anticipated direction (Blomberg and Hess 2006; Glick and Rose 2015; Nitsch and Schumacher 2004). Sixth, our falsification tests support our presumed direction of causality.

Our exercise presents a much finer decomposition than the extant literature by distinguishing trade involving developing and developed countries and their trading dyads. Moreover, we decompose the detrimental influence of terrorism by the type of attacks. In addition, we distinguish trade between primary commodities and manufactured goods. In many instances, these distinctions provide much more nuanced and informative results that are consistent with our formal model.

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Table 1: Total terrorism and trade
Whole sample

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)	All products (7)	Primary commodities (8)	Manufact-ured goods (9)
	DV is log (exports + imports of above)			DV is log (exports of above)			DV is log (imports of above)		
(log product) 1+ total	-0.052***	-0.048***	-0.069***	-0.042***	-0.013	-0.059***	-0.070***	-0.070***	-0.062***
terrorist incidents, t-1	(0.009)	(0.011)	(0.009)	(0.009)	(0.011)	(0.009)	(0.010)	(0.013)	(0.012)
(log product) real GDP	1.099***	0.992***	1.147***	0.940***	0.908***	0.880***	1.265***	0.998***	1.365***
	(0.011)	(0.013)	(0.012)	(0.012)	(0.014)	(0.011)	(0.013)	(0.016)	(0.014)
(log product) real GDP	0.007	-0.107***	0.060***	-0.014	-0.052**	-0.037**	0.038*	-0.158***	0.257***
per capita	(0.017)	(0.020)	(0.017)	(0.017)	(0.020)	(0.016)	(0.021)	(0.024)	(0.022)
Common border	0.802***	1.061***	0.863***	0.889***	0.924***	0.963***	0.919***	1.342***	0.799***
	(0.142)	(0.142)	(0.138)	(0.140)	(0.140)	(0.136)	(0.156)	(0.164)	(0.153)
Common language	0.732***	0.669***	0.858***	0.785***	0.528***	0.987***	0.690***	0.698***	0.560***
	(0.052)	(0.060)	(0.052)	(0.051)	(0.060)	(0.051)	(0.067)	(0.078)	(0.069)
(log) distance	-1.426***	-1.372***	-1.401***	-1.452***	-1.468***	-1.526***	-1.203***	-1.122***	-1.220***
	(0.030)	(0.035)	(0.030)	(0.031)	(0.033)	(0.031)	(0.036)	(0.042)	(0.035)
Landlocked	-0.927***	-1.231***	-0.690***	-1.041***	-1.349***	-0.825***	-0.569***	-0.946***	-0.271***
	(0.037)	(0.046)	(0.036)	(0.038)	(0.046)	(0.037)	(0.047)	(0.059)	(0.048)
Regional trade agreement	0.707***	0.749***	0.806***	0.679***	0.703***	0.770***	1.015***	0.920***	1.216***
	(0.053)	(0.060)	(0.050)	(0.052)	(0.057)	(0.051)	(0.061)	(0.071)	(0.059)
Currency union	0.289**	0.181	0.339**	0.129	0.317**	0.131	0.095	-0.109	0.480***
	(0.134)	(0.141)	(0.136)	(0.129)	(0.136)	(0.121)	(0.174)	(0.178)	(0.175)
Colonial relationship	0.869***	0.999***	0.878***	0.952***	1.086***	0.867***	0.882***	0.937***	0.644***
	(0.133)	(0.143)	(0.139)	(0.124)	(0.147)	(0.133)	(0.169)	(0.200)	(0.182)
Common colonizer	0.947***	0.919***	0.885***	0.892***	0.738***	1.012***	0.884***	0.979***	0.656***
	(0.079)	(0.094)	(0.076)	(0.081)	(0.100)	(0.077)	(0.097)	(0.113)	(0.098)
Island	0.489***	0.462***	0.596***	0.381***	0.527***	0.402***	0.649***	0.367***	1.033***
	(0.054)	(0.066)	(0.053)	(0.056)	(0.068)	(0.056)	(0.066)	(0.085)	(0.069)
Year dummies included	yes	yes	yes	yes	yes	yes	yes	yes	yes
Country dummies included	yes	yes	yes	yes	yes	yes	yes	yes	yes
# of observations	152352	132971	145415	138293	117189	128405	135905	109524	126479
adjusted R-squared	0.764	0.659	0.772	0.754	0.633	0.782	0.687	0.574	0.676

Notes: Robust standard errors clustered by country-pair are presented in brackets. ***, **, and * represent significance at the 0.01, 0.05 and 0.10 levels.
DV stands for dependent variable.

Table 2: Domestic and transnational terrorism, and trade
Whole sample

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)
	DV is log (exports + imports of above)					
(log product) 1+ domestic	-0.048***	-0.045***	-0.061***			
terrorist incidents, t-1	(0.009)	(0.011)	(0.010)			
(log product) 1+ transnational				-0.094***	-0.087***	-0.124***
terrorist incidents, t-1				(0.013)	(0.011)	(0.011)
(log product) real GDP	1.096***	0.990***	1.143***	1.093***	0.987***	1.139***
	(0.011)	(0.013)	(0.012)	(0.011)	(0.013)	(0.011)
(log product) real GDP	0.011	-0.105***	0.066***	0.011	-0.104***	0.066***
per capita	(0.017)	(0.020)	(0.017)	(0.016)	(0.020)	(0.016)
Common border	0.801***	1.061***	0.863***	0.801***	1.061***	0.863***
	(0.142)	(0.142)	(0.138)	(0.142)	(0.142)	(0.138)
Common language	0.732***	0.669***	0.857***	0.733***	0.669***	0.858***
	(0.052)	(0.060)	(0.052)	(0.052)	(0.060)	(0.052)
(log) distance	-1.425***	-1.371***	-1.400***	-1.427***	-1.373***	-1.403***
	(0.030)	(0.035)	(0.030)	(0.030)	(0.035)	(0.030)
Landlocked	-0.925***	-1.229***	-0.687***	-0.931***	-1.235***	-0.695***
	(0.037)	(0.046)	(0.036)	(0.037)	(0.046)	(0.036)
Regional trade agreement	0.707***	0.748***	0.806***	0.708***	0.749***	0.807***
	(0.053)	(0.060)	(0.050)	(0.053)	(0.060)	(0.050)
Currency union	0.292**	0.183	0.342**	0.284**	0.175	0.331**
	(0.134)	(0.141)	(0.136)	(0.134)	(0.141)	(0.136)
Colonial relationship	0.869***	0.997***	0.878***	0.869***	0.999***	0.877***
	(0.133)	(0.144)	(0.139)	(0.133)	(0.143)	(0.139)
Common colonizer	0.946***	0.918***	0.884***	0.948***	0.921***	0.887***
	(0.079)	(0.094)	(0.076)	(0.079)	(0.094)	(0.076)
Island	0.487***	0.461***	0.592***	0.483***	0.456***	0.587***
	(0.054)	(0.066)	(0.053)	(0.054)	(0.066)	(0.052)
Year dummies included	yes	yes	yes	yes	yes	yes
Country dummies included	yes	yes	yes	yes	yes	yes
# of observations	152453	133053	145505	152352	132971	145415
adjusted R-squared	0.764	0.659	0.772	0.764	0.659	0.772

Note: Same as in Table 1.

Table 3: Domestic and transnational terrorism, and imports and exports, separately.
Whole sample

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)
	DV is log (exports of above)			DV is log (imports of above)		
(log product) 1+ domestic	-0.043***	-0.010	-0.064***	-0.058***	-0.066***	-0.037***
terrorist incidents, t-1	(0.010)	(0.012)	(0.009)	(0.011)	(0.013)	(0.013)
# of observations	138379	117260	128471	135983	109579	126551
adjusted R-squared	0.754	0.633	0.782	0.686	0.574	0.676
(log product) 1+ transnational	-0.068***	-0.053***	-0.067***	-0.127***	-0.112***	-0.158***
terrorist incidents, t-1	(0.011)	(0.014)	(0.011)	(0.013)	(0.016)	(0.015)
# of observations	138293	117189	128405	135905	109524	126479
adjusted R-squared	0.754	0.634	0.782	0.687	0.574	0.677
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes

Note: Same as in Table 1.

Table 4: Domestic and transnational terrorism, and trade of manufactured goods by resource intensity. Whole sample

	Labor intensive & resource-intensive manufactures (1)	Low-skilled & technology-intensive manufactures (2)	Medium-skilled & technology-intensive manufactures (3)	Medium-skilled electronics (excl., parts & components) (4)	Medium-skilled parts & components for electronics (5)	High-skilled & technology-intensive manufactures (6)	High-skilled electronics (excl., parts & components) (7)	High-skilled parts & components for electronics (8)
				Panel A: DV is log (exports + imports of the variable in column above)				
(log product) 1+ domestic	-0.046***	-0.085***	-0.091***	-0.173***	-0.146***	-0.041***	-0.136***	-0.104***
terrorist incidents, t-1	(0.012)	(0.011)	(0.011)	(0.017)	(0.014)	(0.011)	(0.017)	(0.017)
# of observations	125239	112351	127071	69445	80315	129012	84836	91444
adjusted R-squared	0.716	0.674	0.75	0.609	0.669	0.735	0.639	0.657
(log product) 1+ transnational	-0.113***	-0.182***	-0.144***	-0.277***	-0.187***	-0.089***	-0.210***	-0.175***
terrorist incidents, t-1	(0.014)	(0.014)	(0.012)	(0.019)	(0.017)	(0.012)	(0.019)	(0.019)
# of observations	125174	112298	127003	69428	80284	128945	84801	91410
adjusted R-squared	0.716	0.675	0.75	0.609	0.668	0.735	0.638	0.657
				Panel B: DV is log (exports of the variable in column above)				
(log product) 1+ domestic	-0.067***	-0.063***	-0.090***	-0.078***	-0.089***	-0.036***	-0.050***	-0.030**
terrorist incidents, t-1	(0.011)	(0.012)	(0.010)	(0.015)	(0.014)	(0.011)	(0.013)	(0.014)
# of observations	105925	93495	108105	55286	64573	111423	69094	75527
adjusted R-squared	0.715	0.678	0.766	0.633	0.671	0.745	0.684	0.697
(log product) 1+ transnational	-0.070***	-0.069***	-0.083***	-0.080***	-0.068***	-0.030**	-0.062***	-0.056***
terrorist incidents, t-1	(0.013)	(0.014)	(0.012)	(0.018)	(0.017)	(0.013)	(0.015)	(0.017)
# of observations	105875	93460	108057	55272	64549	111372	69067	75500
adjusted R-squared	0.714	0.678	0.765	0.632	0.671	0.745	0.684	0.698
				Panel C: DV is log (imports of the variable in column above)				
(log product) 1+ domestic	-0.023	-0.069***	-0.062***	-0.253***	-0.181***	-0.045***	-0.208***	-0.178***
terrorist incidents, t-1	(0.016)	(0.015)	(0.016)	(0.027)	(0.022)	(0.014)	(0.026)	(0.024)
# of observations	102047	85933	101278	39215	54083	106239	57536	67411
adjusted R-squared	0.611	0.583	0.626	0.515	0.542	0.641	0.507	0.525
(log product) 1+ transnational	-0.144***	-0.247***	-0.169***	-0.479***	-0.305***	-0.142***	-0.348***	-0.294***
terrorist incidents, t-1	(0.018)	(0.019)	(0.017)	(0.031)	(0.026)	(0.016)	(0.029)	(0.027)
# of observations	102000	85897	101227	39208	54070	106188	57516	67388
adjusted R-squared	0.612	0.585	0.627	0.516	0.542	0.642	0.507	0.525
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. All other notes are same as in Table 1.

Table 5: Domestic and transnational terrorism, and trade
Trade between developing countries

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)
	Panel A: DV is log (exports + imports of the variable in column above)					
(log product) 1+ domestic	-0.027**	-0.019	-0.044***			
terrorist incidents, t-1	(0.013)	(0.015)	(0.014)			
(log product) 1+ transnational				-0.097***	-0.096***	-0.134***
terrorist incidents, t-1				(0.015)	(0.019)	(0.016)
# of observations	97666	80446	91158	97589	80387	91090
adjusted R-squared	0.662	0.556	0.663	0.662	0.557	0.663
	Panel B: DV is log (exports of the variable in column above)					
(log product) 1+ domestic	-0.021	0.002	-0.039***			
terrorist incidents, t-1	(0.015)	(0.017)	(0.014)			
(log product) 1+ transnational				-0.065***	-0.061***	-0.053***
terrorist incidents, t-1				(0.017)	(0.021)	(0.017)
# of observations	84783	68101	75874	84720	68050	75829
adjusted R-squared	0.635	0.529	0.664	0.636	0.529	0.664
	Panel C: DV is log (imports of the variable in column above)					
(log product) 1+ domestic	-0.036**	-0.031*	-0.028			
terrorist incidents, t-1	(0.015)	(0.018)	(0.017)			
(log product) 1+ transnational				-0.119***	-0.106***	-0.154***
terrorist incidents, t-1				(0.018)	(0.022)	(0.020)
# of observations	82795	60606	74982	82740	60573	74929
adjusted R-squared	0.579	0.459	0.576	0.579	0.459	0.577
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. All other notes are same as in Table 1.

Table 6: Domestic and transnational terrorism, and trade of manufactured goods by resource intensity. Trade between developing countries

	Labor intensive & resource-intensive manufactures (1)	Low-skilled & technology-intensive manufactures (2)	Medium-skilled & technology-intensive manufactures (3)	Medium-skilled electronics (excl., parts & components) (4)	Medium-skilled parts & components for electronics (5)	High-skilled & technology-intensive manufactures (6)	High-skilled electronics (excl., parts & components) (7)	High-skilled parts & components for electronics (8)
				Panel A: DV is log (exports + imports of the variable in column above)				
(log product) 1+ domestic	-0.046***	-0.074***	-0.068***	-0.193***	-0.168***	-0.015	-0.161***	-0.135***
terrorist incidents, t-1	(0.016)	(0.017)	(0.016)	(0.027)	(0.023)	(0.016)	(0.026)	(0.027)
# of observations	73859	63009	74535	33302	37761	76189	41207	44419
adjusted R-squared	0.611	0.568	0.61	0.495	0.492	0.61	0.475	0.482
(log product) 1+ transnational	-0.129***	-0.212***	-0.158***	-0.352***	-0.248***	-0.088***	-0.288***	-0.255***
terrorist incidents, t-1	(0.020)	(0.021)	(0.018)	(0.031)	(0.029)	(0.019)	(0.031)	(0.033)
# of observations	73813	62973	74489	33292	37743	76144	41187	44402
adjusted R-squared	0.611	0.569	0.611	0.496	0.491	0.61	0.475	0.483
				Panel B: DV is log (exports of the variable in column above)				
(log product) 1+ domestic	-0.049***	-0.028	-0.064***	-0.045*	-0.059**	-0.007	-0.01	-0.024
terrorist incidents, t-1	(0.015)	(0.018)	(0.014)	(0.023)	(0.024)	(0.016)	(0.020)	(0.024)
# of observations	58890	47611	58135	22586	25394	60861	28720	31484
adjusted R-squared	0.607	0.564	0.626	0.544	0.484	0.611	0.522	0.511
(log product) 1+ transnational	-0.058***	-0.049**	-0.072***	-0.033	-0.032	-0.006	-0.031	-0.065**
terrorist incidents, t-1	(0.019)	(0.022)	(0.018)	(0.030)	(0.031)	(0.020)	(0.028)	(0.032)
# of observations	58857	47593	58107	22579	25383	60831	28707	31472
adjusted R-squared	0.607	0.564	0.625	0.544	0.483	0.611	0.522	0.511
				Panel C: DV is log (imports of the variable in column above)				
(log product) 1+ domestic	-0.044**	-0.090***	-0.056**	-0.268***	-0.203***	-0.039*	-0.259***	-0.201***
terrorist incidents, t-1	(0.021)	(0.021)	(0.022)	(0.037)	(0.029)	(0.020)	(0.035)	(0.035)
# of observations	55651	46365	56527	20169	26102	58820	27471	31719
adjusted R-squared	0.523	0.504	0.51	0.453	0.435	0.528	0.417	0.41
(log product) 1+ transnational	-0.158***	-0.282***	-0.174***	-0.529***	-0.345***	-0.150***	-0.453***	-0.349***
terrorist incidents, t-1	(0.025)	(0.027)	(0.024)	(0.043)	(0.038)	(0.024)	(0.042)	(0.042)
# of observations	55621	46337	56493	20162	26091	58784	27458	31708
adjusted R-squared	0.524	0.507	0.511	0.455	0.435	0.529	0.417	0.41
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. All other notes are same as in Table 1.

Table 7: Domestic and transnational terrorism, and trade
Trade between OECD countries

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)
	Panel A: DV is log (exports + imports of the variable in column above)					
(log product) 1+ domestic	-0.086***	-0.008	-0.108***			
terrorist incidents, t-1	(0.016)	(0.022)	(0.017)			
(log product) 1+ transnational				-0.097***	-0.071***	-0.095***
terrorist incidents, t-1				(0.017)	(0.022)	(0.019)
# of observations	4692	4692	4692	4692	4692	4692
adjusted R-squared	0.933	0.87	0.929	0.933	0.87	0.927
	Panel B: DV is log (exports of the variable in column above)					
(log product) 1+ domestic	-0.027	0.017	-0.035**			
terrorist incidents, t-1	(0.018)	(0.027)	(0.015)			
(log product) 1+ transnational				-0.041***	-0.022	-0.035**
terrorist incidents, t-1				(0.016)	(0.027)	(0.015)
# of observations	4692	4688	4687	4692	4688	4687
adjusted R-squared	0.914	0.861	0.923	0.914	0.861	0.923
	Panel C: DV is log (imports of the variable in column above)					
(log product) 1+ domestic	-0.166***	-0.011	-0.211***			
terrorist incidents, t-1	(0.026)	(0.029)	(0.030)			
(log product) 1+ transnational				-0.190***	-0.106***	-0.205***
terrorist incidents, t-1				(0.032)	(0.028)	(0.041)
# of observations	4692	4692	4692	4692	4692	4692
adjusted R-squared	0.899	0.795	0.89	0.898	0.796	0.886
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. All other notes are same as in Table 1.

Table 8: Domestic and transnational terrorism, and trade of manufactured goods by resource intensity. Trade between OECD countries

	Labor intensive & resource-intensive manufactures (1)	Low-skilled & technology-intensive manufactures (2)	Medium-skilled & technology-intensive manufactures (3)	Medium-skilled electronics (excl., parts & components) (4)	Medium-skilled parts & components for electronics (5)	High-skilled & technology-intensive manufactures (6)	High-skilled electronics (excl., parts & components) (7)	High-skilled parts & components for electronics (8)
				Panel A: DV is log (exports + imports of the variable in column above)				
(log product) 1+ domestic	-0.102***	-0.071***	-0.109***	-0.044	-0.171***	-0.100***	-0.186***	-0.203***
terrorist incidents, t-1	(0.023)	(0.023)	(0.024)	(0.030)	(0.028)	(0.020)	(0.035)	(0.031)
# of observations	4692	4690	4692	4630	4675	4691	4661	4682
adjusted R-squared	0.892	0.891	0.926	0.791	0.872	0.903	0.812	0.834
(log product) 1+ transnational	-0.089***	-0.072***	-0.117***	-0.061**	-0.154***	-0.081***	-0.200***	-0.183***
terrorist incidents, t-1	(0.023)	(0.026)	(0.027)	(0.029)	(0.036)	(0.023)	(0.040)	(0.034)
# of observations	4692	4690	4692	4630	4675	4691	4661	4682
adjusted R-squared	0.891	0.891	0.925	0.791	0.869	0.902	0.81	0.831
				Panel B: DV is log (exports of the variable in column above)				
(log product) 1+ domestic	-0.009	-0.051*	-0.056***	-0.018	-0.119***	-0.029	-0.061**	-0.063**
terrorist incidents, t-1	(0.021)	(0.026)	(0.021)	(0.034)	(0.029)	(0.018)	(0.027)	(0.025)
# of observations	4667	4656	4675	4448	4545	4684	4574	4624
adjusted R-squared	0.889	0.855	0.906	0.782	0.839	0.907	0.861	0.863
(log product) 1+ transnational	-0.023	-0.079***	-0.075***	-0.005	-0.114***	-0.008	-0.093***	-0.093***
terrorist incidents, t-1	(0.022)	(0.030)	(0.019)	(0.035)	(0.033)	(0.021)	(0.030)	(0.027)
# of observations	4667	4656	4675	4448	4545	4684	4574	4624
adjusted R-squared	0.889	0.855	0.906	0.782	0.837	0.907	0.861	0.863
				Panel C: DV is log (imports of the variable in column above)				
(log product) 1+ domestic	-0.170***	-0.128***	-0.235***	-0.086*	-0.304***	-0.205***	-0.386***	-0.453***
terrorist incidents, t-1	(0.031)	(0.035)	(0.044)	(0.044)	(0.046)	(0.033)	(0.064)	(0.052)
# of observations	4690	4682	4692	4419	4654	4691	4624	4670
adjusted R-squared	0.86	0.849	0.877	0.747	0.8	0.854	0.698	0.741
(log product) 1+ transnational	-0.132***	-0.144***	-0.279***	-0.133**	-0.285***	-0.217***	-0.422***	-0.411***
terrorist incidents, t-1	(0.033)	(0.048)	(0.058)	(0.059)	(0.066)	(0.042)	(0.078)	(0.068)
# of observations	4690	4682	4692	4419	4654	4691	4624	4670
adjusted R-squared	0.857	0.848	0.874	0.747	0.794	0.851	0.693	0.729
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. All other notes are same as in Table 1.

Table 9: Placebo test #1, using the one period future values of domestic and transnational terrorism
Trade between developing countries

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)
	Panel A: DV is log (exports + imports of the variable in column above)					
(log product) 1+ domestic	0.003	0.012*	-0.003			
terrorist incidents, t+1	(0.005)	(0.006)	(0.005)			
(log product) 1+ transnational				-0.015*	-0.002	-0.028***
terrorist incidents, t+1				(0.009)	(0.011)	(0.009)
# of observations	102396	84084	95472	102317	84031	95407
adjusted R-squared	0.661	0.555	0.662	0.661	0.555	0.662
	Panel B: DV is log (exports of the variable in column above)					
(log product) 1+ domestic	0.003	0.01	-0.002			
terrorist incidents, t+1	(0.006)	(0.007)	(0.006)			
(log product) 1+ transnational				-0.011	0.007	-0.013
terrorist incidents, t+1				(0.010)	(0.012)	(0.010)
# of observations	88681	71042	79237	88626	71002	79199
adjusted R-squared	0.634	0.527	0.663	0.634	0.527	0.663
	Panel C: DV is log (imports of the variable in column above)					
(log product) 1+ domestic	0.007	0.008	0.000			
terrorist incidents, t+1	(0.007)	(0.008)	(0.007)			
(log product) 1+ transnational				-0.004	-0.009	-0.025**
terrorist incidents, t+1				(0.011)	(0.014)	(0.012)
# of observations	86696	63265	78384	86634	63239	78329
adjusted R-squared	0.578	0.458	0.575	0.578	0.458	0.575
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. Only the values of terrorism variables are are one period ahead. The results of all other variables are statistically and economically significant as in Tables 1 and 2. All other notes are same as in Table 1. Results of placebo test #2 are available in the online appendix.

Table 10: Placebo test #1, using the one period future values of domestic and transnational terrorism
Trade between developing countries

	Labor intensive & resource-intensive manufactures (1)	Low-skilled & technology-intensive manufactures (2)	Medium-skilled & technology-intensive manufactures (3)	Medium-skilled electronics (excl., parts & components) (4)	Medium-skilled parts & components for electronics (5)	High-skilled & technology-intensive manufactures (6)	High-skilled electronics (excl., parts & components) (7)	High-skilled parts & components for electronics (8)
				Panel A: DV is log (exports + imports of the variable in column above)				
(log product) 1+ domestic	0.001	0.020***	0.005	0.016	-0.019*	0.009	0.021**	0.012
terrorist incidents, t+1	(0.006)	(0.008)	(0.006)	(0.010)	(0.010)	(0.006)	(0.010)	(0.010)
# of observations	77175	65700	77782	34597	38973	79504	42745	45915
adjusted R-squared	0.61	0.568	0.609	0.489	0.488	0.609	0.471	0.478
(log product) 1+ transnational	-0.029***	-0.011	-0.008	-0.027	-0.026	-0.01	0.009	-0.001
terrorist incidents, t+1	(0.011)	(0.013)	(0.011)	(0.017)	(0.016)	(0.011)	(0.016)	(0.017)
# of observations	77140	65671	77741	34593	38963	79462	42728	45899
adjusted R-squared	0.61	0.568	0.609	0.489	0.488	0.609	0.472	0.478
				Panel B: DV is log (exports of the variable in column above)				
(log product) 1+ domestic	0.001	0.029***	0.005	0.002	-0.007	0.011	0.014	0.001
terrorist incidents, t+1	(0.007)	(0.009)	(0.007)	(0.011)	(0.012)	(0.007)	(0.011)	(0.011)
# of observations	61466	49567	60505	23459	26216	63362	29750	32541
adjusted R-squared	0.606	0.564	0.625	0.542	0.482	0.609	0.521	0.507
(log product) 1+ transnational	-0.014	0	0.007	-0.044**	-0.009	0.005	-0.004	-0.004
terrorist incidents, t+1	(0.012)	(0.014)	(0.011)	(0.017)	(0.019)	(0.012)	(0.017)	(0.019)
# of observations	61448	49558	60483	23457	26212	63341	29744	32533
adjusted R-squared	0.606	0.564	0.625	0.542	0.482	0.61	0.521	0.508
				Panel C: DV is log (imports of the variable in column above)				
(log product) 1+ domestic	0.001	-0.01	0.005	0.000	-0.026**	-0.004	0.012	0.001
terrorist incidents, t+1	(0.008)	(0.010)	(0.008)	(0.015)	(0.013)	(0.009)	(0.013)	(0.013)
# of observations	58002	48241	58839	20902	26865	61274	28358	32666
adjusted R-squared	0.524	0.502	0.51	0.442	0.428	0.527	0.409	0.404
(log product) 1+ transnational	-0.041***	-0.033*	-0.024	-0.041	-0.052**	-0.026*	-0.013	-0.007
terrorist incidents, t+1	(0.013)	(0.017)	(0.014)	(0.026)	(0.021)	(0.014)	(0.023)	(0.022)
# of observations	57977	48215	58808	20899	26857	61239	28346	32655
adjusted R-squared	0.524	0.503	0.51	0.442	0.428	0.527	0.409	0.404
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. Only the values of terrorism variables are taken one period ahead. The results of all other variables are statistically and economically significant as in Tables 1 and 2. All other notes are same as in Table 1. Results of placebo test #2 are available in the online appendix.

Table 11: Placebo test #1, using the one period future values of domestic and transnational terrorism Trade between OECD countries

	All products (1)	Primary commodities (2)	Manufact-ured goods (3)	All products (4)	Primary commodities (5)	Manufact-ured goods (6)
	Panel A: DV is log (exports + imports of the variable in column above)					
(log product) 1+ domestic	-0.006	0.001	-0.004			
terrorist incidents, t+1	(0.005)	(0.007)	(0.006)			
(log product) 1+ transnational				-0.004	-0.014	0.004
terrorist incidents, t+1				(0.008)	(0.011)	(0.009)
# of observations	4921	4921	4921	4920	4920	4920
adjusted R-squared	0.931	0.869	0.925	0.931	0.869	0.925
	Panel B: DV is log (exports of the variable in column above)					
(log product) 1+ domestic	-0.005	-0.005	0.000			
terrorist incidents, t+1	(0.006)	(0.009)	(0.006)			
(log product) 1+ transnational				-0.003	-0.018	0.003
terrorist incidents, t+1				(0.009)	(0.012)	(0.011)
# of observations	4921	4917	4914	4920	4916	4913
adjusted R-squared	0.912	0.861	0.921	0.912	0.861	0.921
	Panel C: DV is log (imports of the variable in column above)					
(log product) 1+ domestic	-0.005	0.010	-0.007			
terrorist incidents, t+1	(0.007)	(0.009)	(0.008)			
(log product) 1+ transnational				-0.003	0.002	0.008
terrorist incidents, t+1				(0.011)	(0.015)	(0.013)
# of observations	4921	4921	4921	4920	4920	4920
adjusted R-squared	0.894	0.794	0.882	0.894	0.794	0.882
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. Only the values of terrorism variables are taken one period ahead. The results of all other variables are statistically and economically significant as in Tables 1 and 2. All other notes are same as in Table 1. Results of placebo test #2 are available in the online appendix.

Table 12: Placebo test #1, using the one period future values of domestic and transnational terrorism
Trade between OECD countries

	Labor intensive & resource-intensive manufactures (1)	Low-skilled & technology-intensive manufactures (2)	Medium-skilled & technology-intensive manufactures (3)	Medium-skilled electronics (excl., parts & components) (4)	Medium-skilled parts & components for electronics (5)	High-skilled & technology-intensive manufactures (6)	High-skilled electronics (excl., parts & components) (7)	High-skilled parts & components for electronics (8)
				Panel A: DV is log (exports + imports of the variable in column above)				
(log product) 1+ domestic	-0.005	0.003	-0.003	-0.004	-0.001	0.001	0.011	0.000
terrorist incidents, t+1	(0.007)	(0.008)	(0.007)	(0.013)	(0.011)	(0.007)	(0.013)	(0.011)
# of observations	4921	4918	4921	4853	4900	4920	4885	4908
adjusted R-squared	0.889	0.889	0.922	0.79	0.864	0.899	0.805	0.827
(log product) 1+ transnational	0.004	-0.001	0.006	-0.009	0.040**	0.014	0.015	0.014
terrorist incidents, t+1	(0.011)	(0.012)	(0.011)	(0.020)	(0.017)	(0.012)	(0.021)	(0.019)
# of observations	4920	4917	4920	4852	4899	4919	4884	4907
adjusted R-squared	0.889	0.889	0.922	0.79	0.865	0.899	0.805	0.827
				Panel B: DV is log (exports of the variable in column above)				
(log product) 1+ domestic	-0.002	0.001	0.000	-0.002	0.002	0.011	0.020*	0.013
terrorist incidents, t+1	(0.008)	(0.009)	(0.008)	(0.013)	(0.012)	(0.008)	(0.011)	(0.011)
# of observations	4892	4880	4902	4667	4762	4909	4792	4845
adjusted R-squared	0.887	0.853	0.905	0.779	0.832	0.905	0.858	0.86
(log product) 1+ transnational	-0.019	-0.019	-0.001	-0.007	0.043**	0.019	-0.017	0.01
terrorist incidents, t+1	(0.014)	(0.016)	(0.013)	(0.021)	(0.019)	(0.013)	(0.019)	(0.018)
# of observations	4891	4879	4901	4666	4761	4908	4791	4844
adjusted R-squared	0.887	0.853	0.905	0.779	0.833	0.905	0.858	0.86
				Panel C: DV is log (imports of the variable in column above)				
(log product) 1+ domestic	-0.001	0.011	0.001	0.006	-0.012	-0.01	0.000	-0.018
terrorist incidents, t+1	(0.009)	(0.010)	(0.010)	(0.015)	(0.015)	(0.010)	(0.020)	(0.017)
# of observations	4920	4912	4921	4622	4877	4920	4843	4890
adjusted R-squared	0.856	0.844	0.868	0.742	0.785	0.845	0.68	0.717
(log product) 1+ transnational	0.023	0.016	0.019	0.012	0.029	-0.002	0.023	0.028
terrorist incidents, t+1	(0.017)	(0.017)	(0.016)	(0.026)	(0.024)	(0.016)	(0.032)	(0.027)
# of observations	4919	4911	4920	4621	4876	4919	4842	4889
adjusted R-squared	0.856	0.844	0.868	0.742	0.785	0.845	0.68	0.717
All other control variables, time and country dummies included	yes	yes	yes	yes	yes	yes	yes	yes

Notes: All regressions include all control variables, time and country dummies. Only the values of terrorism variables are taken one period ahead. The results of all other variables are statistically and economically significant as in Tables 1 and 2. All other notes are same as in Table 1. Results of placebo test #2 are available in the online appendix.