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RESEARCH ARTICLE



Does Terrorism Affect Foreign Greenfield Investments?

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ABSTRACT

This work assesses the impact of terrorism suffered by a country on the capacity to attract foreign greenfield investments. To this end, we estimate a theoretically consistent structural gravity equation which accounts for several well-known estimation biases such as ‘home bias’, endogeneity and multilateral resistance. This specification makes it possible to identify the effect of a country-specific time-varying characteristic such as terrorism on bilateral foreign direct investment. We exploit a dataset that covers domestic and foreign investment of 182 countries in the period 2006–2016 on both the extensive and intensive margins. Our study finds that foreign investors are reluctant to invest in countries affected by terrorism and also reduce the amount of their investments in such cases. Sensitivity to terrorism is higher for foreign than for domestic investors. Terrorist attacks have a more intense impact on foreign investors’ decision-making when they are international or when these violent acts hurt governments. However, our results also evidence that good governance appears to be an effective tool for counterbalancing these damages in the eyes of foreign investors.

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Home bias; gravity equation; terrorism; FDI; foreign greenfield investments; institutions



JEL CLASSIFICATION

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Introduction

Terrorism is a dramatic event that prevents society from enjoying the peace and stability needed to prosper (Olson 1993). Terrorism usually has a political, religious or ideological objective. Violence is used to intimidate a large audience, creating fear in order to exert pressure on governments (Enders and Sandler 2000). Even if damaging the economy is not always terrorists’ final goal, terrorist violence increases the political risk of countries and hinders economic prospects (Abadie and Gardeazabal 2003; Jensen and Young 2008). Overall, the literature has extensively studied the impact of political violence on several outcomes such as growth and trade (see Ouyang and Rajan 2017 for a review), and to a lesser extent on foreign direct investment (FDI). Nevertheless, the effect of terrorism *per se* on disaggregated bilateral capital flows remains largely unexplored.

There are several channels through which terrorism may discourage foreign investors to invest (extensive margin) or make them reduce the amounts of their investments (intensive margin). Firstly, terrorism may increase the risks and costs of investments, for example, when foreign assets and employees constitute direct targets but also when infrastructures are dramatically damaged. Investors may need to divert resources from productive investments due to incurring costs related to curtailing violence (Asongu and Nwachukwu 2017). Secondly, terrorism may bring about some general equilibrium effects similar to those

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described by Egger and Gassebner (2015) for trade. Indeed, terrorism may cause the diversion of domestic and foreign investments to a third country and of public funds to antiterrorism measures. Furthermore, terrorism may hamper countries' market potential and economic prosperity, and thus deter FDI. Despite these powerful arguments, the empirical evidence regarding the negative effect of terrorism on FDI is mixed.

This paper expands the previous empirical evidence on the effect of terrorism on FDI in several directions. Firstly, the analysis looks into the case of foreign greenfield investments (FGI), the main mode of FDI into developing countries (UNCTAD 2021), which are the countries that suffer the most from terrorism.¹ Secondly, our study differs significantly from previous research by dealing with bilateral investment flows for a large panel of countries for the period 2006-2016. Furthermore, we delve into the nature of terrorism by disentangling attacks according to targets, and we also pay special attention to the quality of host countries' institutions. Finally, an important novelty of our approach consists of estimating a structural gravity model to gauge the effect of terrorist attacks on both the extensive and intensive margins of FDI.

The structural gravity model explicitly takes into account domestic investment. We consider the amount of domestic capital flow for domestic investment in the intensive margin (Gil-Pareja, Llorca-Vivero, and Paniagua 2022; Heid and Márquez-Ramos, 2019), and the creation of domestic private firms for the domestic extensive margin. Capturing the effect of terrorism on investments is similar to the issue raised by Heid, Larch, and Yotov (2021) concerning the challenge of estimating non-discriminatory trade policies. In line with the recent gravity literature (Beverelli et al. 2018; Heid and Márquez-Ramos 2019; Heid, Larch, and Yotov 2021; Yotov 2022), this empirical strategy allows us isolate the impact of time-varying country-specific variables such as terrorist attacks on FGI. This methodology is especially accurate to study the FDI-terrorism nexus.

Our empirical strategy reduces three potential biases that can appear in the analysis of the effect of violence on FDI: omitted variable bias, simultaneity and 'home bias'. Firstly, we introduce country-pair fixed effects to address omitted variable bias at the country-pair level (Baier and Bergstrand 2007). We also introduce multilateral resistance terms in the form of time dummies interacted with source-country and destination-country fixed effects. Thus, we control for remoteness, third-country effects (the relative attractiveness of alternative host countries), and unobservable time-varying heterogeneity at the country level. However, we cannot completely guarantee that our variables of interest are not correlated with an omitted country-pair time-varying variable.

Secondly, we control for simultaneity bias in several ways. We capitalize on the domestic data to create an exogenous international border dummy, which we interact with terror attacks. The interaction measures the effect of violence on FGI relative to domestic investment and sweeps away endogeneity in a diff-in-diff fashion under certain assumptions (Beverelli et al. 2018). To make sure that our results are not biased due to anticipation effects, we alternatively regress the lagged stock of terror attacks against contemporaneous FGI flows.

Thirdly, the use of domestic investment flows allows us to tackle the 'home bias' (McCallum 1995) and the effect of globalisation. The 'home bias' stands for the fact that international borders impose costs on international relative to intra-national transactions. This is particularly relevant in our setting because terrorism may well create an incentive for domestic investors to invest abroad or, in turn, disincentivize foreign investors more heavily from investing in countries suffering attacks.

Surprisingly, the empirical literature remains relatively silent about the effect of terrorism on domestic investment. Abadie and Gardeazabal (2008)'s theoretical model shows that in the presence of terrorism, the output level in the economy is determined by its capital mobility because terrorism negatively affects the rate of return on capital. With perfect mobility, (foreign) investors would search for safer alternative locations, leading to a decrease of inward FDI. However, the model also suggests

that domestic investments should decrease, or could be redirected to safer countries. Accurately disaggregating economic impacts from terrorist attacks is relevant for policymakers to better target recovery efforts.

Our results suggest that terrorism affects FGI more than domestic investment, both in the extensive and intensive margins. This effect is larger on the intensive margin. The impact is particularly intense when terrorist attacks are international, when there are fatalities from the investing multinational enterprises' (MNE) country, and when the target in the host country is the government. This latter finding is novel in the literature, and highlights the role governments can potentially have on limiting the negative economic consequences of terrorism. Along these lines, our results show that countries with worse institutions are more likely to be negatively affected by terrorism in terms of FDI. Conversely, terrorism does not seem to deter FGI in countries that enjoy the highest levels of institutional quality.

The remainder of the article is organized as follows: the next section presents a short literature review; Section III describes the empirical model and data; Section IV reports the results; and Section V offers some concluding remarks.

Literature Review

There is a broad theoretical consensus on the negative effects of terrorism. On one hand, the risk of terrorist attacks reduces the expected returns and increases the risk associated with investment in a given location relative to alternative ones (Enders and Sandler 1996; Abadie and Gardeazabal 2008). Enders and Sandler (1996) argue that attacks directed at foreign investments and workers (which are considered transnational attacks) may increase the perception of risk. Similarly, attacks on symbolic institutions such as country's official military or airports would also threaten investors. Osgood and Simonelli (2020) review different mechanisms through which terrorism raises the costs that MNEs have to incur when they invest, such as the costs to ensure their security, insurance and recruitment. Gaibulloev and Sandler (2009) and Johns and Wellhausen (2016) mention the risk of disruption of supply chains. Powers and Choi (2012) argue that MNEs would be especially concerned by attacks affecting business while they would be less sensitive to attacks affecting non-business activities. However, terrorism increases uncertainty regarding several outcomes such as governments' spending (e.g. counter-terrorism measures) and countries' economic performance. Consequently, terrorism increases countries' risk ratings, which are taken into account by international investors (Gaibulloev and Sandler 2019).

Therefore, most empirical studies find that terrorism harms aggregated FDI inflows (Abadie and Gardeazabal 2008; Bandyopadhyay, Sandler, and Younas 2014; Filer and Stanišić, 2016).² However, the negative effects only appear clearly under certain circumstances and some authors find a non-significant relationship (Li 2006; Witte et al. 2017; Arif, Rawat, and Khan 2021), or even a positive one (Skovoroda et al. 2019). Powers and Choi (2012) argue that terrorist attacks only negatively affect net inflows of FDI stocks when the targets are businesses. Bandyopadhyay, Sandler, and Younas (2014) conclude that domestic and transnational terrorism depress FDI, but that this negative effect can be curbed with foreign aid.

Further, sectorial analysis reveals a high heterogeneity in the response of FDI to conflict. In some cases, foreign investors could take advantage of political instability or conflicts that may reduce the bargaining power of local authorities. Several authors have underlined that such opportunist behaviours are likely to occur in the case of resource-seeking FDI (Biglaiser and DeRouen 2007; Burger, Ianchovichina, and Rijkers 2016; Li, Murshed, and Tanna 2017; Skovoroda et al. 2019; Witte et al. 2017). Likewise, Osgood and Simonelli (2020) show that MNEs may remain and cope with the additional costs generated by terrorism if firms lack viable alternative hosts.

High-income countries can assign more financial resources to fight terrorism (Gaibulloev and Sandler 2008). In this respect, Galović et al. (2018) and Saeed et al. (2018) demonstrate that the impact of terrorism on FDI inflows and outflows in developed countries is significantly weaker than in developing countries.

Institutional quality may also mitigate the economic impact of terrorism on inward FDI (Oh and Oetzel 2017; Ouyang and Rajan 2017). First, higher institutional quality implies a reduction in the costs of doing business, and this is expected to foster inward FDI (see Bailey 2018 for literature review). Second, when institutions work better, governments may give effective and sufficient responses to terrorism by protecting property or increasing investment in counter-terrorism. This implies that government intervention can significantly reduce the negative economic implications of terrorism from MNEs' perspective.

A particular concern of the empirical literature is reverse causality. Filer and Stanišić (2016) acknowledge that inflows of foreign capital can provide additional targets and possibly greater resentment, hence creating motivation for attacks. Conversely, the benefits of FDI in terms of growth and employment may mitigate these feelings. However, the hypothesis of reverse causality is usually rejected by this literature. For instance, Li (2006) refutes the hypothesis that 'globalization' would increase the number of terrorist attacks through international trade, FDI, and portfolio investment. Asongu and Biekpe (2018) also invalidate the hypothesis that economic globalization would foster terrorism. Osgood and Simonelli (2020) still find a negative effect of terrorism on FDI after using instrumental variables to control for the endogeneity.

Methodology

This study applies the structural gravity model approach to estimate the effect on inward FDI of terrorism suffered by host countries. Intuitively, the gravity equation builds on the idea that bilateral flows are directly proportional to home and host countries' economic size, and inversely proportional to economic barriers or frictions. The gravity model has solid theoretical foundations for trade (Anderson and Van Wincoop 2003) and FDI flows (e.g. Head and Ries 2008, 2020).

The Gravity gold standard includes controls for the structural forces predicted by theory with a complete set of fixed effects, namely country-pair, source-time, and destination-time dummies (Anderson and Yotov 2012). The full inclusion of fixed effects makes it possible to reduce the omitted variable bias, and to isolate the effect of the independent variables of interest – in our case terrorism – on FDI.

Country-pair fixed effects enable controlling for unobservable heterogeneity and time-invariant determinants of FDI (e.g. geographic distance or colonial ties) at the country-pair level, thus reducing omitted variable bias (Baldwin and Taglioni 2006). These fixed effects reduce the endogeneity bias in the gravity estimates of time-varying country-pair variables, like bilateral treaties (Baier and Bergstrand 2007; Bergstrand and Egger 2013).

Source and host country time-varying fixed effects control for multilateral resistance terms (MRTs) and control for third-country effects in trade (Anderson and Van Wincoop 2003) and FDI (Anderson, Larch, and Yotov 2019). In this way, the structural gravity equation controls for the relative capacity of investing abroad (source fixed effects) and the relative capacity to attract FDI (host-fixed effects). In our context, these fixed effects allow us to control for the fact that MNEs choose a destination after comparing with third-country alternatives (Osgood and Simonelli 2020). Firms face a trade-off between the pull factors (e.g. market size or natural resources) and the deterrents factors (e.g. low institutional quality or violence).

To guarantee unbiased estimates of the gravity model with panel data, home- and host-country fixed effects have to be time-varying (Head and Mayer 2014). Time-invariant country dummies are collinear with the country-pair fixed effects, and, therefore, introduce bias at this level. Additionally, in a panel setting, prices vary with time and so MRTs should be dynamic.

Moreover, this set of fixed effects absorbs any country-specific variables and controls for any unobservable specific home and host countries' time-varying characteristics, reducing the omitted variable bias. Therefore, with structural gravity, we control for several factors that may affect countries' capacity to attract FDI in the context of suffering from terrorism: level of

development (Galović et al., 2018), received foreign aid (Bandyopadhyay, Sandler, and Younas 2011, 2014; Lee 2017), military expenditure (Saeed et al. 2018) or natural resource endowment (Witte et al. 2017).

To estimate the country-specific effects of terrorism (a country-specific variable collinear with dynamic MRTs), we follow the procedure outlined in Heid, Larch, and Yotov (2021). We estimate the interaction of terrorism with a border dummy, which captures whether the investment is domestic or international. Since the interacted term is not collinear with the country-fixed effects, this method allows us to identify the effect of terrorism within structural gravity.

This approach requires to include domestic investment in our dataset, which brings several additional benefits for reducing estimation bias, as outlined by Yotov (2022). Firstly, domestic data allow us to control for the 'border effect' (or 'home bias') evidenced by McCallum (1995) for trade. The home bias quantifies the preference for (and lower cost of) domestic in comparison with international goods and services (Anderson and Van Wincoop 2003).

Similarly to trade, MNEs are likely to face more constrictions than domestic investment. For example, MNEs' investment decisions could be hampered by formal restrictions, such as the need to encounter a local partner; and informal restrictions, such as the collusion of consumers, workers and/or domestic firms against foreign firms, or technological differences that limit the capacity to develop the MNE's economic activity in the host country. Indeed, domestic investments prove to be considerably larger than outward FDI (Mayer, Méjean, and Nefussi 2010; Ueber, Grote, and Frey 2014).

Secondly, controlling for the border effect and its evolution involves controlling for the impact of globalization on international trade (i.e. the change in the unobserved costs of international trade relative to intra-national trade), and thus reduces potential bias (Bevevelli et al., 2018; Bergstrand, Larch, and Yotov 2015). In addition, the evolution of the border effect controls for other unobserved factors of countries that are related to their border. In the case of terrorism, factors related to countries' borders can affect the degree of international terrorism that they suffer. Thus, the border effect controls for the degree to which terrorism might be correlated with the process of globalization. This is important, since not controlling for this dimension can bias the estimate on the link between FDI and terrorism.

In sum, structural gravity that accounts for a full set of fixed effects and time-varying international border only leaves room for omitted variable bias of country-pair time-varying factors. To reduce the chance of this happening, we introduce variables that appear frequently in the literature, such as Free Trade Agreements and Bilateral Investment Treaties.

However, the inclusion of numerous fixed effects does not directly tackle the endogeneity that stems from simultaneity. Indeed, since MNEs are often targets of terrorism, the higher number of terrorist attacks suffered by a country can be determined by the presence of MNEs if terrorists aim to minimise the presence of MNEs (Osgood and Simonelli 2020). Under the assumption that this form of reverse causality similarly affects domestic and international investment, the interaction between the international border dummy and terror should not be affected by this. The interacted coefficient measures the effect of terrorism on FDI relative to domestic investment. This coefficient captures the difference in differences between domestic and international investment. Therefore, the interaction between our variable of interest becomes a diff-in-diff estimation, which reduces the endogeneity bias considerably (Beverelli et al. 2018). Nizalova and Murtazashvili (2016) outline an econometric proof for this claim, showing that the interaction of a potential endogenous variable and a strictly exogenous variable is likely to be exogenous.

Pulling all these gravity strings together, we estimate the following structural gravity equation for both extensive and intensive margins:

$$FDI_{ijt} = e^{\left(\begin{array}{c} terror_{jt} \times Int_{ij} + rulelaw_{jt} \times Int_{ij} + FTA_{ijt} + BIT_{ijt} \\ Int_{ijt} + \alpha_{ij} + \alpha_{it} + \alpha_{jt} \end{array} \right)} x \varepsilon_{ijt} \quad (1)$$

where FDI_{ijt} is the number of greenfield projects (extensive margin) or capital flows (intensive margin) from home country i to host country j in year t , including domestic investment. $terror_{jt}$ is a count variable that indicates the number of terrorist attacks suffered by the host country j , and $rulelaw_{jt}$ is an index expressing the level of compliance of rule of law. FTA_{ijt} and BIT_{ijt} are dummies that take value one whenever a pair of countries has signed a Bilateral Free Trade Agreement or a Bilateral Investment Treaty, respectively. The fixed effects include source-year (α_{it}), host-year (α_{jt}) and country-pair (α_{ij}) fixed effects.

Note that the variable $terror_{jt}$ has no bilateral dimension but varies across host countries and year. Therefore, the source of variation in the bilateral relationship between home country i and host country j over time comes from the variation of FDI_{ijt} , FTA_{ijt} and BIT_{ijt} , and aims to capture the relocation effect that terrorism may induce among host countries after controlling for country-pair characteristics.

The bilateral source of variation also comes from the interacted term. Equation (1) includes Int_{ijt} , a border dummy that takes the value of one whenever the investment is international in year t , and zero otherwise. Int_{ijt} controls for the evolution of the border effect relative to a given base year. Furthermore, in equation (1), we interact a time-varying destination characteristics (i.e. terrorism or institutional quality) with the border dummy (Int_{ij}). As mentioned earlier, the interaction between Int_{ij} and $terror_{jt}$ is not collinear with the host-year fixed effects (see Heid, Larch, and Yotov 2021 for an in-depth description).

We have to bear in mind that the econometric interpretation of the estimated elasticities in equation (1) is different from the interpretation of a specification without domestic investment. The country-specific variable (in our case terror) is interacted with a bilateral variable (international border). Therefore, the interacted variable $terror_{jt} \times Int_{ij}$ is bilateral and captures the effect of the host-specific terrorism on bilateral FDI flows relative to domestic investment, the omitted category in Int_{ij} .

The empirical equation is estimated using the Poisson Pseudo Maximum Likelihood (PPML) estimator. Silva and Tenreyro (2006) show that PPML makes it possible to overcome two main limitations of estimating the gravity equation with Ordinary Least Squares: not accounting for the zeros present in bilateral statistics and heteroskedasticity problems. Robust standard errors are clustered by pair of countries. We use the PPML high-dimensional fixed effects estimators proposed by Correia, Guimarães, and Zylkin (2020) that can computationally absorb the high number of fixed effects.

We use an additional specification to further remove endogeneity concerns. We substitute the contemporaneous flow of terror attacks by the lagged stock of attacks from the last three years as done to control for the effect of migration on FDI in Cuadros, Martín-Montaner, and Paniagua (2016). This reduces the simultaneity bias since the probability that current investments have influenced previous terrorist attacks is very low. This second specification also allows us to discuss the effects of persistence in terror attacks on FGI.

We have applied state-of-the-art procedures to be relatively confident that our empirical strategy identifies the effect of terrorism on FDI. However, we cannot completely guarantee that our variables of interest are not correlated with an omitted country-pair time-varying variable. Therefore, we test the effect of several alternative measures of terrorism. Furthermore, as per Bandyopadhyay, Sandler, and Younas (2018), in our robustness analysis we run placebo tests to further rule out the possibility that our results are not driven by the model specification and that the assumed direction of causality is correct.

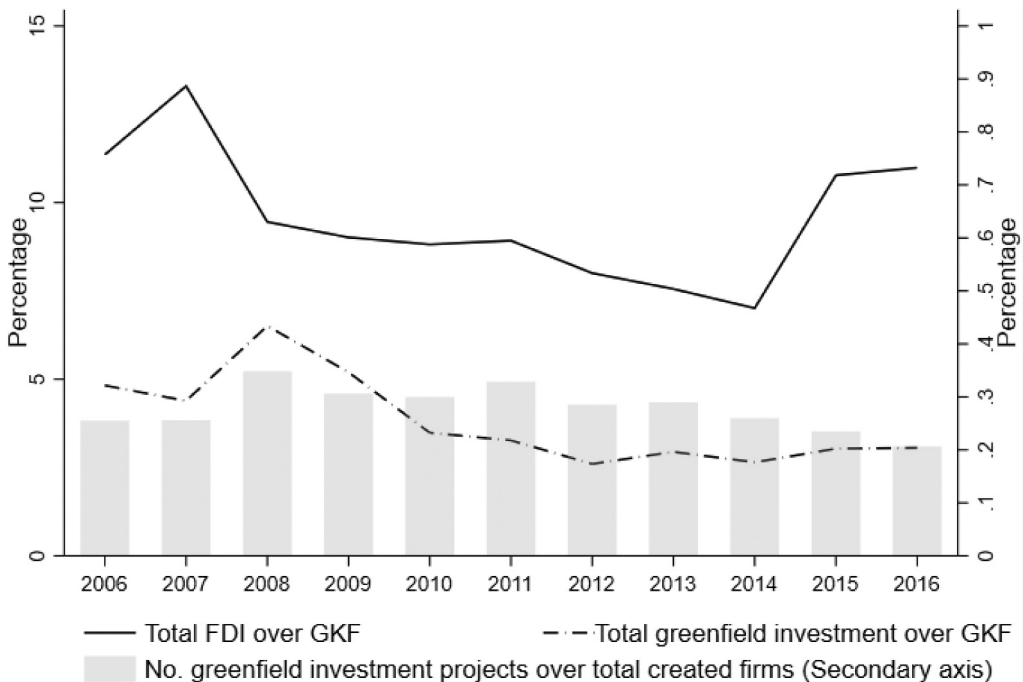
Data Overview

The present analysis covers 155 source countries and 182 destination countries during the period 2006-2016. Country sample and descriptive statistics, definitions and sources for the variables are available in the appendix. The bilateral FGI data on the capital flows and number of projects are retrieved from FDI Markets (2017). FDI Markets tracks cross-border investment in any new physical project that creates new jobs and capital investment.³

FDI Markets does not track domestic investment. Therefore, like in Heid and Márquez-Ramos (2019) and Gil-Pareja et al. (2022), domestic investment flows are approximated by the Gross Capital Formation (GKF) net of FGI, retrieved from the World Bank's World Development Indicators. For the extensive margin, we employ the World Bank's Doing Business project statistics on the creation of private firms.

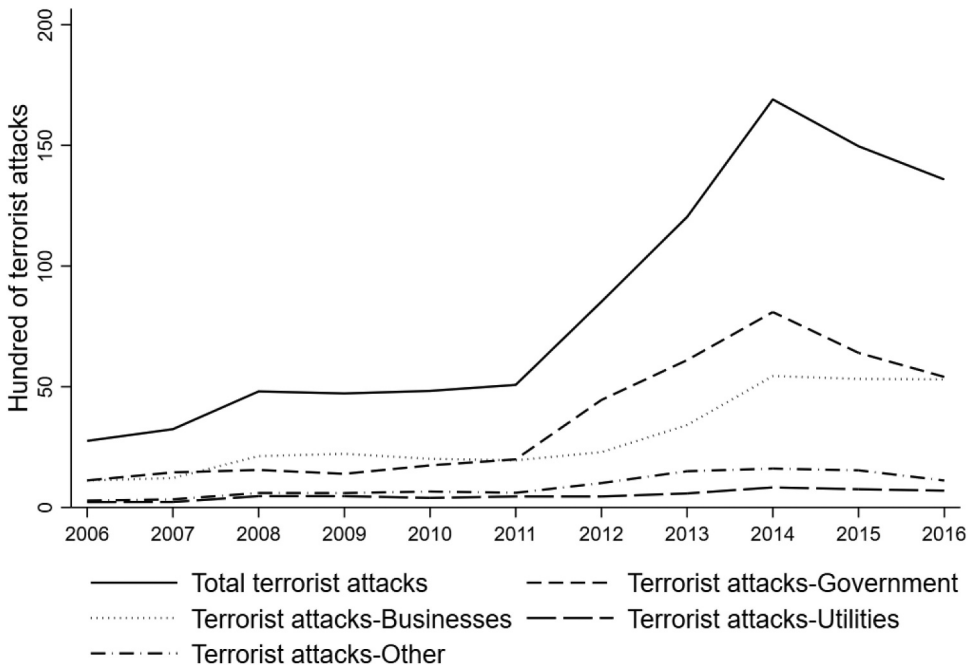
GKF consists of the new investments on fixed assets plus net changes in the level of inventories of an economy. We consider this measure a good approximation of the domestic investment equivalent of FGI. Most likely, a significant share of the FGI performed by an MNE will result in GKF. As can be gathered in Graph 1, globally, FDI flows and FGI flows over GKF have similar magnitudes, and both represent a small share of the total investment. Graph 1 also illustrates the number of FGI projects as a share of firms created globally. The creation of foreign subsidiaries is substantially lower than the creation of domestic firms: on average, during the period of analysis, foreign subsidiaries represent 0.28% of the total creation of firms. We acknowledge that GKF and firm creation might not be a perfect counterpart to FGI. Ideally, data on domestic firms' investment in new subsidiaries would be more appropriate, but these statistics are not available. All in all, we show that our results are robust to alternative measures of domestic investment.

Countries' GDP and GDP per capita are also retrieved from World Bank's World Development Indicators. Data on geographic distance, colonial ties, religious affinity, sharing a geographical border (contiguity), common legal origins and common language are obtained from CEPII (Head and Mayer 2014; Head, Mayer, and Ries 2010). FTA and BIT dummies are, respectively, from Hofmann, Osnago, and Ruta (2017) and UNCTAD's International Investment Agreement database.



Graph 1: International and domestic investment.

Source: Authors' calculations based on data from fDiMarkets for FGI, UNCTAD for FDI flows and World Bank for GKF and the number of created domestic firms.

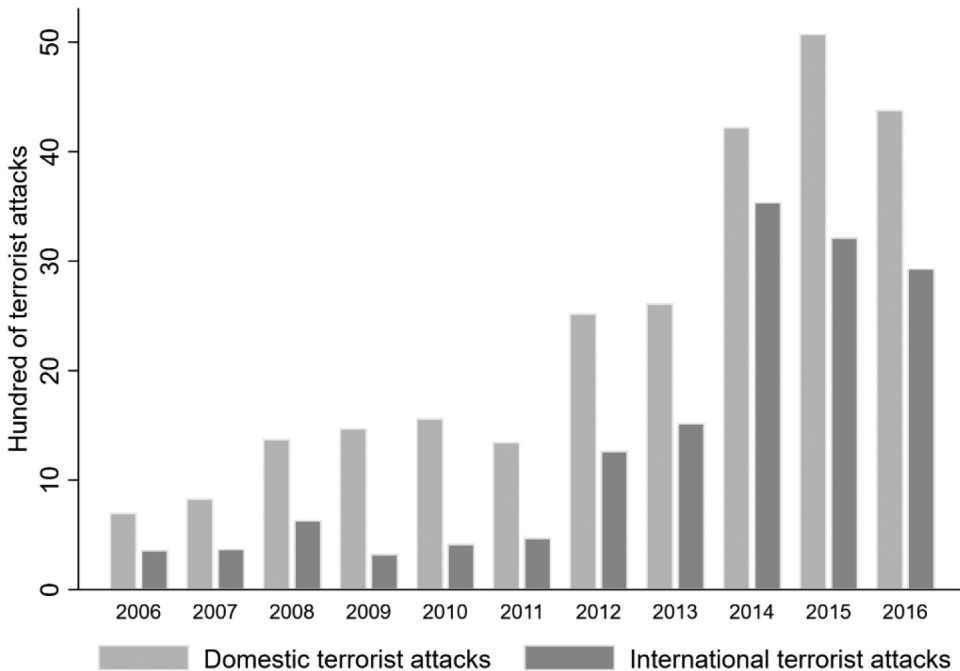


Graph 2: Global terrorist attacks and targets.

Source: Authors' calculations based on data from the Global Terrorism Database.

To measure countries' institutional quality, we use the rule of law index from the World Bank's Worldwide Governance Indicators (Kaufmann, Kraay, and Mastruzzi 2011). This index represents a country's quality of contract enforcement, property rights, judicial system and likelihood of crime. We chose this indicator for its wide country coverage, and for its relevance as a determinant of FDI (e.g. Bénassy-Quéré, Coupet, and Mayer 2007; Carril-Caccia, Milgram-Baleix, and Paniagua 2019).

Terrorist attacks suffered by a country are retrieved from the Global Terrorism Database (GTD) provided by the Department of Homeland Security-supported START (LaFree 2010; START, 2018). With this database, we measure the number of terrorist attacks, casualties (incidents with injuries and/or deaths) and destroyed property suffered by host countries. We distinguish whether the terrorist attack is international or domestic. To this end, we use the classification available in the GTD, which considers an attack to be international when: (1) the perpetrator group differs from the location of the attack; (2) the nationality of the perpetrator group differs from the nationality of the victim or target; (3) the nationality of the victims or targets are different than the location of the attack (even if the attack affects both local and foreign victims). In particular, attacks targeting foreign firms are considered to be transnational terrorism. Also, we identify whether the attack resulted in victims from the investing MNE nationality and we distinguish between targets (government, business, utilities and other). As can be gathered from Graph 2, the number of terrorist attacks at the world level has drastically increased between 2006 and 2016. On average, the number of terrorist attacks is considerably higher in developing countries than in developed countries (55.8 against 7.5 per country and year). This surge in terrorism particularly affected governments and businesses. Graph 3 highlights that the growth of terrorism is driven by both domestic and international terrorism.⁴ In our empirical analysis, we include the count of terrorist attacks expressed in hundreds.



Graph 3: Domestic and international terrorism.

Source: Authors' calculations based on data from the Global Terrorism Database.

Results

The Overall Impact of Terrorism on FGI

The results reported in [Table 1](#) for the extensive margin suggest that terrorism significantly reduces the number of FGI projects relative to domestic firm creation. The specification in column (1) of [Table 1](#) includes the complete set of fixed effects and domestic firm creation. This is our preferred specification since it reduces omitted variable bias and potential endogeneity issue between FDI and terrorism. The estimated coefficient of terrorism suggests that FGI projects decrease by 0.034% if a country suffers from one additional terrorist attack, relative to the number of created domestic firms. Likewise, if a country suffers fifty-six attacks – the average number of terror attacks per year and host country (see [Table B](#) in the appendix) – we would expect FGI projects to be reduced by 1.9% more than domestic firm creation. Fortunately, terrorist attacks are generally rare (half of the host-years in our sample do not suffer any attacks). However, during our period of analysis 29 countries suffered from more than 100 terrorist attacks in at least one year, and 20% of our sample register more than 8 incidents per year.

The rest of the control variables do not appear to be significant in this specification. The non-significance of FTA in the extensive margin (and the lack of significance of BIT in the extensive and intensive margins) is not new in this literature. The effect of FTA (or BIT) on FDI depends on several factors such as signatory countries' level of development ([Berger et al. 2011](#); [Jang 2011](#)) and/or institutional quality ([Bhagwat, Brogaard, and Julio 2021](#)). The influence of these bilateral agreements is also related to the provisions included ([Berger et al. 2011](#); [Büthe and Milner, 2014](#)), the sector of investment ([Colen, Persyn, and Guariso 2016](#)), and the level of FDI before the signature of the agreement ([Paniagua, Figueiredo, and Sapena 2015](#)).

Table 1. Impact of terrorist attacks on the extensive and intensive margin of FGI.

	Extensive margin			Intensive margin		
	(1)	(2)	(3)	(4)	(5)	(6)
GDPsum			0.182*** (0.056)			0.425*** (0.088)
Diff. GDP pc			0.286*** (0.062)			0.444*** (0.097)
Terrorist attacks x Int	-0.034*** (0.012)	-0.065*** (0.010)		-0.103*** (0.037)	-0.177*** (0.033)	
Terrorist attacks			-0.001 (0.008)			-0.006 (0.014)
Rule of law x Int	0.042 (0.132)	-0.209* (0.127)		0.271 (0.283)	-0.304 (0.270)	
Rule of law			0.345*** (0.092)			0.323* (0.175)
Distance			-0.444*** (0.035)			-0.520*** (0.043)
Colony			0.542*** (0.062)			0.507*** (0.077)
Religion			0.957*** (0.094)			1.122*** (0.138)
Contiguity			-0.039 (0.064)			-0.136 (0.089)
Legal			0.170*** (0.045)			0.108* (0.061)
Language			0.399*** (0.060)			0.368*** (0.089)
FTA	-0.048 (0.053)	-0.097* (0.052)	0.212*** (0.056)	0.276** (0.116)	0.173 (0.122)	0.323*** (0.067)
BIT	-0.080 (0.072)	-0.122* (0.070)	0.009 (0.052)	-0.046 (0.153)	-0.090 (0.159)	-0.046 (0.068)
Observations	61,513	61,513	58,789	62,737	62,737	59,614
Source FE	No	No	Yes	No	No	Yes
Destination FE	No	No	Yes	No	No	Yes
Pair FE	Yes	Yes	No	Yes	Yes	No
Year FE	No	No	Yes	No	No	Yes
Source-year FE	Yes	Yes	No	Yes	Yes	No
Destination-year FE	Yes	Yes	No	Yes	Yes	No
International-year FE	Yes	No	No	Yes	No	No
Domestic investment	Yes	Yes	No	Yes	Yes	No

Note: The dependent variable (FDI_{ijt}) includes domestic firm creation in columns 1 and 2, and domestic GKF in columns 4 and 5. Standard errors clustered at the source country and destination country level are in parentheses; *, **, and *** represent statistical significance at the 1%, 5%, and 10% levels, respectively.

Columns (2) and (3) in Table 1 gauge the bias that stems from relaxing certain assumptions of the structural gravity. Column (2) does not include international-year fixed effects (i.e. the evolution of the border effect). As expected, the coefficient of terrorism is biased upwards (it doubles compared with specification 1); this is because, in specification 2, terrorism may capture some globalization force. The rest of the control variables also appear to be biased (their value and significance changes when the evolution of the border effect is not included).

The specification reported in column (3) does not include domestic investment⁵ and relaxes the number of fixed effects in order to include a set of gravity variables standardly used in the literature of FDI. In this case, terrorism proves to be non-significant, confirming that methodology matters in evaluating the impact of terrorism on FDI. The remaining variables display the expected signs. The joint economic sizes of the source and host country (GDPsum), the difference in GDP per capita, and rule of law have a positive effect on FDI's extensive margin. Bilateral investment is lower as geographic distance increases between pairs of countries, and higher as they have more religious affinity, and share a colonial past, legal system, and language. BIT have no evident effect and FTA have a positive effect.⁶

Turning to the influence of terrorism on the intensive margin, we find that in our preferred specification (column (4) in Table 1), terrorism also reduces the amount of FGI. Since our specification guarantees that we take into account all the possible forwarded effects of terrorism in terms of investment deviation to third countries both for domestic and foreign investments, and the border effect, we are able to confirm that terrorism has a considerable destructive effect in terms of FGIs, both on the extensive and intensive margins. Likewise, our results confirm the negative impact found by previous studies (Filer and Stanišić 2016; Galović, Bezić, and Mišević 2018; Hogetoorn and Gerritse 2021).

Interestingly, the effect of terrorism is larger on the intensive than on the extensive margin. When comparing the coefficients of terrorism of both margins, one must keep in mind that these coefficients indicate variations in comparison to domestic investment. The effect on the intensive margin compares the amount of greenfield capital with GKF. In the extensive margin, these coefficients gauge the impact of terrorism on the number of greenfield projects relative to the number of new domestic firms. On the extensive margin, our results indicate that terrorist attacks discourage more foreign investors than domestic ones but the effect is relatively small compared to the intensive margin (small differences between foreign and domestic decisions). Our conjecture is that both domestic and foreign investment decisions are taken having alternative choices: to invest in another place or not to invest. In contrast, if the decision to invest in a given country is already taken, the investor can still decide to reduce the amount of invested capital. In this regard, foreign investors have more mobility and more alternatives than domestic investors, and may be more sensitive to terrorism (for instance if it raises the costs of ensuring their safety and the risk of disruptions in supply chains).

The estimated coefficient of terrorism suggests that if a country suffers from 1 additional terrorist attack, the FGI volume decreases by 0.103% relative to domestic investment. For countries heavily hurt by terrorism, reducing the number of terrorist attacks by 10 would translate to an increase of FGI volume by 1.03% more than domestic investment.

With regard to the remaining independent variables, as in the extensive margin, the rule of law and the signature of a BIT are not significant. In contrast, the coefficient associated with FTA is positive and significant, showing that the signature of the agreement increases foreign investment amounts by a larger extent than domestic ones. As for the case of the extensive margin, in columns (5) and (6) we show that the omission of domestic investment and country-year fixed effects biases the results of our variable of interest.

Intensity, Persistence and Types of Terrorist Attacks

In the present section, we explore whether the impact of terrorism on FGI depends on its intensity, persistence over time, and on the types of terrorism. For brevity, Table 2 reports the estimated coefficients of the variables of interest using our preferred specification (i.e. equation (1)).

To account for the intensity of attacks, we replace the number of terrorist attacks by the number of casualties and number of destroyed properties as a consequence of terrorism. Interestingly, the estimates of the impact of the number of casualties report a small but positive and significant impact on the extensive margin, while not being significant in the intensive margin. In the case of destroyed property, it has a negative and significant effect only in the intensive margin, indicating that one destroyed property could lead to a drop of 0.31% greenfield invested capital relative to domestic investment. These results need to be taken with caution: the limited consistence of these results with the overall impact of terrorist attacks on FGI could be driven by a non-linear relationship between FGI relative to domestic investment, and the intensity of terrorist attacks. However, this empirical question is beyond the scope of the present paper.

Frequent terrorist attacks hamper productive investment and limit economic growth (Abadie and Gardeazabal 2003; Gaibulloev and Sandler 2008; Singh 2013). Therefore, we estimate the impact of the stock of terrorist attacks in the past three years in order to compare the incidence with that of the

Table 2. Impact of terrorism's intensity, persistence, logistics, victim and target on FGI.

		Extensive margin	Intensive margin	Model
Current	Terrorist attacks	-0.034*** (0.012)	-0.103*** (0.037)	1
	Number of casualties	0.008** (0.004)	0.002 (0.010)	1a
	Number of destroyed property	-0.032 (0.031)	-0.313*** (0.083)	1b
Persistence	Stock terrorist attacks t-1 to t-3	-0.022*** (0.004)	-0.024* (0.013)	1c
Logistic	Domestic terrorist attacks	-0.027 (0.021)	-0.159*** (0.060)	1d
	International terrorist attacks	-0.299*** (0.096)	-0.562** (0.204)	
Victim	Terrorist attacks	-0.034*** (0.013)	-0.117** (0.048)	1e
	x Terrorist attacks with victims from country i	0.002 (0.010)	-0.058* (0.033)	
Target	Government	-0.107*** (0.026)	-0.226*** (0.068)	1 f
	Business	-0.038 (0.032)	-0.259** (0.106)	1 g
	Utilities	0.172 (0.109)	-0.169 (0.369)	1 h
	Other	-0.143* (0.082)	-1.047*** (0.276)	1i

Note: Models 1 and 1a-1i include Terrorist attacks x Int, Rule of law x Int, FTA, BIT and fixed effects by country-pair, source-year, destination-year and International-year. The table reports the coefficients of Terrorist attacks x Int for 9 alternatives measures of Terrorist attacks. Standard errors clustered at the source country and destination country level are in parentheses; *, **, and *** represent statistical significance at the 1%, 5%, and 10% levels, respectively.

current number of attacks. Estimates reported in Table 2 show that the persistence of terrorism has the same qualitative effect as current terrorist attacks, but with quantitative differences. In particular, on the intensive margin, persistent attacks have a lower adverse effect (-0.024) than current attacks (-0.103). This result may suggest a sort of myopic behaviour of foreign firms, where contemporaneous attacks have a higher impact than persistent attacks for foreign investors, compared with domestic ones. Alternatively, this finding may also indicate an adaptation effect where contemporary decisions on current investments have already taken into account previous incidents, as suggested by Filer and Stanišić (2016), who find some similar results. Finally, Gaibulloev and Sandler (2011) evidence that terrorist events have a small impact on income per capita growth in Africa, which they attribute to a high degree of resilience of these countries. Hence, it is also plausible that companies investing in countries suffering attacks more often are also prepared to maintain their investments, despite the conditions.

The nature of the attacks (domestic vs. international) appears to be a relevant source of heterogeneity.⁷ International terrorism has a higher impact than domestic terrorism. One additional international attack reduces the number of greenfield projects by 0.3% and the volume of investment by 0.56% on average, compared with domestic investment. Domestic attacks have a negative and significant impact only on the intensive margin, with a lower coefficient (-0.159). One possible explanation for this is that terrorist attacks affecting MNE are classified as transnational attacks. Domestic and transnational terrorism both raise the cost of doing business by increasing risks, political instability or damage to infrastructure (Bandyopadhyay, Sandler, and Younas 2014). However, transnational terrorism is expected to have a larger marginal effect than domestic terrorism on FDI because assets and workers of MNEs may be targeted directly (Power and Choi, 2012). Additionally, transnational terrorist events make countries' policies more interdependent (Gaibulloev and Sandler 2019). Finally, domestic events are often fuelled by civil wars (Findley and Young 2012), which make them more predictable than transnational terrorism.

Next, we explore whether terrorist attacks with at least one victim from the investor's country of origin have higher effects on FDI. For both the extensive and intensive margins, estimates confirm the negative effect of terrorism on FGI compared with domestic investment. In the extensive margin, this effect is statistically the same whether terrorist attacks result in casualties from the FGI source country or not. In the intensive margin, attacks that affect at least one victim from the investor's country have a larger negative effect.

Finally, we consider whether the impact of terrorism on FGI depends on the target, namely: government, business, utilities, and others. In the extensive margin, the results show that terrorist attacks targeted at the government and other targets have a significant negative effect. In the intensive margin, terrorist attacks on government, business and other types of targets significantly reduce the volume of foreign capital invested by MNEs. Conversely, in both margins, attacks on utilities do not have a significant effect. This could be surprising, in that electricity, gas, water constitute basic inputs for all sectors. Notwithstanding, the lack of significance should be taken with caution due to the low number of attacks on utilities registered in the database (see Graph 2).

The Role of Institutions

The analysis concludes by exploring the role of institutions in the FDI-terrorism relationship. To this end, we rely on the measures of lack of corruption, regulatory quality, government effectiveness, and voice and accountability from the World Governance Indices. *High* is a variable that takes 1 whenever the destination country has a high level (top one-third of the sample) on the institutional quality index. The *High* dummy is interacted with the terrorist attacks and border variables to capture the possible mitigating effect of institutions on the terrorism-FDI nexus.⁸

The estimates reported in Table 3 consistently show that terrorism hampers FGI's extensive margin in countries with low institutional quality. On average, one additional terrorist attack leads to a drop in around 0.04% of FGI projects compare with domestic ones. In contrast, terrorism has a lower effect in countries with high institutional quality. In line with the institutional literature, the quality of institutions plays an important role in hedging adverse domestic situations, particularly terrorism, in the eyes of foreign investors.

Table 3. Impact of terrorism and institutional quality on the extensive and intensive margins.

	Rule of law	Lack of corruption	Regulatory quality	Government effectiveness	Voice and accountability
Extensive margin	(1)	(2)	(3)	(4)	(5)
Terrorist attacks x Int	-0.042*** (0.011)	-0.041*** (0.012)	-0.041*** (0.011)	-0.045*** (0.012)	-0.043*** (0.012)
Terrorist attacks x Int x High	0.218*** (0.048)	0.285*** (0.048)	0.207*** (0.047)	0.204*** (0.048)	0.216*** (0.047)
Institution x Int	0.023 (0.131)	-0.519*** (0.098)	0.162 (0.109)	-0.405*** (0.102)	0.412** (0.161)
Intensive margin	(6)	(7)	(8)	(9)	(10)
Terrorist attacks x Int	-0.109*** (0.037)	-0.116*** (0.037)	-0.118*** (0.037)	-0.114*** (0.037)	-0.115*** (0.037)
Terrorist attacks x Int x High	0.307** (0.137)	0.313** (0.142)	0.334** (0.134)	0.338** (0.142)	0.313** (0.137)
Institution x Int	0.272 (0.284)	0.045 (0.248)	-0.311* (0.189)	0.194 (0.223)	0.296 (0.310)

Note: Each model includes FTA, BIT and fixed effects by country-pair, source-year, destination-year and International-year. Standard errors clustered at the source country and destination country level are in parentheses; *, **, and *** represent statistical significance at the 1%, 5%, and 10% levels, respectively.

The results of the intensive margin are qualitatively similar to those obtained for the extensive margin. On average, one additional terrorist attack in countries with low institutional quality reduces FDI volumes between 0.11% and 0.12% more than domestic investment. Again, the coefficient associated with institutional quality interaction is positive and significant, suggesting that the quality of institutions offsets the negative effect of terrorism.

Concerning the nature of the institutions, we observe high heterogeneity in the effect of the different indicators used. The results for the extensive margin show that changes in the rule of law and regulatory quality do not significantly affect FDI. However, the coefficients of lack of corruption and government effectiveness are negative and significant. Keeping in mind that these values reflect the impact of institutional quality improvement on FGIs compared with domestic investment, the results tend to indicate that domestic institutional quality would have a larger effect on domestic firms.⁹ However, the coefficient of voice and accountability is positive and significant, suggesting that democratic values would have a larger effect on foreign firms. This result confirms previous findings regarding a positive link between FDI and democracy (e.g. Carril-Caccia, Milgram-Baleix, and Paniagua 2019), and strengthens the argument that democratic systems are more open to globalization and thus to MNEs (Guerin and Manzocchi 2009).

Estimates reveal that rule of law, lack of corruption, government effectiveness, and voice and accountability are not significant in the intensive margin. Regulatory quality is weakly negative and significant, suggesting that any improvements might have a larger impact on domestic firms.

Robustness Analysis

We run several robustness checks (to conserve space, results and in-detail comments are available in the appendix). First, we confirm that the results are not significantly affected by the manner in which domestic investment flows are measured. This finding is in line with Campos, Timini, and Vidal (2021), who demonstrate for the case of trade that estimates of the structural gravity model are not significantly affected by the manner in which domestic trade flows are measured.

Second, as in Bandyopadhyay, Sandler, and Younas (2018), we randomly reshuffle the terrorism data between country pairs, while the remaining independent variables of the model are not changed. With these placebo tests we show that our results are not driven by the model specification and that the assumed direction of causality is correct.

Lastly, acknowledging that OECD countries usually enjoy better institutional quality than non-OECD countries, we test whether the impact of terrorism is lower for those destination countries that belong to the OECD. In line with the results from Table 3, we can confirm that terrorist attacks have a significantly lower effect for the OECD countries. This result is in line with some of the previous studies that show that the negative effect of terrorism on FDI is lower for developed countries (Galović, Bezić, and Mišević 2018; Saeed et al. 2018). Developed countries might be able to better absorb the shock of terrorism due to the availability of financial resources to fight terrorism (Gaibulloev and Sandler 2008) and their institutional quality (Johnston and Nedelescu 2006; Tingbani et al. 2019). In contrast, those developing countries that have weak institutions and attract FDI seeking low labour costs are probably the most sensitive to terrorism.

Conclusions

This study looks into the effect of terrorism and institutional quality on the extensive and intensive margins of FGI using a structural gravity model, that is, with numerous fixed effects and domestic investment. This method allows us to identify the effect of terror attacks at the host level on FGI, while controlling for unobservable time-varying country-specific factors. In this way, we obtain theoretically consistent estimates with a very low risk of incurring biases related to gravity estimates (e.g. endogeneity and home bias).

The empirical analysis confirms the accuracy of the structural gravity approach for FDI. Omitting important features of structural gravity such as domestic investment and multilateral resistance may explain why many studies fail to evidence a sizeable and significant effect of terrorism on FDI.

As expected, foreign investments display a higher mobility than domestic investments and react more strongly to terrorist attacks. The results suggest that terrorism hurts both the number of foreign projects and their volumes. This is important because it demonstrates that terrorism not only discourage new projects, a common hypothesis of the literature, but also reduces the amount of invested foreign capital. This is probably because firms have to incur additional costs to protect their assets and their workers, and to cope with all the disruptions in infrastructure and administrative processes derived from a violent environment.

Not surprisingly, inward FGI appear to be more sensitive to international than domestic terrorism. Our study points out new channels in the FDI-Terrorism relationship. FGI is also more sensitive to current attacks than to persistent attacks, which can denote myopic behaviour, adaptation or resilience of investors. FGI projects are particularly deterred by terrorist attacks that are directed towards the government and toward businesses. Our analysis also robustly shows that terrorist attacks strongly reduce FGI in those countries with low levels of institutional quality. All in all, foreign investors are especially concerned by the capacity of institutions to control the situation.

Notes

1. According to the data from the Global Terrorist Database (LaFree 2010), during the period 2006-2016 developing countries (following UNCTAD's country classification) suffered from 96% of the terrorists attacks that occurred globally.
2. In the following, we have chosen not to refer to the violence-FDI link, which is a different question, in order to keep our focus on the terrorism-FDI relationship. To conserve space, we limit our literature review to those papers that are comparable to our analysis.
3. See the appendix for further details on fDiMarkets.
4. Unfortunately, due to lack of data availability, 55% of the terrorist attacks recorded by the GTD database cannot be classified into domestic or international.
5. Since domestic investment is not included in the regression, it is not necessary to interact the terrorism variable with *Int* that takes value one whenever the investment is international.
6. To conserve on space, alternative specifications with a relaxed number of fixed effects and without domestic investment are available in the appendix. In all cases, terrorism turns out to be non-significant.
7. Due to the limited data availability for classifying terrorist attacks into international or domestic, this specification only includes 45,263 observations. Missing data on the types of terrorist attacks leads us to exclude 383 destination years from the analysis out of a total of 1,800 destination years.
8. The possible endogeneity of institutions should be reduced by the diff-in-diff strategy outlined in the Method section.
9. In fact, in estimations without domestic investment, estimates on the link between FGI's extensive and intensive margins appear to be positive for rule of law (see Table 1), although these estimates should be taken with caution, since they are probably biased.

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No potential conflict of interest was reported by the author(s).

Data Availability Statement

The data that support the findings of this study are available from FDiMarkets (The Financial Times Ltd). Restrictions apply to the availability of these data used under license for this study. Data are available from <https://www.fdimarkets.com>

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References

- Abadie, A., and J. Gardeazabal. 2003. “The Economic Costs of Conflict: A Case Study of the Basque Country.” *American Economic Review* 93 (1): 113–132. doi:10.1257/000282803321455188.
- Abadie, A., and J. Gardeazabal. 2008. “Terrorism and the World Economy.” *European Economic Review* 52 (1): 1–27. doi:10.1016/j.euroecorev.2007.08.005.
- Anderson, J. E., M. Larch, and Y. V. Yotov. 2019. “Trade and Investment in the Global Economy: A Multi-country Dynamic Analysis.” *European Economic Review* 120, 103311. doi:10.1016/j.euroecorev.2019.103311.
- Anderson, J. E., and E. Van Wincoop. 2003. “Gravity with Gravitas: A Solution to the Border Puzzle.” *American Economic Review* 93 (1): 170–192. doi:10.1257/000282803321455214.
- Anderson, J. E., and Y. V. Yotov. 2012. “Gold Standard Gravity.” *National Bureau of Economic Research Working Papers* 17835 (w17835).
- Arif, I., A. S. Rawat, and L. Khan. 2021. “Does Terrorism Hamper FDI Inflows? a Pre and Post 9/11 Analysis.” *Journal of Economic Studies* 48 (5): 968–980. doi:10.1108/JES-12-2019-0571.
- Asongu, S. A., and N. Biekpe. 2018. “Globalization and Terror in Africa.” *International Economics* 156: 86–97. doi:10.1016/j.inteco.2017.12.005.
- Asongu, S., and J. Nwachukwu. 2017. “Fuel Exports, Aid and Terrorism.” *Multinational Business Review* 25 (3): 239–267. doi:10.1108/MBR-03-2017-0013.
- Baier, S. L., and J. H. Bergstrand. 2007. “Do Free Trade Agreements Actually Increase Members’ International Trade?” *Journal of International Economics* 71 (1): 72–95. doi:10.1016/j.jinteco.2006.02.005.
- Bailey, N. 2018. “Exploring the Relationship between Institutional Factors and FDI Attractiveness: A Meta-analytic Review.” *International Business Review* 27 (1): 139–148. doi:10.1016/j.ibusrev.2017.05.012.
- Baldwin, R., and D. Taglioni. 2006. “Gravity with Dummies and Dummies for Gravity Equations.” *National Bureau of Economic Research Working Papers*. No. w12516. doi:10.3386/w12516.
- Bandyopadhyay, S., T. Sandler, and J. Younas. 2011. “Foreign Aid as Counterterrorism Policy.” *Oxford Economic Papers* 63 (3): 423–447. doi:10.1093/oeq/gppq030.
- Bandyopadhyay, S., T. Sandler, and J. Younas. 2014. “Foreign Direct Investment, Aid, and Terrorism.” *Oxford Economic Papers* 66 (1): 25–50. doi:10.1093/oeq/gpt026.
- Bandyopadhyay, S., T. Sandler, and J. Younas. 2018. “Trade and Terrorism: A Disaggregated Approach.” *Journal of Peace Research* 55 (5): 656–670. doi:10.1177/0022343318763009.
- Bénassy-Quéré, A., M. Coupet, and T. Mayer. 2007. “Institutional Determinants of Foreign Direct Investment.” *The World Economy* 30 (5): 764–782.
- Berger, A., M. Busse, P. Nunnenkamp, and M. Roy. 2011. “More Stringent BITs, Less Ambiguous Effects on FDI? Not a Bit!” *Economics Letters* 112 (3): 270–272. doi:10.1016/j.econlet.2011.05.026.
- Bergstrand, J. H., and P. Egger. 2013. “What Determines BITs?” *Journal of International Economics* 90 (1): 107–122. doi:10.1016/j.jinteco.2012.11.004.
- Bergstrand, J. H., M. Larch, and Y. V. Yotov. 2015. “Economic Integration Agreements, Border Effects, and Distance Elasticities in the Gravity Equation.” *European Economic Review* 78: 307–327. doi:10.1016/j.euroecorev.2015.06.003.
- Beverelli, C., A. Keck, M. Larch, and Y. Yotov. 2018. “Institutions, Trade and Development: A Quantitative Analysis.” *CESifo Working Paper Series* WP 2018-03.
- Bhagwat, V., J. Brogaard, and B. Julio. 2021. “A BIT Goes A Long Way: Bilateral Investment Treaties and Cross-border Mergers.” *Journal of Financial Economics* 140 (2): 514–538. doi:10.1016/j.jfneco.2020.12.005.
- Biglaiser, G., and K. DeRouen Jr. 2007. “Following the Flag: Troop Deployment and Us Foreign Direct Investment.” *International Studies Quarterly* 51 (4): 835–854. doi:10.1111/j.1468-2478.2007.00479.x.

- Burger, M., E. Ianchovichina, and B. Rijkers. 2016. "Risky Business: Political Instability and Sectoral Greenfield Foreign Direct Investment in the Arab World." *The World Bank Economic Review* 30 (2): 306–331. doi:10.1093/wber/lhv030.
- Büthe, T., and H. V. Milner. 2014. "Foreign Direct Investment and Institutional Diversity in Trade Agreements: Credibility, Commitment, and Economic Flows in the Developing World, 1971–2007." *World Politics* 66 (1): 88–122. doi:10.1017/S0043887113000336.
- Campos, R. G., J. Timini, and E. Vidal. 2021. "Structural Gravity and Trade Agreements: Does the Measurement of Domestic Trade Matter?" *Economics Letters* 208: 11080. doi:10.1016/j.econlet.2021.110080.
- Carril-Caccia, F., J. Milgram-Baleix, and J. Paniagua. 2019. "Foreign Direct Investment in Oil-abundant Countries: The Role of Institutions." *PLoS ONE* 14 (4): e0215650. doi:10.1371/journal.pone.0215650.
- Colen, L., D. Persyn, and A. Guariso. 2016. "Bilateral Investment Treaties and FDI: Does the Sector Matter?" *World Development* 8 (3): 193–206. doi:10.1016/j.worlddev.2016.01.020.
- Consortium for the Study of Terrorism and Responses to Terrorism (START), University of Maryland. 2018. The Global Terrorism Database (GTD) [data file]. Data retrieved from, <https://www.start.umd.edu/gtd>.
- Correia, S., P. Guimarães, and T. Zylkin. 2020. "Fast Poisson Estimation with High-Dimensional Fixed Effects." *The Stata Journal* 20 (1): 95–11. doi:10.1177/1536867X20909691.
- Cuadros, A., J. Martín-Montaner, and J. Paniagua. 2016. "Homeward Bound FDI: Are Migrants a Bridge over Troubled Finance?" *Economic Modelling* 58: 454–465. doi:10.1016/j.econmod.2016.05.021.
- Egger, P., and M. Gassebner. 2015. "International Terrorism as a Trade Impediment?" *Oxford Economic Papers* 67 (1): 42–62. doi:10.1093/oep/gpu037.
- Enders, W., and T. Sandler. 1996. "Terrorism and Foreign Direct Investment in Spain and Greece." *Kyklos* 49 (3): 331–352. doi:10.1111/j.1467-6435.1996.tb01400.x.
- Enders, W., and T. Sandler. 2000. "Is Transnational Terrorism Becoming More Threatening? A Time-series Investigation." *Journal of Conflict Resolution* 44 (3): 307–332. doi:10.1177/0022002700044003002.
- FDI Markets. 2017. FDI Markets- Financial Times Ltd. Data Retrieved From, <http://www.fdimarkets.com>.
- Filer, R. K., and D. Stanišić. 2016. "The Effect of Terrorist Incidents on Capital Flows." *Review of Development Economics* 20 (2): 502–513. doi:10.1111/rode.12246.
- Findley, M. E., and J. K. Young. 2012. "Terrorism and Civil War: A Spatial and Temporal Approach to A Conceptual Problem." *Perspectives on Politics* 10 (2): 285–305. doi:10.1017/S1537592712000679.
- Gaïbulloev, K., and T. Sandler. 2008. "Growth Consequences of Terrorism in Western Europe." *Kyklos* 61 (3): 411–424. doi:10.1111/j.1467-6435.2008.00409.x.
- Gaïbulloev, K., and T. Sandler. 2009. "The Impact of Terrorism and Conflicts on Growth in Asia." *Economics & Politics* 21 (3): 359–383. doi:10.1111/j.1468-0343.2009.00347.x.
- Gaïbulloev, K., and T. Sandler. 2011. "The Adverse Effect of Transnational and Domestic Terrorism on Growth in Africa." *Journal of Peace Research* 48 (3): 355–371. doi:10.1177/0022343310395798.
- Gaïbulloev, K., and T. Sandler. 2019. "What We Have Learned about Terrorism since 9/11." *Journal of Economic Literature* 57 (2): 275–328. doi:10.1257/jel.20181444.
- Galović, T., H. Bezić, and P. Mišević. 2018. "Terrorist Activities and Capital Flows of Developed Countries." *Acta Oeconomica* 68 (3): 337–352.
- Gil-Pareja, S., R. Llorca-Vivero, and J. Paniagua. 2022. "Regional Headquarters and Foreign Direct Investment." *Review of International Economics*. doi:10.1111/roie.12605.
- Guerin, S. S., and S. Manzcocchi. 2009. "Political Regime and FDI from Advanced to Emerging Countries." *Review of World Economics* 145 (1): 75–91. doi:10.1007/s10290-009-0004-7.
- Head, K., and T. Mayer. 2014. "Gravity Equations: Workhorse, Toolkit, and Cookbook." In *Handbook of International Economics*, edited by G. Gopinath, E. Helpman, and K. Rogoff, Vol. 4, 131–195. Amsterdam: North-Holland: Elsevier. doi:10.1016/B978-0-444-54314-1.00003-3.
- Head, K., T. Mayer, and J. Ries. 2010. "The Erosion of Colonial Trade Linkages after Independence." *Journal of International Economics* 81 (1): 1–14. doi:10.1016/j.jinteco.2010.01.002.
- Head, K., and J. Ries. 2008. "FDI as an Outcome of the Market for Corporate Control: Theory and Evidence." *Journal of International Economics* 74 (1): 2–20. doi:10.1016/j.jinteco.2007.04.004.
- Heid, B., M. Larch, and Y. V. Yotov. 2021. "Estimating the Effects of Non-discriminatory Trade Policies within Structural Gravity Models." *Canadian Journal of Economics/Revue Canadienne D'économique* 54 (1): 376–409. doi:10.1111/caje.12493.
- Heid, B., and L. Márquez-Ramos. 2019. "Fiscal Discipline and Foreign Direct Investment." Paper presented at the XIX Conference on International Economics, Vila-Real, June 28-29.
- Hofmann, C., A. Osnago, and M. Ruta. 2017. "Horizontal Depth: A New Database on the Content of Preferential Trade Agreements." *World Bank Policy Research Working Paper*, no. 7981.
- Hogetoorn, B., and M. Gerritse. 2021. "The Impact of Terrorism on International Mergers and Acquisitions: Evidence from Firm-level Decisions." *Journal of Peace Research* 58 (3): 523–538.
- Jang, Y. J. 2011. "The Impact of Bilateral Free Trade Agreements on Bilateral Foreign Direct Investment among Developed Countries." *The World Economy* 34 (9): 1628–1651.

- Jensen, N. M., and D. J. Young. 2008. "A Violent Future? Political Risk Insurance Markets and Violence Forecasts." *Journal of Conflict Resolution* 52 (4): 527–547. doi:10.1177/0022002708316744.
- Johns, L., and R. L. Wellhausen. 2016. "Under One Roof: Supply Chains and the Protection of Foreign Investment." *American Political Science Review* 110 (1): 31–51. doi:10.1017/S000305541500057X.
- Johnston, R. B., and O. M. Nedelescu. 2006. "The Impact of Terrorism on Financial Markets." *Journal of Financial Crime* 13 (1): 7–25. doi:10.1108/13590790610641233.
- Kaufmann, D., A. Kraay, and M. Mastruzzi. 2011. "The Worldwide Governance Indicators: Methodology and Analytical Issues." *Hague Journal on the Rule of Law* 3 (2): 220–246. doi:10.1017/S1876404511200046.
- Kox, H. L., and H. Rojas-Romagosa. 2020. "How Trade and Investment Agreements Affect Bilateral Foreign Direct Investment: Results from a Structural Gravity Model." *The World Economy* 43 (12): 3203–3242.
- LaFree, G. 2010. "The Global Terrorism Database (GTD) Accomplishments and Challenges." *Perspectives on Terrorism* 4 (1): 24–46.
- Lee, C.-Y. 2017. "Terrorism, Counterterrorism Aid, and Foreign Direct Investment." *Foreign Policy Analysis* 13 (1): 168–187. doi:10.1111/fpa.12087.
- Li, Q. 2006. "Political Violence and Foreign Direct Investment." *Regional economic integration, Research in Global Strategic Management*, edited by M. Fratianni, and A. M. Rugman, Vol. 12, 225–249. Oxford: Elsevier.
- Li, C., S. M. Murshed, and S. Tanna. 2017. "The Impact of Civil War on Foreign Direct Investment Flows to Developing Countries." *The Journal of International Trade & Economic Development* 26 (4): 488–507. doi:10.1080/09638199.2016.1270347.
- Mayer, T., I. M'éjean, and B. Nefussi. 2010. "The Location of Domestic and Foreign Production Affiliates by French Multinational Firms." *Journal of Urban Economics* 68 (2): 115–128.
- McCallum, J. 1995. "National Borders Matter: Canada-US Regional Trade Patterns." *The American Economic Review* 85 (3): 615–623.
- Nizalova, O. Y., and I. Murtazashvili. 2016. "Exogenous Treatment and Endogenous Factors: Vanishing of Omitted Variable Bias on the Interaction Term." *Journal of Econometric Methods* 5 (1): 71–77. doi:10.1515/jem-2013-0012.
- Oh, C. H., and J. Oetzel. 2017. "Once Bitten Twice Shy? Experience Managing Violent Conflict Risk and MNC Subsidiary-level Investment and Expansion." *Strategic Management Journal* 38 (3): 714–731. doi:10.1002/smj.2498.
- Olson, M. 1993. "Dictatorship, Democracy, and Development." *American Political Science Review* 87 (3): 567–576. doi:10.2307/2938736.
- Osgood, I., and C. Simonelli. 2020. "Nowhere to Go: FDI, Terror, and Market-specific Assets." *Journal of Conflict Resolution* 64 (9): 1584–1611. doi:10.1177/0022002720908314.
- Ouyang, A. Y., and R. S. Rajan. 2017. "Impact of Terrorism on Cross-border Mergers and Acquisitions (M&As): Prevalence, Frequency and Intensity." *Open Economies Review* 28 (1): 79–106.
- Paniagua, J., E. Figueiredo, and J. Sapena. 2015. "Quantile Regression for the FDI Gravity Equation." *Journal of Business Research* 68 (7): 1512–1518.
- Powers, M., and S.-W. Choi. 2012. "Does Transnational Terrorism Reduce Foreign Direct Investment? Business-related versus Non-business-related Terrorism." *Journal of Peace Research* 49 (3): 407–422.
- Saeed, A., Y. Ding, S. Hammoudeh, and I. Ahmad. 2018. "Taxing Impact of Terrorism on Global Economic Openness of Developed and Developing Countries." *Acta Oeconomica* 68 (3): 311–335.
- Silva, J. S., and S. Tenreiro. 2006. "The Log of Gravity." *The Review of Economics and Statistics* 88 (4): 641–658. doi:10.1162/rest.88.4.641.
- Singh, P. 2013. "Impact of Terrorism on Investment Decisions of Farmers: Evidence from the Punjab Insurgency." *Journal of Conflict Resolution* 57 (1): 143–168. doi:10.1177/0022002712464850.
- Skovoroda, R., S. Goldfinch, K. DeRouen, and T. Buck. 2019. "The Attraction of FDI to Conflicted States: The Counter-intuitive Case of Us Oil and Gas." *Management International Review* 59 (2): 229–251.
- Tingbani, I., G. Okafor, V. Tauringana, and A. M. Zalata. 2019. "Terrorism and Country-level Global Business Failure." *Journal of Business Research* 98: 430–440. doi:10.1016/j.jbusres.2018.08.037.
- Umber, M. P., M. H. Grote, and R. Frey. 2014. "Same as It Ever Was? Europe's National Borders and the Market for Corporate Control." *Journal of International Money and Finance* 40: 109–127. doi:10.1016/j.jimonfin.2013.09.002.
- UNCTAD. 2021. *World Investment Report 2021: Investing in Sustainable Recovery*. New York: United Nations.
- Witte, C. T., M. J. Burger, E. I. Ianchovichina, and E. Pennings. 2017. "Dodging Bullets: The Heterogeneous Effect of Political Violence on Greenfield FDI." *Journal of International Business Studies* 48 (7): 862–892. doi:10.1057/s41267-017-0079-7.
- Yotov, Y. 2022. "On the Role of Domestic Trade Flows for Estimating the Gravity Model of Trade." *Contemporary Economic Policy*. doi:10.1111/coep.12567.