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# Does Immigration Induce Terrorism?

Article in The Journal of Politics · February 2016

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## Does Immigration Induce Terrorism?

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October 29, 2015

Forthcoming, Journal of Politics

Short Title for Running Header: Does Immigration Induce Terrorism?

#### Abstract

There is a heated debate on whether immigration is associated with domestic and transnational terrorism. As of yet, however, we lacked rigorous evidence that could inform this debate. As a contribution to address this shortcoming, we report spatial-econometric analyses of migrant inflows and the number of terrorist attacks in 145 countries between 1970 and 2000. The results suggest that migrants stemming from terrorist-prone states moving to another country are indeed an important vehicle through which terrorism does diffuse. Having said that, the findings also highlight that migrant inflows *per se* actually lead to a lower level of terrorist attacks. This research significantly improves our understanding of international and domestic terrorism, and has critical implications for the scholastic approach to terrorism as well as for countries' immigration policies worldwide.

*Keywords:* Diffusion, Immigration, Migration Inflows, Spatial Temporal Autoregressive Models, Terrorism

Authors' Note: Supplementary material for this article is available in the appendix in the online edition. Replication files are available in the JOP Data Archive on Dataverse https://dataverse.harvard.edu/dataverse/jop.

## 1 Introduction

The recent decades have seen a substantial increase in global migration. At the present time, it is estimated that there are more than 232 million international migrants worldwide, which constitutes more than 3 percent of the world's population (DESA, 2013). This phenomenon may critically challenge the "territorial state as a bounded entity with a clearly demarcated territory and population" (Adamson, 2006, p.175). While international migration is not a new phenomenon for scholars and policymakers alike, and it has long been a key issue on the security agenda of many countries (Rudolph, 2003), the involvement of migrants, or their descendants, in some of the major terrorist incidents of the last few decades has fueled the debate on the relationship between immigration and terrorism.

Is migration from one country to another related to terrorism? In other words, does terrorism *diffuse* via migration flows? This research question lies at the intersection of three separate, yet intertwined strands of research: one on migration, one on terrorism, and one on international diffusion. Specifically, the diffusion perspective suggests that "policies" can spread, and actors in one national context may be influenced by actors in other states, if spatial links exist between them (for an overview, see, e.g., <u>Simmons and Elkins, 2004; Elkins and Simmons, 2005; Simmons, Dobbin and Garrett, 2008; Plümper and Neumayer, 2010; Gilardi, 2010, 2012)</u>. Combining this with the literature on migrants and terrorism, we develop the argument that migrant inflows could, in principle, constitute such a link between states, leading to the diffusion of policies, ideologies, and behavior – and, eventually, terrorism. Hence, migrants may be a vehicle that facilitates the traveling of terrorism across countries.

Existing studies report that the likelihood of conflict spillover increases with a larger *refugee* influx from nearby conflict-torn countries (e.g., Salehyan and Gleditsch, 2006; Buhaug and Gleditsch, 2008). Milton, Spencer and Findley (2013) even find that *refugees* are associated with the spread of terrorism across pairs of states (dyads). Accordingly, refugees can create security concerns. In this article, however, we have a different focus as we study the impact of *transnational migration* on the diffusion of terrorism with spatial-econometric analyses. While it may seem at first that several of those arguments presented in the literature for why conflict or terrorism spread with refugees also apply to *migrants*, we claim that there are crucial differences to the conflict literature and between refugees and migrants as a "diffusion vehicle." Specifically, terrorism is a global political issue with far broader consequences than civil wars as it affects, directly and indirectly, virtually all countries in the world. In addition, as we explain thoroughly over the course of this article, we focus on people that are (more) permanently settled in a country, while refugees pertain

to provisional movements of people from one country to another for temporary protection. The latter are also a phenomenon of smaller scope: at the end of 2010, there were about 15 million refugees worldwide (Milton, Spencer and Findley, 2013) – as compared to more than 200 million migrants. Finally, unlike the study on civil conflict, but despite a frequently given transnational character of terrorism, research on terrorist attacks has largely occurred separately from that on international diffusion.<sup>1</sup>

We argue that terrorism travels across national borders, that the connection between countries as spatial units goes beyond issues of (geographical) contiguity, and that migration plays a critical role in this context. And, in fact, this is supported by ample anecdotal evidence, in particular following the recent migration crisis in Europe. Panos Kammenos, the Greek defense minister, announced in March 2015 that "if Europe leaves us in the crisis, we will flood it with migrants, and it will be even worse for Berlin if in that wave of millions of economic migrants there will be some jihadists of the Islamic State too" (Waterfield, 2015).<sup>2</sup> The Italian foreign minister, Paolo Gentiloni, also stressed in January 2015 that there was a "risk that terrorists could be among the waves of thousands of migrants who arrive in Italy from North Africa every year. There are considerable risks of terrorists infiltrating immigration (flows)" (Gazzetta del Sud, 2015).<sup>3</sup> That said, is it really the case that "terrorism is, because of its cross-border dimensions, a migration issue" (IOM, 2003, p.2)?

Finding an answer to our research question has important implications for the policy and academic communities. We seek to integrate the literatures on terrorism, migration, and international diffusion for evaluating whether migrants are a vehicle for transporting terrorist activities from one country to another, and under what conditions. In so doing, we make three central contributions. First, we expand the range of perspectives on terrorism and terrorism diffusion beyond questions of terrorism hotspots at the *local/regional* level (e.g., <u>Braithwaite and Li, 2007</u>) to the importance of transpation networks at the *international* level. More crucially, simply focusing on

<sup>&</sup>lt;sup>1</sup>Some notable exceptions (e.g., <u>Braithwaite and Li, 2007; Neumayer and Plümper, 2010; Nemeth, Mauslein and Stapley, 2014;</u> Braithwaite, 2015; <u>Findley, Piazza and Young, 2012;</u> Blomberg and Hess, 2008; <u>Li and Schaub, 2004</u>) on the spatial dimension of terrorism do exist. However, neither do these works explicitly develop an argument based on the diffusion literature nor do they make use of spatial econometrics. Some of these works also have an overly strong focus on purely geographic links between states. We discuss these studies more comprehensively in the online appendix.

 $<sup>^{2}</sup>$ Similarly, Nikos Kotzias, the Greek foreign minister, emphasized that "there will be tens of millions of immigrants and thousands of jihadists."

 $<sup>^{3}</sup>$ Moreover, on March 12, 2015, the EU's Justice and Home Affairs Council discussed their views on migration and the fight against terrorism, and how improvements in the former could lead to more safety in the latter. The US is another well-know case. Kephart (2005, p.175) states in her analysis of US migration policies that "[i]n 47 instances, immigration benefits sought or acquired prior to 9/11 enabled the terrorists to stay in the United States after 9/11 and continue their terrorist activities. In at least two instances, terrorists were still able to acquire immigration benefits after 9/11."

geographical proximity neither allows us to identify the actual channel of terrorism diffusion nor does it provide much control for what Buhaug and Gleditsch (2008, p.216) call the "reverse Galton's problem:" previous findings on terrorism diffusion "could be simply due to a corresponding distribution of relevant state [domestic or unit-specific] characteristics" that are correlated with terrorist attacks. This, however, is hardly related to a deliberate and genuine process of terrorism diffusion.

Second, we complement the diffusion literature theoretically and empirically by drawing on insights from some of the more general studies on spatial dependency (see <u>Gilardi, 2010</u>, 2012), and by showing how large population flows act as a direct cross-national diffusion path. Our work thus adds an innovative theoretical contribution to the literature as we elaborate on alternative sources of diffusion (i.e., migrants) and on what actually can be transported by the "diffusion vehicle" of migration, e.g., ideas, knowledge, and ideology. To this end, we explore the possibility that migration affects terrorism from a (spatial) network perspective: migrant inflows provide social bonds, inducing that migrants are well connected with each other (see also <u>Sageman, 2004</u>, <u>2011</u>). In turn, if immigrants come from terror-prone countries, the ties among a group's members could potentially be exploited by terrorist organizations that then fuel migrants' radicalization, the emergence of a common identity, and ideological commitment. Eventually, this may lead to a higher level of terrorism (Koschade, 2006; Pedahzur and Perliger, 2006; Sageman, 2004, 2011; Perliger and Pedahzur, 2011).

Third, while there is anecdotal evidence for immigration increasing the risk of terrorism, we inform the public debate by offering the first rigorous quantitative evidence on the relevance of migration for explaining dynamic patterns of terrorism. While several studies suggest that many transnational terrorists are, in fact, migrants to their host country (e.g., Leiken and Brooke, 2006; Kephart, 2005; Bandyopadhyay and Sandler, 2014), there is no direct evidence that immigration actually induces terrorism. Hence, we provide estimates the parameters from a series of spatial lag models (see Franzese and Hays, 2007, 2008; Hays, Kachi and Franzese, 2010) based on 145 countries between 1970 and 2000 that address this gap.<sup>4</sup>

Ultimately, if terrorism travels across national borders, our work will inform the literature on international diffusion. And if migration is one vehicle of terrorism diffusing from one country to another, we can shed new light on its security dimension. As a result, this analysis significantly

 $<sup>^{4}</sup>$ As explained below, the availability of data limits the period under study. This does not limit the generalizability of our findings, however. On one hand, Enders and Sandler (2005, p.259) examine the degree to which transnational terrorism changed after the 9/11 attacks, but they find "[p]erhaps surprising, little has changed in the time series of overall incidents and most of its component series." On the other hand, we discuss the in-sample and out-of-sample prediction power of our core variable in the appendix. The results there suggest that our main findings can be generalized to other time periods as well.

improves our understanding of diffusion processes, international and domestic terrorism, and has critical implications for countries' immigration policies worldwide. The empirical results demonstrate that immigrants are indeed a vehicle for terrorism to travel from one country to another, i.e., the level of terrorism "at home" increases with a larger number of immigrants from countries of origin where terrorism has been present. However, we also find that immigration as such is actually associated with a "normatively positive" effect, i.e., the number of terrorist attacks significantly decreases with immigration generally defined.<sup>5</sup> These results are robust across different model specifications (e.g., when including controls for domestic factors or spatial lags based on geographical proximity), estimation strategies (single and multiple spatial lag ordinary least squares (OLS); single and multiple spatial lag maximum likelihood (Hays, Kachi and Franzese, 2010)), or while controlling for a number of "exogenous-external conditions or common shocks and spatially correlated unit level factors" (Franzese and Hays, 2007, p.142) in order to rule out the possibility of common exposure, i.e., spatial clustering that is not driven by countries' interdependence through migrant inflows.

We conclude that more stringent immigration laws and policies may not necessarily be useful when employed in an indiscriminate way. More immigration *per se* actually seems to be associated with fewer terrorist attacks; what matters are the countries of migrants' origins and how present terrorism is in those states.

## 2 Theory: Immigration as a Vehicle for Terrorism Diffusion

International migration is a key issue in the security agenda of the United States and many other countries (Rudolph, 2003; Adamson, 2006). The impact of immigration on security, along with the question of whether the economic benefits of immigration exceed it costs, has been at the core of the public debate. In particular, the relationship between immigration and terrorist attacks – the focus of our study – has been widely discussed among policymakers and public institutions, leading to arguments for and against such a relationship. Recent reports by the International Organization for Migration (IOM, 2003, 2010), for example, highlight a number of areas where migration policies and national security intersect, suggesting that more migration into a country is very likely to induce security risks; but these reports also warn against drawing too close links between migration and insecurity.<sup>6</sup>

<sup>&</sup>lt;sup>5</sup>That is, when immigration is not necessarily linked to terrorism in the migrants' countries of origin.

<sup>&</sup>lt;sup>6</sup>In fact, by falsely linking immigration to terrorism, states might antagonize immigrant communities, increase the level of domestic xenophobia, impede trade, provoke retaliation, or increase isolationism (IOM, 2003, 2010).

In turn, the perceived link between immigration and terrorism frequently has and continues to legitimize the implementation and enforcement of stricter migration laws, regulations, and controls (Rudolph, 2003; Givens, Freeman and Leal, 2008; Epifanio, 2011; Neumayer, Plümper and Epifanio, 2014; Bandyopadhyay and Sandler, 2014). It may then not come across surprising that the attacks on September 11, 2001 provided an opportunity for the "securitization" of migration (Zucconi, 2004), in particular in the US (Tirman, 2004; Givens, Freeman and Leal, 2008). This was echoed by the United Nations Security Council Resolution 1373, which encourages states to "prevent the movement of terrorists or terrorist groups by effective border controls and controls on issuance of identity papers and travel documents, and through measures for preventing counterfeiting, forgery or fraudulent use of identity papers and travel documents."<sup>7</sup> Consistent with this, Neumayer (2006) finds that passport holders from countries whose nationals have been major perpetrators of terrorist acts are more likely to face visa restrictions when going abroad. Similarly, Avdan (2014) claims that policy tightening is more strongly given when states experience terrorist events on their own soil or against their citizens.

Against this background, globalization processes and the higher cross-border mobility of people have made the relationship between migration and security difficult to neglect (see Blomberg and Hess, 2008). Adamson (2006) qualitatively examines several ways in which international migration reshapes the security environment, and how migration flows can affect states' security interests. Accordingly, international migration flows provide opportunities for new forms of transnational action that are used by political movements, including terrorist organizations. A recent assessment by the Nixon Center (Leiken, 2004, p.6) also emphasizes that "[i]mmigration and terrorism are linked; not because all immigrants are terrorists, but because all, or nearly all, terrorists in the West have been immigrants".<sup>8</sup> But what is the potential mechanism for a relationship between *migration* and *terrorism*, i.e., when and how does terrorism diffuse between countries (a) that are linked by migration flows and (b) when the country of origin has a track-record of terrorist activities?<sup>9</sup>

<sup>&</sup>lt;sup>7</sup>See: http://www.un.org/News/Press/docs/2001/sc7158.doc.htm.

<sup>&</sup>lt;sup>8</sup>Adamson (2006, p.195) argues that while these claims "are sensationalist and highly problematic, not the least because they do not take into account attacks by domestic groups in Europe, [...] migration networks, however, do provide avenues for terrorist organizations and other nonstate actors to pursue their interests."

<sup>&</sup>lt;sup>9</sup>As indicated, our study substantially differs from previous research on *refugees* and terrorism. As elaborated below more thoroughly, migrants pertain to people that are (more) permanently settled in a country, while refugees pertain to temporary movements of people from one country to another that flee general violence and seek temporary protection. According to Choi and Salehyan (2013, p.57), the arguments in the literature for a link between refugees and terrorism focus on (1) attacks on refugee camps, (2) terrorists recruiting from refugee camps, and (3) higher incentives of right-wing anti-immigrant groups to attack refugees with terrorism (see also Milton, Spencer and Findley, 2013, p.625ff). However, these three core claims substantially differ from the core argument we advance below, as we focus on the longer time horizon of migrants as opposed to refugees. Thus, our work differs both theoretically and empirically from Salehyan and Gleditsch (2006), Salehyan (2009), Choi and Salehyan (2013), or

We contend that, from a network perspective, migration flows affect the willingness and opportunity for and, thereby, the actual patterns of social interaction, which makes it *ceteris paribus* more likely that ties are developed between individuals and transnational terrorist groups. Hence, migrants function as a vehicle for terrorism diffusion. To this end, our theory builds on and extends the recent work on terror networks (e.g., Sageman, 2004, 2011). Specifically, Sageman (2004, 2011) describes the process of joining the jihad, or generally engaging in terror activities, via a three-step process: social affiliation, progressive intensification of beliefs and faith, and formal acceptance of the jihad (or the need for terrorism, more generally). Throughout these steps, social bonds play the most important role as they provide "mutual emotional and social support, development of a common identity, and encouragement to adopt a new faith" (Sageman, 2004, p.135). The potential pool of terrorists is, in fact, formed by clusters of e.g., friends or worshippers, who are connected via strong ties. This improves social cohesion, common views and loyalties, and a strong sense of community. However, the presence a pre-existing social framework is a somewhat necessary requirement for joining, forming, or engaging with terrorist groups; sometimes, these networks exist long before any members engage in terrorist activities (see e.g., <u>Perliger and Pedahzur, 2011</u>). We believe that migrants can provide such social ties and bonds, and terrorist organizations may exploit them for their purposes.

In terrorist groups, actors are linked to each other through a "complex web of direct and mediated exchanges" (Sageman, 2004, p.137). They are self-organized and lack a comprehensive recruitment drive, which implies that terror organizations need to build on pre-existing linkages, nodes, and thus networks to pursue their goals (Sageman, 2004). We argue that migration flows and diaspora communities provide those linkages, nodes, and pre-existing social networks. This claim mirrors Sageman (2011) who examines the circumstances under which people joined global Islamist terrorism and finds that being an expatriate was a common feature of the studied subjects.<sup>10</sup> Joining a terrorist movement depends on overcoming several barriers to mobilization (see Sandler, 1992), which we argue can be achieved due to links among individuals that are formed via friendship or kinship; and the migrant inflows into a country forming the diaspora provide the close, intimate network essential for successful terrorist mobilization. Ultimately, if the migrants' country of origin is prone to terrorist activities, terrorist organizations might make use of the social bonds existent in the influx of migrants to other countries, therefore spreading their activities across borders. Hence, migrants are then a vehicle for the diffusion of terrorism.

Milton, Spencer and Findley (2013).

 $<sup>^{10}</sup>$ In fact, 60 percent of his sample joined a terrorist organization while living in an host country; an additional 20 percent were sons or grandsons of immigrants.

Important for this argument, and the macro-level empirical implication of it, is that migrants are indeed closely tied to each other and that networks do exist. In their study of immigration patterns, Leiken and Brooke (2006) report that the decision to migrate is usually affected by the presence of relatives and friends in specific regions (who can provide assistance in finding housing and jobs, etc.), thus leading to the outcome that pre-migration networks determine location patterns.<sup>11</sup> Consequently, migration flows do comprise social ties and networks that existed well before the actual migration movement. When subscribing to this claim, and since terrorist organizations purposefully indeed make use of these links, with terrorists acting as "brokers" for potential members of the jihad (Sageman, 2004) or terrorism generally, migration inflows are likely to be a vehicle of terrorism diffusion.

To illustrate this, consider the Hamburg cell, a group of radical Islamists who became operatives in the 9/11 attacks. The Hamburg cell emerged from the expatriate student community and formed around Mohammed bin Nasser Belfas, an immigrant who had lived in Germany illegally for almost twenty years before being given legal status.<sup>12</sup> Our proposed mechanism is not confined to the realm of Jihadi terrorism, however. Both the German Red Army Faction (RAF) and the Japanese Red Army (JRA), two left-wing terrorist organizations very active in the 1970s, had connections with the Popular Front for the Liberation of Palestine (Kushner, 2002). Similarly, in recent years, there is a growing recognition of a number of forms of collaboration between right-wing terrorist groups in Europe (Von Mering and McCarty, 2013).

Hence, these individuals worked as brokers between their organization and the migrants, made use of their pre-existing social ties, and thereby recruited them for their activities. And, in fact, the policy diffusion literature on transfer across national borders consistently emphasizes that learning and emulation can occur under those circumstances (Simmons and Elkins, 2004; Elkins and Simmons, 2005; Simmons, Dobbin and Garrett, 2008; Plümper and Neumayer, 2010; Gilardi, 2010, 2012) – learning and emulation facilitate overcoming the collective action problem of mobilization (see e.g., Gleditsch and Rivera, 2015). Finally, an analysis of 212 perpetrators of terrorist acts by the Nixon Center (Leiken, 2004, p.43) further supports these patterns: "they are all associated exogenously to their role in the attacks. That is to say, they were connected by immigration status

<sup>&</sup>lt;sup>11</sup>Forced migration (see <u>Moore and Shellman, 2004</u>, 2006, 2007) involving internally displaced people or refugees is different from what we focus on in this work. On one hand, and as highlighted in footnote 9 above and footnote 20 below, refugees flee their homes due to violence and repression by the government or dissidents; and they pertain to *temporary* movements of people from one country to another (Salehyan and Gleditsch, 2006; <u>Rubin and Moore</u>, 2007). On the other hand, internally displaced people do not move across country borders.

 $<sup>^{12}</sup>$ Sageman (2004, p.144) highlights that "[t]he evolution of Montreal, Milan, and Madrid as early contributors to the jihad was probably due to the chance migration of Fateh Kamel, Imad Eddin Barakat Yarkas (a.k.a. Abu Dahdah), and Sheikh Anwar Shaban to these respective cities."

or by nationality."<sup>13</sup> Host countries' immigration law systems can further influence the intensity of this phenomenon and make some countries home to international terrorist organizations (see e.g., Zimmermann and Rosenau, 2009).

Migrant inflows stemming from terror-prone states can then be related to the emergence of terrorist movements, as they help creating and shaping social identities and ideological commitments to a particular cause through a process of interaction and socialization. It is within this influx of migrants that terrorists acting as "brokers" for potential members (<u>Sageman, 2004</u>) spread their ideology and recruit into terror networks, e.g., by targeting people with common ethnic backgrounds. Therefore, the migrant influx forming diaspora networks, rich in social capital, can be used as a political resource (<u>Adamson, 2006</u>), as it provides opportunities and the willingness for mobilization (see <u>Sandler, 1992</u>). Eventually, joining a terrorist group is more like a bottom-up process, where many potential recruits "want to join [...] but do not know how" (<u>Sageman, 2004</u>, p.122). In this context, originating from the same country where terrorism is present facilitates this process. Consider, for example, the Kashmir diaspora in the UK: "back home, they may have a family member that might link and vouch for them with local terrorist groups." Yet, if someone from another migrant background tries to establish contact with these groups, "he probably would not be able to make that connection because no one would trust him" (Sageman, 2011, p.85).<sup>14</sup>

In sum, we claim that migrations flows from terrorism-prone country facilitate the diffusion of terrorism in the host country by providing a dense framework of prior trusted relationships among the migrants. Terrorist organizations purposefully make use of these links, with terrorists acting as "brokers" for potential members (Sageman, 2004, 2011). And they can do so due to a common background as determined by country of origin or ethnicity. This is an important condition for the radicalization and mobilization of new recruits and, ultimately, migration inflows are likely to be a vehicle of terrorism diffusion.<sup>15</sup> This argument leads to the Migration Inflow Hypothesis: terrorism is more likely to diffuse from one country to another with larger migrant inflows.

<sup>&</sup>lt;sup>13</sup>For example, individuals arrested in Detroit were all North African, the Tunisian synagogue bombing was orchestrated from Europe, the Milan cell was mainly Tunisians and the Lashkar-i-Toiba group was dominated by US citizens (Leiken, 2004, p.43).

<sup>&</sup>lt;sup>14</sup>Note, however, that terrorism is directed not solely at the North (i.e., developed countries) and that the link between terrorism and migration is not only or mainly a South to North phenomenon. South-South migration remains the major share of total world migration (Özden et al., 2011), and in many cases terrorism travels from the South to the South or even from the North to the South. After the Soviet withdrawal from Afghanistan in 1988, the expatriate mujahedin community moved to the country from core Arab countries (such as Saudi Arabia, Egypt, Algeria, and Morocco), Southeast Asian countries (e.g., Philippines and Indonesia), and immigrant communities of the US and Europe (Sageman, 2004).

 $<sup>^{15}</sup>$ In the appendix, we elaborate on a few micro-level mechanisms on how migration-based ties can contribute to the diffusion of ideologies, experience, and an increased interdependence between terrorist organizations across countries.

## 3 Research Design

#### 3.1 Data and Dependent Variable

We collected data for 145 countries over the time period 1970-2000.<sup>16</sup> The data are structured in terms of country-year observations and, after dropping 72 such cases for which we do not have any information on the migration data (discussed below), our sample comprises 3,919 country-years.<sup>17</sup>

For the dependent variable, we rely on the information in the Global Terrorism Database (GTD) that defines terrorism as "the premeditated use or threat to use violence by individuals or subnational groups against noncombatants in order to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims" (Enders, Sandler and Gaibulloev, 2011, p.321). This data set provides a count variable on the number of terrorist attacks – both national and transnational – that occurred within a country's geographic boundaries.<sup>18</sup> We use a modified version of the count variable of terrorist attacks: due to the skewed distribution of the number of terrorist attacks in a country, which is primarily driven by the large number of zeros in the data, and since our estimators require a (quasi-) continuous dependent variable, we take the natural logarithm of the count after adding the value of 1 (to avoid calculating the log of 0).<sup>19</sup>

For the models we report below, we do not distinguish between domestic or international forms of terror. Having said that, since the theoretical argument suggests that it is arguably more likely that the level of international or transnational attacks is affected, the online appendix also points to a robustness check that examined domestic and transnational terrorist attacks separately. The results from these models are almost identical to the ones summarized below.

<sup>&</sup>lt;sup>16</sup>Not all countries are covered by the entire time period of 1970-2000. Moreover, note that the period of time covered in this study is driven by the availability of the immigration data, for which information is available until the year 2000 only. As indicated above, however, this does not limit the generalizability of our findings as Enders and Sandler (2005, p.259) show that little has changed in terms of post-9/11 terrorism and our prediction/forecasting exercise in the appendix clearly emphasizes the predictive power of our core variable of interest.

 $<sup>^{17}</sup>$ Thus, we use listwise deletion. That said, only 72 cases (out of originally 3,991 observations, which equals 1.8 percent) are affected by this, which is unlikely to bias our results.

<sup>&</sup>lt;sup>18</sup>Domestic terrorism pertains to those cases where the nationalities of the perpetrators and the victims are the same (Enders, Sandler and Gaibulloev, 2011, p.321).

 $<sup>^{19}</sup>$ Calculating the natural logarithm after adding 1 does not address the issue that the data cannot take on negative values, which could potentially bias the findings when using a linear model (as in our case, discussed below). However, when adding the value of 0.000001 to the count of terrorist attacks (instead of 1) and then calculating the logarithm, our results with this alternative dependent variable (that can then take on negative values) are unchanged compared to the ones we present below.

#### 3.2 Methodology

Estimating the parameters for a series of spatial temporal autoregressive models, or "spatial lag models," is appropriate, given the theoretical argument that contends that a country's level of terrorist attacks may be affected by other countries' terrorism and that immigrants may be the vehicle for this diffusion process (e.g., Franzese and Hays, 2007, 2008).

For capturing terrorism traveling across countries via migrant inflows, a state's degree of terrorism at time t is modeled as a function of foreign countries' terrorism at t-1. A weighting matrix specifies the set of such states and which "linkages" between them are important. Using a weighting matrix, we can model country linkages as conditional on whether migrant inflows do exist and by how much. More formally, our spatial lag models are defined as,

$$y_t = \phi y_{t-1} + \beta X_{t-1} + \rho \mathbf{W} y_{t-1} + \epsilon,$$

where  $y_t$  is the dependent variable (i.e., the logged number of terrorist attacks at time t),  $y_{t-1}$ signifies the (one year) temporally lagged dependent variable,  $X_{t-1}$  is a matrix of temporally lagged explanatory variables that we define below, and  $\epsilon$  is the error term.  $\mathbf{W}y_{t-1}$  stands for the product of a row-standardized connectivity matrix ( $\mathbf{W}$ ) and the temporally lagged dependent variable  $(y_{t-1})$ , i.e.,  $\mathbf{W}y_{t-1}$  is a spatial lag and  $\rho$  the corresponding coefficient. In time-series cross-sectional analysis, the connectivity matrix  $\mathbf{W}$  is given by a NTxNT matrix (with T NxN sub-matrices along the block diagonal) with an element  $w_{i,j}$  capturing the relative connectivity of country j to country i (and with  $w_{i,i}=0$ ). Some define the spatial lag using the temporally lagged values of the dependent variable for methodological reasons: under certain assumptions, it justifies the use of spatial ordinary least squares (S-OLS), which is less computationally intensive than maximum likelihood methods (e.g., Ward and Gleditsch, 2008). Here, our rationale is that it takes time that there is a potential and tangible impact on terrorism via diffusion.<sup>20</sup> Hence, we use the lagged value of  $y_t$  when constructing the spatial lags.

Several estimators have been proposed for time-series cross-section spatial lag models (e.g., <u>Elhorst, 2003; Beck, Gleditsch and Beardsley, 2006; Franzese and Hays, 2007</u>), such as S-OLS or spatial maximum likelihood (S-ML). We employ S-ML regression models, but our findings are

<sup>&</sup>lt;sup>20</sup>This also clarifies, moreover, where and how *immigrants* differ from *refugees* (see also Salehyan and Gleditsch, 2006; Salehyan, 2009; <u>Choi and Salehyan, 2013</u>; <u>Milton, Spencer and Findley, 2013</u>). Migrants pertain to people that are (more) permanently settled in a country, while refugees pertain to temporary movements of people from one country to another, i.e., any person "who flees a country of origin or residence for fear of politically motivated harm" (Salehyan and Gleditsch, 2006, p.341). Since we argue that migration needs time to have a tangible effect on terrorism, a focus on migrants as opposed to refugees is appropriate. Thus, our work differs substantially both theoretically and empirically from Salehyan and Gleditsch (2006), Salehyan (2009), Choi and Salehyan (2013), or Milton, Spencer and Findley (2013).

robust to using S-OLS.<sup>21</sup> In order to rule out the possibility of common exposure – when, e.g., some country-specific features such as regime type tend to be spatially clustered or when spatial patterns can be produced by common trends or exogenous shocks – we control for a number of relevant "exogenous-external conditions or common shocks and spatially correlated unit level factors" (Franzese and Hays, 2007, p.142).

In line with Franzese and Hays (2007, 2008), we thus include a temporally lagged dependent variable that captures a country's level of terrorism in the previous year, country fixed effects, and year fixed effects. The longitudinal nature of our data allows us to consider the role of countries' past terrorism for their current terrorist attacks.<sup>22</sup> While this also captures time dependencies more generally, year fixed effects control for temporal shocks that are common for all states in a given year. The temporally lagged dependent variable, country fixed effects, year fixed effects, and the set of control variables (described below) make it credible that terrorism diffusion "cannot be dismissed as a mere product of a clustering in similar [state] characteristics" (Buhaug and Gleditsch, 2008, p.230). Plümper and Neumayer (2010, p.427) argue the same.

#### 3.3 Core Explanatory Variables: Spatial Lags

For the operationalization of spatial dependencies, we rely on three distinct spatial lags (see also Franzese and Hays, 2007, 2008; Ward and Gleditsch, 2008; <u>Beck, Gleditsch and Beardsley, 2006</u>). Two of them are based on the geographical distance between states, while the third one relies on migrant inflows as elements  $w_{i,j}$  of the connectivity matrix.<sup>23</sup>

Specifically, on one hand, there is contiguity, i.e., each element  $w_{i,j}$  in the binary connectivity matrix for the first spatial lag measures whether states *i* and *j* are contiguous by land (1) or not (0). Land contiguity is defined as the intersection of the homeland territory of the two states either through a land boundary or a river. The data for this are taken from the Correlates of War Project's Direct Contiguity Data (Stinnett et al., 2002). In the absence of a common contiguity tie

<sup>&</sup>lt;sup>21</sup>Franzese and Hays (2007) assess different specification and estimation choices both in terms of their asymptotic properties and small sample performance. They show that "S-ML seems to offer weakly dominant efficiency and generally solid performance in unbiasedness and SE [standard error] accuracy" compared to other estimation procedures (Franzese and Hays, 2007, p.163). However, the choice of estimation strategy does not affect the substance of our results.

 $<sup>^{22}</sup>$ Given the structure of the data, serially correlated errors within countries might be possible. The lagged dependent variable addresses this possibility (<u>Beck, 2001</u>). We are aware of the arguments against the inclusion of a temporally lagged dependent variable in fixed effects models (Plümper, <u>Troeger and Manow, 2005</u>), but we opt to consider it, since it yields more conservative estimates.

 $<sup>^{23}</sup>$ It is worth noting here that the spatial lag models do not show that there was a migrant inflow from country j to country i. Instead, they *model* that terrorism traveled from from country j to country i via, e.g., the migration inflow. To this end, that information showing that there was a migrant inflow from country j to country i is the migration data from Özden et al. (2011), which we use to create the migration-inflow adjacency matrix.

between two countries,  $w_{i,j}$  takes the value of 0 (i.e., no link between two states in the connectivity matrix). On the other hand, we created a weighting matrix based on the capital-to-capital distance (i.e., great circle distance between capital cities in kilometers) between countries (<u>Gleditsch and</u> <u>Ward, 1999</u>).<sup>24</sup> We re-scaled this second matrix so that higher values signify lower distances for the values of  $w_{i,j}$ .

While we introduce the spatial lags based on these weighting matrices one at a time,<sup>25</sup> including a geography-based spatial lag next to our immigrant-based spatial lag defined below fulfills two major and interrelated purposes. First, the geography-based spatial lags are "catch-all" variables, i.e., they control for any transnational influences we do not directly focus on in our theory, although they might be present. These transnational influences could be about common cultural relationships, regional dynamics, or security issues and are based on what Tobler (1970, p.236) calls the first law of geography: "everything is related to everything else, but near things are more related than distant things." Second, the previous literature on terrorism diffusion almost exclusively focuses on geographically defined spatial ties. Demonstrating that our core finding pertaining to the immigration spatial lag holds, while including a geography spatial control, substantially increases the confidence in the substantive contribution of this research.

A third spatial lag is based on migration inflows, i.e., the underlying matrix measures the yearly migrant inflow (the stock or total number) from a foreign state into the country under study. We define international migrant stocks as the number of people born in a country other than that in which they live, while the data are taken from the World Bank (Özden et al., 2011). Note that migration is not limited to a global South to global North direction, as South-South migration accounted for about half of the total migrant stock between 1960 and 2000 (Özden et al., 2011). Moreover, data on selected OECD destination countries show that the number of international migrants born in the South who lived in the North, or "South-North migration," almost equaled the number of migrants born in the South who resided in the South, or "South-South migration," in 2013 (DESA, 2013).

The migration data are derived from over 1,100 national individual census and populationregister records for our data's destination countries in 1960-2000.<sup>26</sup> We follow Özden et al. (2011, p.14) and subtract the number of refugees from total migrant numbers for the cases that are based

<sup>&</sup>lt;sup>24</sup>See: http://privatewww.essex.ac.uk/~ksg/data-5.html.

 $<sup>^{25}</sup>$ Since they capture the same theoretical rationale, albeit at different levels of resolution.

<sup>&</sup>lt;sup>26</sup>See: http://www.un.org/en/development/desa/population/migration/data/index.shtml.

on the Trends in International Migrant Stock Database.<sup>27</sup> From these raw data, we computed the number of immigrants. As each census round was conducted during a 10-year window,<sup>28</sup> we linearly interpolated missing data between two consecutive rounds. Ultimately, each element  $w_{i,j}$ of the underlying connectivity matrix for this last spatial lag is identical to the migrant inflow from country j to country i in the previous year (t-1). In the absence of any migration inflow from j to  $i, w_{i,j}$  takes the value of 0.

Initially, we introduce the three spatial lags separately into our models, since including more than one spatial lag could lead to "biased estimates of spatial effects" if there is too much of an overlap between them (Ward and Cao, 2012, p.1091). In general, however, there is little evidence that the geographical spatial lags strongly predict the immigration spatial lag. The pairwise correlations for these spatial lags are moderate to low, while the variation inflation factors (VIFs) are all well below the common threshold of 5. Specifically, Wy: Contiguity receives a VIF of 1.79, Wy: Inv. Distance is associated with a VIF of 1.48, and Wy: Migrant Inflow has a VIF of 2.01. Hence, contrary to what might have been expected, there is not much overlap between our three spatial lags.

We also present results for multiparametric spatiotemporal autoregressive (m-STAR) models (Hays, <u>Kachi and Franzese, 2010</u>), which help avoiding the problem that one lag may be acting as a proxy for others. The m-STAR model allows for a simultaneous inclusion of one geography and the immigration spatial lag. It also controls for the case where connectivity is endogenous to the dependent variable, i.e., a self-selection into the connectivity network.<sup>29</sup> Ultimately, since

 $^{28}$ Most destination countries conducted their censuses at the turn of the decade (Özden et al., 2011).

<sup>&</sup>lt;sup>27</sup>According to Özden et al. (2011, p.14), "[a]n important difference between the matrices presented in this article and the Trends in International Migrant Stock database is the treatment of refugees. While refugees are generally enumerated in developed country censuses, this is not always the case for developing countries. Refugees interned in camps are less likely to be surveyed at the time of census. Making allowances for these refugees, the Trends in International Migrant Stock database adds to the number of migrants refugees reported by the United Nations Refugee Agency and the United Nations Relief and Works Agency for developing countries that are not likely to have included the refuges in their census data. Since the majority of developed countries record refugees alongside other migrants on a bilateral basis, there are normally no remedial measures for removing them. Similarly, for developing countries for which no census data are available, it is impossible to know whether the numbers contained in Trends in International Migrant Stock database include refugees. For the cases that rely on the Trends in International Migrant Stock database, the number of refugees is subtracted from the totals, with the intention of removing refugees in camps from the total." Note, however, when re-estimating the models while controlling for refugees (see Milton, <u>Spencer and Findley, 2013</u>), the results presented in this article are unchanged in both direction and substance.

<sup>&</sup>lt;sup>29</sup>Endogeneity in the form of self-selection might be given due to two sources. First, it is likely that most countries actually do restrict immigration from terrorist-prone states (Rudolph, 2003; Givens, Freeman and Leal, 2008; Epifanio, 2011; Neumayer, Plümper and Epifanio, 2014; Bandyopadhyay and Sandler, 2014). An example is the 2005 Real ID Act in the US (Milton, Spencer and Findley, 2013), while, as stated above, Neumayer (2006) finds that citizens from terror-prone countries are more likely to face visa restrictions abroad. Second, beyond a country's attempts to restrict migration from some states for security reasons, people may also want to move to a country that has low rates of terrorism. Similarly, Dreher, Krieger and Meierrieks (2011) find that terrorism influences migration outflows. Ultimately, if either discrimination is indeed common practice, the structure of the weights matrix is endogenous to y. However, the m-STAR does control for these cases of endogeneity. Furthermore, if reverse causality was present, the effect of migration inflows on terrorism would be biased downwards due to the reverse negative effect that terrorism has on migration. The estimated effect is therefore mitigated.

we present single spatial lag and m-STAR regressions and as we also control for a number of relevant alternative influences that are "exogenous-external conditions or common shocks and spatially correlated unit level factors" (Franzese and Hays, 2007, p.142), we can indeed rule out the possibility of common exposure and are able to assess whether a genuine diffusion effect via migration does exist.

Finally, we row standardize all connectivity matrices. Row standardization generates spatial lags that are a weighted average of the values of the dependent variable with weights dependent on the existence and strength of a postulated network tie between a pair of states (Plümper and Neumayer, 2010, pp.428ff). Moreover, row standardization not only induces that the spatial lag has the same metric as the dependent variable, but also that the spatial lags' coefficients are directly interpretable as the approximate strength of interdependence (Franzese and Hays, 2008; Plümper and Neumayer, 2010).

#### 3.4 Control Variables

We also include a number of control variables, which may affect our dependent variable, in order to avoid omitted variable bias. Moreover, when examining a spatial diffusion effect, one has to account for other factors that may be "both spatially clustered and potentially related" to unit characteristics (Buhaug and Gleditsch, 2008, p.216). In other words, the spatial effect we argue for could simply be driven by a corresponding distribution of relevant domestic characteristics associated with terrorism. This is called a "reverse Galton's problem" (Buhaug and Gleditsch, 2008; Plümper and Neumayer, 2010), which we must address by considering relevant unit attributes that may be both spatially clustered and potentially related to our dependent variable. Following previous research on the determinants of terrorist attacks (e.g., Wilson and Piazza, 2013; Krieger and Meierrieks, 2011; Young and Findley, 2011; Choi, 2008; Choi and Piazza, 2015; Abadie, 2006; Li, 2005; Findley, Piazza and Young, 2012; Blomberg and Hess, 2008; Li and Schaub, 2004), we consider controls for a country's political and economic conditions, its size, and several systemic influences.

First, we include a series of binary variables capturing a country's regime type. To this end, we distinguish between democratic and non-democratic regimes, while the latter are disaggregated into personalist dictatorships, military regimes, single-party regimes, monarchies, and hybrid forms of government. The data for democracies stem from Cheibub, <u>Gandhi and Vreeland (2010)</u>; the data on authoritarian regimes come from Geddes, Frantz and Wright (2014). We leave out the democracy dummy as the baseline category. Wilson and Piazza (2013) disaggregate autocratic regimes and their main claim states that single-party regimes are the least likely to see domestic or transnational terrorist attacks due to a wider coercion and co-option strategy set.<sup>30</sup>

Second, we consider the raw count (influx) of immigrants (log-transformed), summed across all countries of origin (sending countries), into a state under study. We include this control at least due to two reasons. On one hand, Wy: Migrant Inflow is also based on the number of immigrants flowing between two countries, but then weighted by terrorist attacks at time t-1. Showing that the results for this spatial lag hold even when controlling for the "raw and unweighted" migrant inflow substantially increases the confidence in our findings. On the other hand, theoretically, immigration is frequently associated with several positive outcomes (e.g., Boubtane and Dumont, 2013; Dustmann and Frattini, 2014), which in turn could at least indirectly affect terrorist activity in the state under study. Moreover, immigrants are usually drawn to richer countries that tend to be democratic, respect human rights more than poorer countries, are less corrupt, and are less conflict-prone than poorer countries, in general. Terrorism is a tactic used by people profoundly upset with the status quo who believe they cannot achieve their political aims any other way (see, e.g., Gleditsch and Rivera, 2015). Empirical evidence suggests that under some conditions, richer, more democratic states are more likely to produce fewer people inclined toward this type of behavior (see, e.g., Blomberg and Hess, 2008), and they also provide institutional mechanisms that make terrorist activities unnecessary.<sup>31</sup> Including the total inflow of migrants into a country in a given year controls for these effects, and is theoretically and empirically different from the spatial lag Wy: Migrant Inflow.

Third, although the literature has not yet reached consensus on the impact of economic development on terrorism, we control for this. Terrorism is frequently seen as the "weapon of the weak" and a product of poverty (see also <u>Gleditsch and Rivera, 2015</u>). Yet, there is only mixed evidence for a relationship between poverty, inequality, and terrorism (see, e.g., <u>Krueger and Malečková,</u> <u>2003</u>; <u>Burgoon, 2006</u>; <u>Piazza, 2011</u>). To this end, we incorporate the lagged and logged gross national income per capita. The data are taken from the UN (2009) and Wilson and Piazza (2013). Similarly, the size and power of a country are captured by *Population (ln)* and *Area (ln)*. The former pertains to the natural log of a country's mid-year population, while the latter is the natural logarithm of the national surface area. Both items are based on data from the US Census Bureau (2009).

Fourth, as argued by, e.g., Li (2005), states with an unequal income distribution and more

 $<sup>^{30}</sup>$ We also replaced the set of dummy variables by the *polity2* variable from the Polity IV data set. However, our findings remain unaffected by this change in the research design.

 $<sup>^{31}\</sup>mathrm{We}$  thank an anonymous reviewer for highlighting this.

unstable ones are more likely to suffer from terrorism. To control for these alternative mechanisms, we include the GINI coefficient for each country-year based on income data from the United Nations Development Program (1970-2000) and the Polity IV durability item (Marshall and Jaggers, 2015). The latter variable, *Durable Regime*, counts the number of years since a country entered the Polity IV data set. Related to the regime-age/durability variable, we also incorporate the variable *Failed State* that is an "aggregate measure of the four state failure indicators from the Political Instability Taskforce" (Wilson and Piazza, 2013, p.948) and a Cold War dummy (receiving the value of 1 for 1970-1991; 0 otherwise) as terrorism may have been more prevalent during the Cold War (Li, 2005).

Finally, using the UCDP/PRIO Armed Conflict data (Gleditsch et al., 2002), we consider variables for a country's involvement in domestic and interstate conflict. The UCDP data define an armed conflict as a contested incompatibility between two parties (of which one has to be the government of a state in question) involving the use of armed force that leads to at least 25 battle-related deaths. Based on the actor involvement, we distinguish between intra- and interstate disputes, thus capturing the argument that terrorist activity might increase in the light of other forms of political violence, particularly civil wars. In fact, Findley and Young (2012) and Fortna (2015), for example, provide empirical evidence that terrorism and civil war are strongly linked.

Table 1 summarizes the variables we discussed so far.

	Obs.	Mean	Std.Dv.	Min	Max
Terrorist Attacks (ln)	3,919	1.10	1.49	0.00	6.66
Lagged Dependent Variable	3,919	1.09	1.49	0.00	6.66
$\mathbf{W}y$ : Contiguity	3,919	1.15	1.27	0.00	6.22
$\mathbf{W}y$ : Inv. Distance	3,919	1.07	0.58	0.22	3.32
$\mathbf{W}y$ : Migrant Inflow	3,919	1.62	1.20	0.00	5.85
Migrant Inflows (ln)	3,919	11.74	1.74	0.00	17.20
Personalist Regime	3,919	0.14	0.35	0.00	1.00
Military Regime	3,919	0.08	0.27	0.00	1.00
Single-Party Regime	3,919	0.25	0.43	0.00	1.00
Monarchy	3,919	0.06	0.24	0.00	1.00
Hybrid Regime	3,919	0.03	0.18	0.00	1.00
GNI per capita (ln)	3,919	7.18	1.60	3.92	14.10
Population (ln)	3,919	2.02	1.60	-2.12	7.15
Area (ln)	3,919	12.18	1.96	5.76	16.65
Inequality (GINI)	3,919	44.31	8.50	17.80	72.00
Durable Regime	3,919	23.08	28.19	0.00	191.00
Failed State	3,919	0.61	1.67	0.00	13.50
Cold War	3,919	0.65	0.48	0.00	1.00
Interstate Conflict	3,919	0.10	0.50	0.00	3.00
Domestic Conflict	3,919	0.31	0.80	0.00	3.00

## 4 Empirical Findings

Table 2 summarizes three models with one of the spatial lags introduced separately in each model, while incorporating the explanatory variables (including fixed effects, which we omit from the presentation). The structure of a spatial lag model implies that a unit change in one country has an impact on other units. Due to the row standardization, the coefficients of the spatial lags can be interpreted directly Ward and Gleditsch (2008, p.39).<sup>32</sup> However, two issues merit further discussion.

On one hand, when including a spatial lag in a model, the control variables' coefficients provide information about the pre-dynamic effects only, i.e., "the pre- [spatial] interdependence feedback impetus to outcomes from other regressors" (Hays, Kachi and Franzese, 2010, p.409). In order to fully understand the effect of the control variables when including a spatial lag, one has to estimate spatio-temporal multipliers (Hays, Kachi and Franzese, 2010, p.409). Since we are mainly interested in the impact of the spatial lags, we do not estimate the long-term effects of the covariates, though. On the other hand, due to the inclusion of a temporally lagged dependent variable, our coefficient estimates of the spatial lags (and all other explanatory variables) only reflect the short-term effect, i.e., the impact in a current year. For estimating the asymptotic long-term impact of a spatial lag, we incorporate the coefficient of the temporally lagged dependent variable by Plümper, Troeger and Manow (2005, p.336),

$$\sum_{t=1}^{T} (\rho \sum_{j} w_{ijt} y_{t-1}) \beta_0^{T-t},$$

"where  $\beta_0$  is the coefficient of the lagged dependent variable, T is the number of periods with t denoting a single period" (Plümper and Neumayer, 2010, p.425), and i and j pertain to the respective units (countries). Accordingly, we estimate asymptotic long-term effects (in addition to short-term effects) for the spatial lag variables and summarize them in Figure 1. The m-STAR models described above (Hays, Kachi and Franzese, 2010), which allow for a simultaneous inclusion of the spatial lags, are summarized in Table 3.

We start with Moran's I that we report for each spatial lag at the bottom of Table 2. A positive and significant value for this statistic suggests clustering of the dependent variable on a specific spatial lag, while negative and significant values pertain to dispersion, e.g., a higher level of terrorism in other states actually leads to a lower degree of terrorist attacks in the country in

 $<sup>^{32}</sup>$ This approach is likely to underestimate the spatial effects as it does not account for second-order spatial effects. Hence, we actually provide conservative estimates here.

	Model 1	Model 2	Model 3
	Contiguity	Inv. Distance	Migration
Spatial Lag $\mathbf{W}y_{t-1}$	0.09	0.36	0.08
	$(0.01)^{***}$	(0.07)***	$(0.02)^{***}$
Migrant Inflows (ln)	-0.06	-0.06	-0.06
	$(0.03)^{**}$	$(0.03)^{**}$	$(0.03)^{**}$
Personalist Regime	-0.13	-0.14	-0.15
	$(0.07)^*$	(0.07)**	$(0.07)^{**}$
Military Regime	0.01	-0.00	-0.02
	(0.06)	(0.06)	(0.06)
Single-Party Regime	-0.03	-0.04	-0.06
	(0.07)	(0.08)	(0.08)
Monarchy	-0.10	-0.12	-0.06
	(0.18)	(0.18)	(0.18)
Hybrid Regime	-0.27	-0.25	-0.26
	(0.18)	(0.18)	(0.18)
GNI per capita (ln)	-0.09	-0.11	-0.10
	$(0.04)^{***}$	$(0.04)^{***}$	$(0.04)^{***}$
Population (ln)	0.18	0.20	0.17
,	$(0.09)^{**}$	(0.09)**	$(0.09)^*$
Area (ln)	0.10	0.09	0.10
	$(0.05)^*$	(0.05)	$(0.05)^*$
Inequality (GINI)	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Durable Regime	-0.00	-0.00	-0.00
0	0.00	(0.00)	(0.00)
Failed State	0.03	0.03	0.03
	$(0.01)^{**}$	$(0.01)^{**}$	$(0.01)^{**}$
Cold War	-0.28	-0.14	-0.26
	$(0.12)^{**}$	(0.13)	$(0.12)^{**}$
Interstate Conflict	-0.02	-0.01	-0.01
	(0.03)	(0.03)	(0.03)
Domestic Conflict	0.17	0.17	0.17
	$(0.02)^{***}$	$(0.02)^{***}$	$(0.02)^{***}$
Lagged Dependent Variable	0.52	0.53	0.53
	$(0.01)^{***}$	$(0.01)^{***}$	$(0.01)^{***}$
Constant	0.84	0.70	0.82
	(0.57)	(0.58)	(0.57)
Observations	3,919	3,919	3,919
Log Likelihood	-4,133.14	-4,146.37	-4,140.16
Country FEs	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes
Moran's I	0.36***	$0.16^{***}$	0.32***

Table 2: The Diffusion of Terrorism: Contiguity, Inverse Distance, and Migration

\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01

Standard errors in parentheses

Fixed effects included, but omitted for presentation

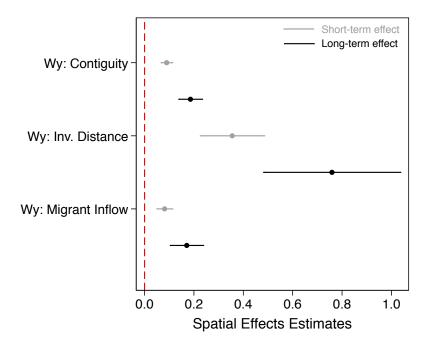


Figure 1: Short-Term and Asymptotic Long-Term Spatial Effects of Spatial Lag Variables

Note: The horizontal bars are 95 percent confidence intervals. Vertical line marks marginal effect of 0. Estimates are based on models in Table 2.

question. We obtain positive and significant Moran's Is for all spatial lags. However, Moran's I can only provide an initial assessment as covariates other than the lagged dependent variable and the connectivity between units are not taken into account here.

When focusing on Table 2 and the geographical spatial lags first (Models 1-2), our results mirror earlier findings on terrorism "hot spots" (e.g., Braithwaite and Li, 2007). The degree of terrorist attacks does indeed cluster in space, and countries neighboring other states (Model 1) or those that are closer to countries (Model 2) with a higher number of terrorist incidents are more likely to experience terrorism. Substantively, a country's logged degree of terrorist attacks would be 0.09 points higher in the short run for a one-unit increase in the average logged terrorist score of its spatial neighbors. This implies that if, e.g., a state's neighbors moved from an average logged terrorist score of 0.10 to 1.10 (the average score in the data set; see Table 1), we would observe a rise in the risk of terrorism "at home" by 0.09 units (Ward and Gleditsch, 2008, p.38). The long-term impact even increases to 0.19 (Figure 1). Focusing on Wy: Inv. Distance, the short-run effect is estimated at 0.36, while the asymptotic long-term influence is 0.76. However, the short-term (coefficient estimate) and long-term (Figure 1) impacts are somewhat larger only due to the continuous nature of the elements in the underlying weighting matrix. Either way, despite the difference in substance, both models suggest the same conclusion: terrorism clusters in (the geographic) space.

Coming to our core variable of interest, the short-term spatial effect of Wy: Migrant Inflow is 0.08, whereas the asymptotic long-term spatial effect is 0.17. This translates into increases in the geometric mean of the number of terrorist attacks by 8 percent and 17 percent, respectively, when raising Wy: Migrant Inflow by one unit. As Table 2 and Figure 1 demonstrate, both estimates are at conventional level of statistical significance. In more substantive terms, Terrorist Attacks (ln) would be 0.08 (0.17) points higher in the short (long) run, if its neighbors had an average logged terrorist score of 2.10 compared with a logged neighbor average of 1.10 (average score in the data set; see Table 1) (Ward and Gleditsch, 2008, p.38). The idea of "neighbors" is difficult to capture here as the underlying weighting matrix is based on a non-binary variable. Recall, however, that an increase by 0.08 (short-term) or 0.17 (long-term) is associated with a one-unit change of Wy: Migrant Inflow, i.e., when raising this spatial lag from, say, 1.00 (e.g., Papua New Guinea in 1984, which had a migrant inflow of 28,396 in total, although not all of these came from terror-prone states) to 2.00 (e.g., Kenya in 1981, which had a migrant inflow of 132,984 in total, although not all of these came from terror-prone states).

When comparing these results with the m-STAR estimations (Table 3), we hardly see any difference both in terms of substance and significance.<sup>33</sup> Wy: Migrant Inflow consistently has a positive and statistically significant effect on terrorist attacks (although the impact of the geography spatial lags is stronger), at least at the 10 percent level of significance. That is, terror events in one country travel to another state via the inflow of migrants. Adding or dropping variables from the models does not alter this result; in particular, this finding is robust to the estimation strategy (single spatial lags (Table 3) or the total inflow of migrants in a given year (i.e., Migrant Inflows (ln) in Models 1-5). Hence, we do find strong and robust support for the Migration Inflow Hypothesis.

Note that Wy: Migrant Inflow only captures the influence of migrants from terror-prone states, i.e., those countries that themselves experienced terrorist attacks in the past. What is the impact of the "raw total" migrant influx, i.e., Migrant Inflows (ln), however? This leads to the discussion of our control variables. In general, the results concerning the control variables corroborate the

 $<sup>^{33}</sup>$ The spatial lag coefficients in the m-STAR models are only jointly, not separately, identified, which makes it difficult to interpret the independent effects. However, we address this issue by reporting the results of single spatial lag models in Table 2.

	Model 4	Model 5	
	m-STAR 1	m-STAR 2	
Wy: Contiguity	0.10		
	$(0.02)^{***}$		
$\mathbf{W}y$ : Inv. Distance		1.00	
		$(0.23)^{***}$	
$\mathbf{W}y$ : Migrant Inflow	0.04	0.07	
	$(0.02)^*$	$(0.02)^{***}$	
Migrant Inflows (ln)	-0.07	-0.07	
	$(0.03)^{**}$	$(0.03)^{**}$	
Personalist Regime	-0.14	-0.15	
_	$(0.07)^{*}$	$(0.07)^{**}$	
Military Regime	-0.01	-0.03	
	(0.06)	(0.06)	
Single-Party Regime	-0.04	-0.05	
0	(0.08)	(0.08)	
Monarchy	-0.06	-0.05	
· · · ·	(0.18)	(0.18)	
Hybrid Regime	-0.27	-0.25	
	(0.18)	(0.18)	
GNI per capita (ln)	-0.09	-0.10	
Givi per capita (iii)	$(0.04)^{**}$	$(0.04)^{***}$	
Population (ln)	0.16	0.16	
i opulation (iii)	$(0.09)^*$	$(0.09)^*$	
Area (ln)	0.10		
Area (III)		0.09	
La constitute (CINI)	(0.05)*	(0.05)	
Inequality (GINI)	0.00	0.00	
	(0.00)	(0.00)	
Durable Regime	-0.00	-0.00	
	(0.00)	(0.00)	
Failed State	0.03	0.03	
a 11 m	$(0.01)^{**}$	$(0.01)^{**}$	
Cold War	-0.24	0.29	
	$(0.12)^*$	(0.18)	
Interstate Conflict	-0.02	-0.01	
	(0.03)	(0.03)	
Domestic Conflict	0.17	0.17	
	$(0.02)^{***}$	$(0.02)^{***}$	
Lagged Dependent Variable	0.51	0.52	
	$(0.01)^{***}$	$(0.01)^{***}$	
Constant	0.77	0.13	
	(0.57)	(0.59)	
Observations	3,919	3,919	
Log Likelihood	-1,738.41	-1,741.91	
Country FEs	Yes	Yes	
Year FEs	Yes	Yes	

Table 3: The Diffusion of Terrorism – m-STAR Models

\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01

Standard errors in parentheses

Fixed effects included, but omitted for presentation

findings reported in previous studies. First, Migrant Inflows (ln) is indeed negatively signed and statistically significant at the 5 percent level across Models 1-5. As a result, migration as such - independent from or not weighted by the terror level in the country of origin – actually leads to a decrease in the number of terrorist attacks by 0.5-0.6 percent when the number of migrants coming into a country is raised by 10 percent. As stated above, immigrants are more likely to move to richer, more democratic states, which are less conflict-prone than poorer, non-democratic countries (Blomberg and Hess, 2008). Since people resort to terrorism when they perceive that they cannot change the status quo and achieve their political aims other than with terrorism (see, e.g., Gleditsch and Rivera, 2015), we do observe this conflict-decreasing impact of Migrant Inflows (ln). This means that while immigration weighted by terrorism in the country of origin is a vehicle transporting terrorism from one country to another, immigration as such may actually be associated with a normatively positive effect as well (e.g., Boubtane and Dumont, 2013; Dustmann and Frattini, 2014) as terrorist attacks do, in fact, decrease. This crucially emphasizes that we must thoroughly distinguish between the countries of origin of an immigrant; immigration laws that do not discriminate may actually be very much counterproductive (Rudolph, 2003; Givens, Freeman and Leal, 2008; Epifanio, 2011; Neumayer, Plümper and Epifanio, 2014; Bandyopadhyay and Sandler, 2014).

Second, while we find a negative effect (as compared to the baseline of democracies) of singleparty regimes, only *Personalist Regime* is constantly significant across Tables 2-3. Therefore, the degree of terrorist attacks is substantially lower in personalist dictatorships than in democratic forms of government. This result also mirrors what Wilson and Piazza (2013) find. None of the remaining regime-type covariates has a significant impact on the level of terrorist attacks, though. While this may come across surprising at first sight, recall that all our models include fixed effects. Fixed effects models lack the ability to make inferences about time-invariant or slowmoving variables, because their coefficients are either not identified or difficult to estimate with precision (Plümper and Troeger, 2007).

Third, the economic predictors and size variables significantly help explaining the (logged) number of terrorist attacks. As found in previous work, the larger the population and the bigger the country, the more terrorist attacks one experiences (all else equal). Interestingly, we also find strong and robust support for a *negative* income effect. The item *GNI per capita* (ln) measures a country's GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units per capita (UN, 2009). In line with several other studies (e.g., Krueger and Malečková, 2003; Burgoon, 2006; Young and Findley, 2011), a higher income leads to fewer

terrorist attacks: on average, the number of terrorist attacks decreases by 1 percent for every 10 percent increase in a country's gross national income per capita.

Finally, instability and more uncertainty are more likely to be associated with more terrorist attacks. This is supported by the (largely) positive (i.e., terror-increasing) impact of *Failed State* and *Domestic Conflict* as well as more terror in the post-Cold War period. These findings are also in consistence with earlier research on the determinants of terror attacks (e.g., Findley and Young, 2012; Fortna, 2015).

## 5 Conclusion

Our study extends earlier research on terrorism, migration, and diffusion. Our arguments and empirical analyses support the **Migration Inflow Hypothesis** that immigrants are an important vehicle for the diffusion of terrorism from one country to another. At the same time, however, while controlling for a series of unit-level variables, fixed effects, and other influences, our results emphasize that immigration *per se* is unlikely to positively affect terrorism. On the contrary, we actually find that more migration generally, i.e., when immigration is not necessarily linked to terrorism in the migrants' countries of origin, into a country is associated with a lower level of terrorist attacks.

These two findings are particularly relevant to the scholastic literature and have crucial policy implications for states' immigration policies worldwide. First and foremost, this study provides the first quantitative evidence on the migration-terrorism debate. Second, in line with Neumayer (2006) who examines visa restrictions and those studies on the positive impact of immigration (e.g., Boubtane and Dumont, 2013; Dustmann and Frattini, 2014), it may be very much counterproductive to implement overly restrictive immigration policies that do not discriminate between certain types of migrants (see also Rudolph, 2003; Givens, Freeman and Leal, 2008; Epifanio, 2011; Neumayer, Plümper and Epifanio, 2014; <u>Bandyopadhyay and Sandler, 2014</u>). In detail, if immigration laws are enforced in an indiscriminate way, all potential immigrants are affected by this, which in turn may lead to the loss of the "positive" impact we found for *Migrant Inflows (ln)*, which is likely to stem from side effects of human capital. Having said that, whereas our results emphasize that terrorism travels from one country to another via migration flows, note that only a minority of migrants from high-terrorism states can be associated with increases in terrorism, and not necessarily in a direct way. In a similar vein, our theoretical framework stresses the exploitation of migrant networks by terrorist organizations, which use migrant communities as a recruitment pool. If anything, this may also imply that enforcing *discriminate immigration laws*, i.e., focusing more on those immigration flows that directly come from terror-prone states, is inadvisable and likely to have unfortunate consequences if national security agencies and immigration authorities fail to identify the perpetrators of terrorism in the first place, and enact *ad-hoc* restriction policies accordingly.

The president of the EU Commission, Jean-Claude Juncker, announced in September 2015 that "the commission will come forward with a well-designed legal migration package in early 2016" (Traynor, 2015), thus allowing for legal channels of migration into Europe. Our research, at least partly, suggests that while this policy is commendable, it should be coupled with serious efforts to fight terrorism abroad and reduce the incidence of political violence in immigrants' countries of origin at the same time while being implemented. The recommendation made by several media outlets, including the German weekly news magazine *Der Spiegel* (Popp, 2015), to suspend visa restrictions for citizens from terror and conflict-prone states seems misleading. On the other hand, recall that our findings also emphasize that states may want to loosen immigration restrictions for countries with lower rates of terrorism and thus pursuing *indiscriminate immigration laws* is likely to be counterproductive. Banning *all* inflows of migrants and pursuing overly restrictive policies affecting *all* immigrants equally seems to put a country at a disadvantage. As Adamson (2006, p.196; emphasis added) states:

"The reorganization and incorporation of the Immigration and Naturalization Service into the Department of Homeland Security, the screening of potential border crossers, the use of immigration lists for intelligence purposes, and increased cooperation with other states on such issues as the forgery of passports and other documents have all become tools in the war against terrorism. Striking a balance between border control and intelligence gathering, on the one hand, and facilitating the benefits of maintaining relatively open borders, on the other, is a delicate task."

We certainly agree on this position and hope that our research could make a contribution to successfully addressing this "delicate task."

There are several interesting questions to explore in future research. These will identify conditions under which the effects of migrants are stronger or weaker. First, a straightforward line of future research pertains to the interaction of unit-level variables and the spatial lags (<u>Neumayer</u> <u>and Plümper, 2012</u>). Examining the joint effects could additionally improve our understanding of terrorism, migration, and terrorism diffusion.

Second, it may also be an effort worth making to further specify the spatial lags under study.

For example, how does the relationship between states condition the impact of immigrants as a vehicle for terrorism? What about the actual relationships between terrorist groups? How do specific skills and skill levels of terrorists abroad affect terrorism at home (see <u>Bandyopadhyay and Sandler, 2014</u>)? And to what extent are these countries or groups more active in international affairs, which may make them even more likely to be a target of terrorist attacks?

Third, and derived from the previous point, the results we have provided with this research focus on the macro-level effect of immigrants from terror-prone countries.<sup>34</sup> However, this approach may actually have underestimated the effect and it is likely that some underlying, micro-level mechanism is more valid than another. Disaggregation of our macro-level argument and, hence, more data collection is necessary to thoroughly identify, e.g., whether the identified macro-level impact is about *terrorists immigrating* or *immigrants becoming radicalized*. Both, obviously, are not the same and call for different policy responses.

Forth, as we elaborate at a more disaggregated level in the appendix, migration inflows may act as a bridge between terrorist groups and, thus, facilitate the exchange of ideas, tactics, or skills. Since terrorist groups in the host country often lack the experience to prepare and carry out a terrorist attack, the emulation of specific tactics (e.g., the type of weapon or the nature of the target) is a type of diffusion one might also expect to observe with substantial migration inflows from countries with a high risk of terrorism. We believe that it is an effort worth making to study this in further research.

 $<sup>^{34}</sup>$ This focus was driven by the lack of data on specific mechanisms; we discuss this issue in more detail in the appendix.

## 6 Acknowledgments

We thank Alex Braithwaite, Matthew Wilson, and participants of the research conference at the Department of Politics and International Studies of the University of Warwick for useful comments on an earlier draft. We are also grateful to the journal's editor, William Reed, and three anonymous reviewers for constructive feedback that helped to improve the manuscript.

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