

# Terrorism, Belief Formation, and Residential Integration: Population Dynamics in the Aftermath of the 2004 Madrid Terror Bombings

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Christofer Edling<sup>1</sup>, Jens Rydgren<sup>2</sup>, and Rickard Sandell<sup>3</sup>

## Abstract

In this article, we study the effects of the 2004 terrorist bombings in Madrid on ethnic segregation in Spain. Using large-scale Spanish register data consisting of information on 5.4 million international migration events on a monthly basis and 13.9 million intermunicipal migration events, of which 3.8 million events concern the foreign-born population's internal migration within Spain, the analyses show that ethnic segregation increased (i.e., the average geographical distance) between Arab immigrants and native Spaniards shortly after the terror bombing, but that no such effect was found for other immigrant groups. The analysis also shows that this was a relative short-term effect: After about 1 or 2 years, ethnic segregation started to decline again (and thus resumed the declining trend that was observed during the years before the terrorist bombing). We interpret these results in terms of belief formation mechanisms. Because of priming and framing effects, the terrorist bombings accentuated the salience of ethnic categorizations and induced threat-attributing ethnic stereotypes, which were influencing migration behaviors. However, not only did native Spaniards become more reluctant to live in close proximity to Arab immigrants, Arab migrants also became more inclined to move closer to coethnics, possibly because of a perceived threat to become victims of discriminatory behaviors of the majority population. Priming and framing effects abated after a while, and migration behaviors started to return to normal again. Finally, we discuss a variety of survey data to substantiate the argument that belief formation mechanisms played an important role in these processes.

<sup>1</sup>Lund University, Lund, Sweden

<sup>2</sup>Stockholm University, Stockholm, Sweden

<sup>3</sup>Universidad Carlos III de Madrid, Getafe, Spain

## Corresponding Author:

Christofer Edling, Department of Sociology, Lund University, Box 114, SE-221 00 Lund, Sweden.

Email: christofer.edling@soc.su.se

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**Introduction<sup>1</sup>**

In the morning of March 11, 2004, Madrid's commuter train system suffered a series of terror bombings. Four commuter trains were hit around 7:40 a.m. with a total of 10 bombs, killing 191 people and leaving close to 2,000 wounded. It was the worst terror attack ever in Spain and one of the bloodiest ever in Europe. Al Qaeda claimed responsibility for the bombings but there is no evidence that they were directly involved. However, it was found that Islamic fundamentalists masterminded the bombings and that several of the offenders were of North African origins. In the court verdict of October 2007, 21 persons were found guilty and sentenced to significant prison sentences. Due to its proximity to the Arab world and long history of close relation with North Africa, Spain is a preferred destination for many Arab migrants. At the time of the attack, Spain's Arab population represented 20% of all immigrants. As Spain became a target for Islamic fundamentalist terror, the Arab minority group drifted into the center of attention politically as well as socially.

Our analysis departs from a particular trend which, in the integration of immigrants from Arab countries in Spain, was broken just after the 2004 bombings. We argue that the tragic events on March 11 triggered a shift in attitudes toward Arab immigrants, and that this shift had repercussions on the Arab born population's migration patterns (internal and international) within and to Spain, causing a significant setback in the integration of Arab immigrants in Spain.

In this article, we first describe and document the clearly detectable shift in migration dynamics after the 2004 bombings, using empirical macro-data at a high level of aggregation. We show that this shift was not permanent but temporary, indicative of something akin to system resilience. We then apply the so-called desires, beliefs, and opportunities (DBO) model to suggest a social mechanism of belief formation that can explain the observed patterns, and last, we briefly assess the plausibility of this mechanism with reference to secondary data.

**Terrorism and Residential Segregation**

The terror attacks of March 11, 2004 had considerable impact on Spanish society. The bombs went off just 3 days before the general elections, which quite unexpectedly left the ruling Popular Party losing power to the Socialist Party (see Bali, 2006). On a longer term basis, the terror bombings had a significant economic (e.g., Kollias, Papadamou, & Stagiannis, 2011) and political (e.g., Chari, 2004; Colás, 2010) aftermath. For example, the unexpected government shift led to a change in Spain's geo-strategical role. Spain, almost immediately withdrew from Iraq and downplayed significantly its role as a U.S. ally in the war against terrorism that the former government had endorsed. However, it is safe to say that the full scope of societal consequences of this extreme event are largely unknown and underresearched. In this article,

we focus our attention on one of the many possible social consequences of the attack in Madrid.<sup>2</sup> More specifically, we look at the potential for belief change and its impact on probabilities of interaction between minority groups of Arab descent and the Spanish native population following the attack. The repercussions of changes in intra-group beliefs and relations are likely to be multiple. Our idea is that if such changes occurred, then, because the attackers were Islamic fundamentalists, the terror bombings may have played an important role in altering the level of residential integration of the Muslim population in a negative way.

The negative aspects of ethnic and other types of residential segregation are well-known. Segregation gives rise to unequal opportunities and educational attainments, it impedes interethnic interactions, and increases prejudice and hostility between different ethnic or social groups (e.g., Medrano, 1994; Pettigrew & Tropp, 2006). Consequently, answering how and why two groups fail to mix, or why segregation is accentuated, is an important venture in itself. Explanations for why groups mix or not tend to center on economics, discrimination, or preferences (Barra, Contucci, Sandell, & Vernia, 2014; Contucci & Sandell, 2015; Semyonov, Glikman, & Krysan, 2007; Yinger, 1995). As illustrated by Schelling (1971) in his checkerboard model, patterns of residential mixing and segregation arise from people's migration movements. In Schelling's model, movement is preference driven, but it can equally well be a selection effect, that is, people move to where the opportunities are. While in this particular case we study the process of integration, it can easily be argued that integration is simply the flip side of segregation in Schelling's definition. We look at integration by observing patterns of migration—internal and international migration—of the entire population in Spain across the whole country. It should be pointed out that within the literature on integration and segregation, extreme events are an overlooked phenomenon.<sup>3</sup> Consequently, there are no established theories as to how and why extreme terrorist attacks may or should change social interaction between members that can be associated with the attacker and the attacked, and consequently little is said about how terrorism may affect the integration process.

Our argument is that any ongoing integration process between two groups is susceptible to exogenous shocks. In the extreme case, an exogenous shock is a dividing event. Depending on the nature of the shock—negative or positive—it can increase or disrupt the speed of the integration process, or even reverse it. Shifts in the integration process may be brought about through a change in people's beliefs about one another that is triggered by the event. These beliefs in turn affect residential preferences with respect to neighborhood choices. For example, the period after a terror attack can be described as a situation of great uncertainty. Hence, there is no clear guidance available about how to relate, behave, and interact to and with people in the opposite group. Once it dawned on people in Spain that the attack was the work of Islamic Fundamentalists, even though the members of the Arab subpopulation in Spain had no active part in the attack and collectively condemned the attack, it can be expected that parts of the native population hold the "Arabs" partly responsible for the attack. This is because of the clear religious connotation in Al Qaeda—mastered terrorism and the religious link between being Muslim and being an Arab. That is, the native population

changes their beliefs about Arabs in a negative way using the attack as a pretext. Ultimately, this shift could lead to an increase in discriminatory behavior in intergroup interaction that may stigmatize the Arab subpopulation. For example, when native people choose between two job candidates, one of who is of Arab origin, they may be more likely to favor the non-Arab candidate after the attack than before. Similarly, following the attack, they may increasingly impede members of the Arab subpopulation access to services and housing for the same reasons. Preferential treatment of this type leads to a surge in discrimination, which, at the aggregate level, becomes manifest in overall integration levels between the Arab subpopulation and the native population. Before developing this social mechanism further, however, we need to establish whether the terror bombings was a catalyzer of changing integration patterns of Arabs in Spain.

## **Data and Method**

A decisive test of our idea requires longitudinal data on all immigrant collectives and their whereabouts in Spain before and after the crucial event. The data we use meet these conditions. It is drawn from the Spanish local population register, the so-called Padrón Municipal. The data are assembled by Spain's National Statistical Agency (INE) and is contained in the so-called Estadística de Variaciones Residenciales.

Data on local immigrant densities are compiled as follows. We estimate the local immigrant densities for different points in time (quarterly) from January 1, 1999 to January 1, 2010. We have information about approximately 5.4 million international migration events on a quarterly basis from some 198 different immigrant collectives. For the same period, and from the same source, we have information about 13.9 million intermunicipal migration events, of which 3.8 million events concern the foreign-born population's internal migration within Spain. The smallest geographical unit for which data are available is for the administrative unit—municipality. However, due to data protection regulation, data are only available for municipalities with a population larger than 10,000. To use information concerning the entire population, we conduct our analysis at the level of province. There is a total of 52 provinces in Spain. Hence in the spatial analysis of the evolution of the residential mix below, location is equal to province.

A distinguishing and very unique feature of the Spanish data is that so-called undocumented immigrants are included. That is, immigrants who lack a residence permit are included in our analysis (Sandell, 2012). Undocumented immigrants are usually not included in official statistical sources. However, their share of the immigrant population is often significant, and excluding them would underestimate the true size of the immigrant population and, most likely, change the understanding of the studied phenomena.<sup>4</sup>

For those unfamiliar with the Spanish immigration context, some brief information may be useful. In 1999, Spain received fewer than 50,000 new documented and undocumented immigrants. From then on, annual immigration levels increased dramatically, reaching a peak in 2006 and 2007, with inflows exceeding 800,000 (see

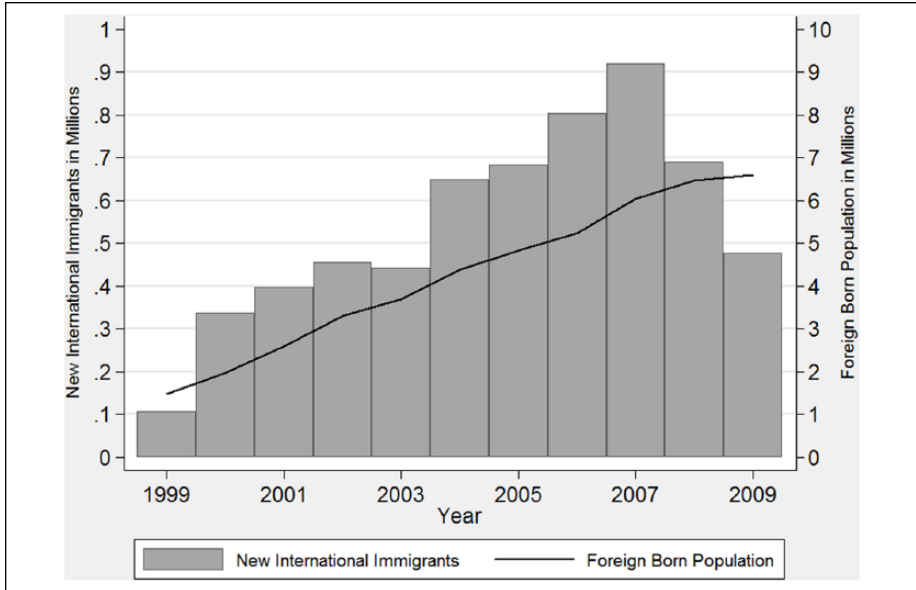


Figure 1. International immigration and stock of foreign-born population, 1999 to 2009.

light gray bars in Figure 1). Spain’s documented and undocumented foreign-born population has risen from little more than 1 million in 1999 to over 6.5 million at the end of the analyzed period (see solid line in Figure 1).

The share of foreign-borns in the total population has risen from less than 3% to over 13% between 1999 and 2009. Immigrants from almost all nations are present in Spain. However, some 20 countries of origin account for approximately 80% of Spain’s total immigrant population. At the end of 2010 immigrants from Romania form the largest minority in Spain (781,000), followed by immigrants from Morocco (645,000) and Ecuador (387,367). Europe and South America account for over 70% of Spain’s total immigrant population. The total population from the Arab countries was approximately 460,000 at the time of the attack, and 910,000 at the end of the analyzed period.

A central and nontrivial problem is how to adequately measure changes in residential integration across time and over multiple groups. With a view to establish whether the Madrid bombings catalyzed structural change regarding the Arab population’s integration process and to avoid turning this article into a discussion of measurement, we rely on standard measures frequently used in the literature on residential segregation in our hypotheses testing.<sup>5</sup>

The most common measure of segregation is the so-called dissimilarity index. The dissimilarity index varies between 0 and 1. It measures the percentage of the subgroup population that needs to move from one location to another to achieve a balanced population distribution between the two groups. However, an important drawback with this

popular index is that it is nontransitory. That is, change in the segregation index score only occurs when people move from an area in which they are overrepresented to an area where they are underrepresented compared with their proportion in society or vice versa. Since our main argument is that the devastating bombings in Madrid gives rise to behavior obstructing further integration, it is desirable to rely on a measure of segregation that is sensitive also to transitory transitions. That is, transitions between two locations in which the minority is overrepresented, or alternatively underrepresented, with respect to their national proportion. For this reason, we choose the Thiel information index (or entropy index). The Theil information index (henceforth, the information index) is the weighted average of the difference in geographical subunits' entropy compared with the entropy of the total area under study (Massey & Denton, 1988).

$$H_t = \sum_{i=1}^N [d_{it} (E_t - E_{it}) / E_t D_t] \quad (1)$$

Entropy in the context of this research is equivalent to the *extent of ethnic diversity*, which reaches a maximum with a fifty-fifty division of two groups in the area.  $D$  is the total population in Spain,  $d_{it}$  is the total population in province  $i$  at time  $t$ . In this study,  $E_t$  is defined as country entropy and  $E_{it}$  is province entropy at time  $t$ .

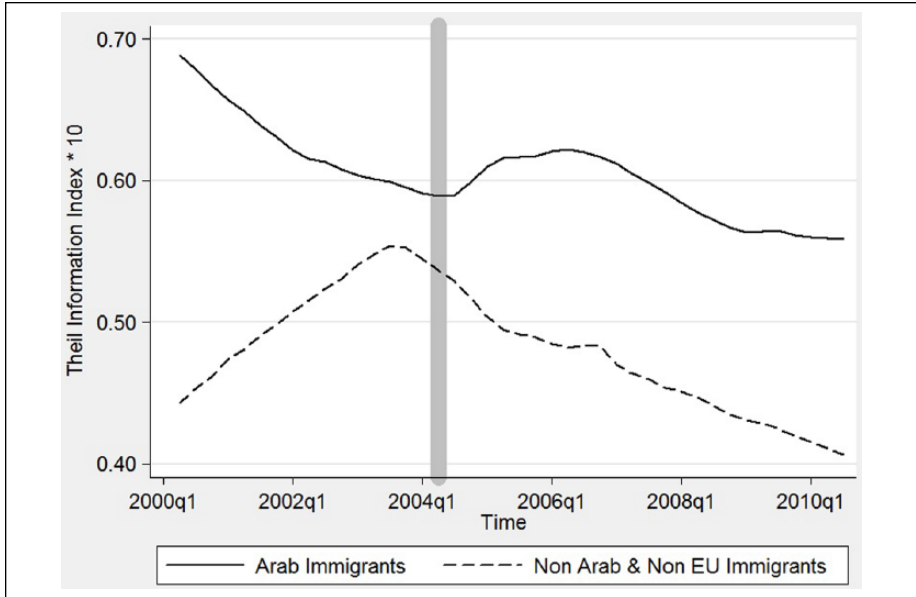
$$E_t = (P_t) \ln \left[ \frac{1}{P_t} \right] + (1 - P_t) \ln \left[ \frac{1}{(1 - P_t)} \right] \quad (2)$$

$$E_{it} = (p_{it}) \ln \left[ \frac{1}{p_{it}} \right] + (1 - p_{it}) \ln \left[ \frac{1}{(1 - p_{it})} \right] \quad (3)$$

$P_t$  is the proportion of the Arab subpopulation in the total population in Spain at time  $t$  and  $p_{it}$  is the proportion of the Arab subpopulation in province  $i$  at time  $t$ . To control that any observed change in the Arab subpopulation's segregation patterns is just not reflecting a general change in overall immigrant segregation in Spain, we substitute the Arab subpopulation for non-EU immigrants—less immigrants from the Arab subgroup in the above equations.<sup>6</sup>

## Empirical Evidence of Disruption in Ethnic Integration

Figure 2 displays the evolution of the information index for the analyzed period. Recall from above that the information index takes into account all changes in the mix of two groups in the defined areas of interest. The index (and using our scale) varies between 0 (when all provinces have the same composition as the nation at large) and 1 (when all provinces contain one group only). Before the 2004 terror attack, the negative trend in the index shows a clear tendency toward increased integration of the Arab subpopulation (the lower the score, the more evenly distributed is the minority group across Spanish provinces). At the time of the attack, the trend is suddenly reversed. What



**Figure 2.** Evolution of the Theil information index, 2000 to 2010, and the timing of the Madrid bombings.

Note. EU = European Union.

follows is an increase in segregation (higher scores indicate a more uneven distribution of the minority population). A year after the attack (second and third quarters in 2005), the index score is about 2.5% higher than the score in the second quarter of 2004 immediately after the attack. Three years later, in the first quarter of 2007 and roughly at the time when Spain's economy comes to a full stop, the index score has returned to its level before the attack. This suggests that the shift in integration following the attacks was not permanent but temporary, suggesting system resilience in the face of external shocks of the type we focus on and in the context of integration.

To exclude alternative explanations of the observed change in residential integration in Figure 2, we also compare the Arab subpopulations' integration trend with the trend for other immigrants from countries outside the EU. We see that the increased segregation experienced by the Arab subpopulation is unique to this group. Moreover, the observed trend of increased integration for other immigrants, is slightly accentuated in the period when integration deteriorated the most for the Arab subpopulation. This is indicative of moderate improvement in the integration, possibly at the cost of the Arab integration prospects. Most important, however, is that with this test, we see no parallel decrease in integration for the rest of the immigrant population. This implies that the trend observed for the Arab population is not the result in a general change in residential preferences toward immigrants in Spain, which would have downplayed our argument that the Madrid bombings could cause a shift in residential

preferences. The evolution of the information index, thus, supports our hypotheses that integration of the Arab minority group was negatively affected by terror attack. Therefore, we cannot exclude the possibility that the terrorist attack may be a catalyst for negative beliefs and emotions leading to discriminatory behavior in situations of intergroup interaction and residential choices. That is, that the Madrid bombings obstructed the integration of the Arab population in Spain.

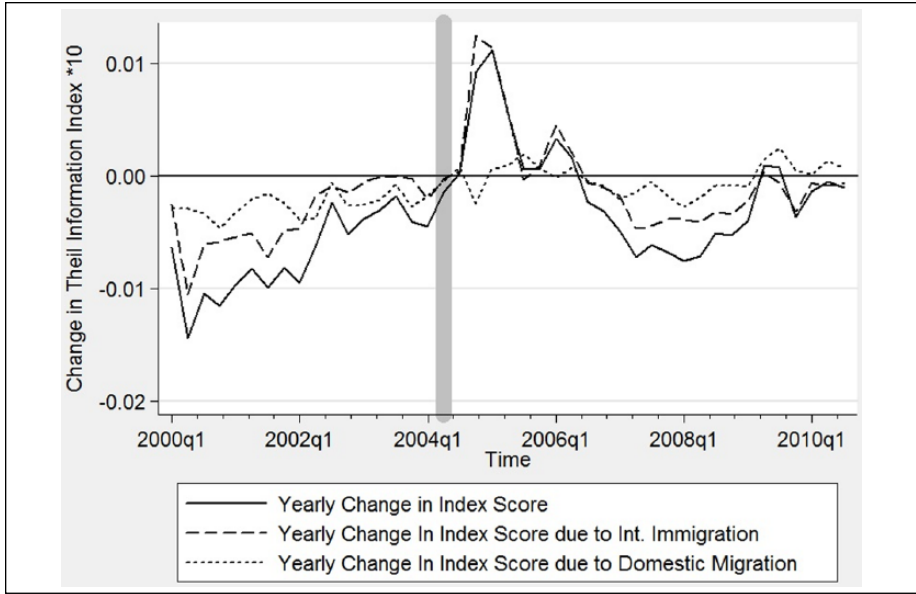
In the studied period, changes in the index score is dependent on four types of population movements: (a) the natives' internal migration in Spain in and out of provinces, (b) the natives' international migration to and from Spain, (c) the Arabs' internal migration in Spain in and out of provinces, and finally (d) the Arabs' international migration to and from Spain. We have argued that the terror attack led to a change in residential preferences on behalf of the native population. Hence, at the local level (neighborhood blocks, etc.), we can possibly observe an increased mobility whereby Spaniards increasingly abandon Arab-dominated neighborhoods. However, on an aggregated level, the provincial level in our analysis, it is hard to imagine that the effects of these movement will reverberate. When and if the Spaniards move, they will primarily move within the province having no problems in finding residential areas in which they dominate and feel more comfortable. The resident Arab population, however, is expected to be more volatile in terms of interprovincial movements in the face of deteriorating relations with the host population. As labor contracts and leases expires or are dissolved, or are not renewed to the same extent or as easily as before the dividing event, the last resort is increasingly becoming a move to another province in order to sustain. Similarly, the worsening relations following the attack make it harder for new immigrants to establish themselves in areas where there are no peers. That is, employers increasingly prefer to contract other immigrants to Arab immigrants, landlords denies Arabs a lease, and so on. When this happens, the expectation is that network migration is magnified and integration delayed as a consequence of this. Arabs simply need more time for integration, making them to a greater extent dependent on immigrant social capital (i.e., support from relatives or friends in the lack of jobs and housing; Sandell, 2012).

Just as Spaniards are likely to turn away from the Arab population, we also might expect that the Arabs consciously as well as unconsciously changed their behavior vis-à-vis the Spaniards. A sensation of guilt and prejudices may lead to that the Arab subpopulation assume that Spaniards associate them with the attackers after the bombing. For these reasons, they may choose to increasingly stay away from the natives and avoid to mix with the host population, relying more and more on peers to sustain and lead their lives in general.

With this in mind, from an analytical point of view, it is interesting to dissect to what extent it is the internal or international movement of the Arab subpopulation that causes the change in the observed index score once controlling for change in the composition of the native population. Figure 3 provides a detailed analysis of the type of migration—internal or international—causing the largest change in the index from one period to another.

From Figure 3, we conclude that the trend toward increased segregation is driven largely by immigration to Spain, and to a lesser extent by internal migration within Spain. In other words, in the period immediately after the bombings, new immigrants





**Figure 3.** Internal and international migration and change in the Theil information index.

from the Arab world are more likely than before the bombings to settle into areas in which past migrants from the Arab world are settled. As indicated by the data in Figure 3, after the bombings, the Arab-born populations' internal migration result in an increased segregation for the first time. This type of movement is expected when increased hardship to sustain is present. While the period immediately after the attack is the first time when internal migration leads to decreased integration, it is not the last time. It is interesting to note that in 2009, internal migration again led to decreasing integration. In 2009, Spain entered its worst recession in modern times with a contraction of the economy of close to 4%. Spain was trapped in recession for the rest of the period under analysis and internal migration of Arab migrants continued to reinforce segregation in this period.

The empirical analysis of Spanish population registers provides strong indication that residential integration was affected by the Madrid terror bombing, pointing toward significant negative impact on the integration of the Arab minority of Spain. Next, we further the discussion of the connection between changing integration patterns and micro-level interaction by proposing a social mechanism of belief formation that can explain the observed changes.

### **A Social Mechanism of Belief Formation**

Above, we have established that changing migration patterns followed the bombings in Madrid, putting the increased integration between Arab immigrants and native

Spaniards to a temporal stop. Below, we will argue that a good way of understanding this break in the segregation trend is to focus on beliefs-related mechanisms. A social mechanism serves the purpose of explaining a social phenomenon by highlighting the ways in which a given phenomenon relates to the social actors. That is, a social mechanism does not focus solely on how the social affects the actors or how the actors affect the social but on how the actors mediate the social. This approach to sociological explanation is famously depicted in Coleman's (1986) boat. Hedström (2005) suggested that the so-called DBO model could serve as a baseline model for constructing social mechanisms, and in this article, we strive to follow that suggestion and to investigate how far that model can take us and what further research questions it will give rise to.

The DBO model claims that we act on the basis of (D)esires, (B)eliefs, and (O)pportunities. The Ds, Bs, and Os of a social actor are all subject to social influences in such a way that in almost all circumstances, a specific act will be function of the actor's social embeddedness. While the role of desires (or preferences) for action has been thoroughly explored in neoclassical economics and rational choice theory, sociology in general has been occupied primarily by the role of opportunity structures (e.g., research on social stratification) and to a lesser extent by the role of beliefs. Supported by a long tradition in social psychology, we suggest that beliefs are key for understanding action and that the dynamics of belief formation can often shed new light on complex social processes (see Rydgren, 2009).

Previous research has established that "homophily becomes more important to tie activation during times of crisis or trouble" (McPherson, Smith-Lovin, & Cook, 2001, p. 436). There are several reasons to this such as the increased salience of group identity and the changing assessment of trustworthiness. In this article, we argue that changes in segregation patterns can at least partly be explained by changes in the ways in which people assess trustworthiness. It is a reasonable assumption that people want to trust their neighbors. If, for some reasons, they believe that their neighbors cannot be trusted, they will try to move, not let them come too close by refusing them access to housing and jobs, or simply not settle in the vicinity of such neighbors in the first place. Social networks and spatial distribution tend to be ethnically skewed, which create information asymmetries. People tend to have more firsthand information about ethnic in-groups than of ethnic out-groups, which makes the assessment of trustworthiness easier and usually more positive on average since it allows for more within group heterogeneity. For assessing the trustworthiness of ethnic out-groups, people tend to rely more on mediated information, including proxy information about the out-group as a whole and it is more common to downplay within group heterogeneity (Fearon & Laitin, 1996). It is well established in previous research that priming (Brown, 1995, McGarty, 1999) and framing (Chang & Druckman, 2007) effects are important in forming beliefs in situations under uncertainty. Salient singular events, in particular, when they have happened recently, are often given unproportionally large influence on belief formation, even if the event is not commonly occurring or representative (e.g., Rydgren, 2007). In this way, the terrorist attack may have primed people to view North African immigrants and other immigrants from Muslim countries as

potential threats, affecting the assessment of their trustworthiness negatively. The event, moreover, opened up a window of opportunity for actors wanting to frame immigrants as a threat to security and well-being, by making it more likely that such frames would resonate among larger segments of the population. And, on the other hand, Arab immigrants may have anticipated this changing beliefs of the native Spaniard population, and increasingly chosen to avoid living too close to them in order to avoid discriminatory behavior. In times of uncertainty and trouble, people seek protection from their in-groups (Brown, 2006).

We thus suspect that the Madrid bombings fundamentally changed the way Spaniards came to view the Arab immigrant population. Before the bombings, “the immigrant” was mostly a low-wage worker in the service and agricultural sectors, someone who could be trusted with the dirty work, and who would occasionally be high in demand. As direct consequence of the bombings, and especially when it became known that some of the offenders were Arab Muslims, not only did “the immigrant” become someone to mistrust but an actual threat—an enemy within. As argued above, this kind of belief change is likely to have influenced the migration behavior of both Spaniards and Arab immigrants in ways that combined, produced the new segregation patterns that we have presented. When the majority group changes its belief about the out-group, that will inevitably have consequences both for the beliefs and the opportunities of the out-group, since it is the majority group that has the power.

Moreover, as we saw above, the increased geographical distance between Spaniards and Muslim immigrants were partly driven by changing external migration patterns, so that new immigration from Arab countries were increasingly directed toward segregated areas within Spain. A possible explanation to this finding is that social networks became more important for migration during situations of uncertainty. Since there were good reasons to assume that they would be met with increased hostility from the majority group and increased discrimination in the labor market, in schools, and in the housing market, immigrants may have found good reasons to put more emphasis on social capital when selecting locations for settlement within Spain. Since such social capital is likely to be predominantly ethnic, the effect was increased homogeneity and segregation.

## Testing the Social Mechanism

We have proposed a social mechanism-based explanation that can account for the shift in spatial integration between Spaniards and Muslim immigrants that was observed in direct association with the March 2004 bombings in Madrid. However, this is only the first step in the social mechanism approach to explanation. The next, and critical, step is to put the mechanism to an empirical test or at least to substantiate our argument. If the bombings did provoke a large and population-wide belief change, as we suggest, this change should be visible in survey data.

We know only one study that tested a change in attitudes as a direct consequence of the bombings (Echebarria-Echabe & Fernandez-Guede, 2006). That study does, however, provide some support for the notion that beliefs changed as a *direct effect* of the

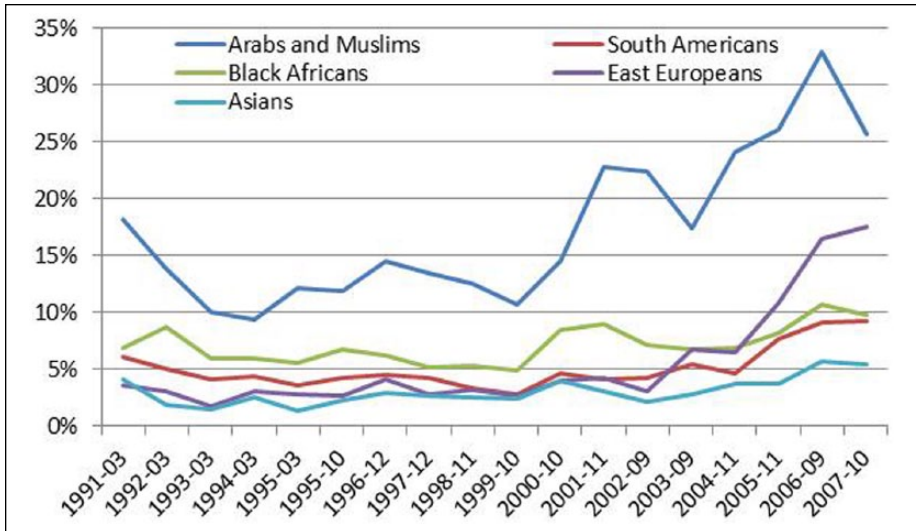
terrorist bombing. Measuring racial attitudes and political orientation in two independent samples ( $n = 206$ ) in the Basque Country just before and after the 2004 bombings, they do find that anti-Arab attitudes after the bombings are significantly more negative than prior to the bombings, suggesting that the terror attack did indeed foster negative beliefs about Arabs. However, the same effect is also recorded for anti-Semitism, which indicates an increased skepticism toward “the other” more generally. The fact that adherence to liberal values was also lower after than prior to the bombings also supports a more general disbelief than specific anti-Arab beliefs.<sup>7</sup>

General surveys of political attitudes, although sometimes rough in terms of repetitiveness and content of the information collected, are still suggestive of a change in attitudes directed at the Arab minority in particular and not the immigrant minority in general. The Spanish survey of attitudes toward immigrants contains data on attitudes toward specific target minorities. In Figures 4 and 5, we see how the trend in opinion toward minority groups including Arabs or Moroccans changed between 1999 and 2007 on a yearly basis.

As we can see, the opinion toward Arab or the Moroccans have historically been more negative than the opinion toward other immigrant groups. Scrutinizing the information in the two graphs, we see a converging trend up until 2000 in the opinion toward immigrants of Arab origin and immigrants from other destinations. In January 2000, there was a mayor confrontation in the locality “El Ejido” in Southern Spain between the native and the immigrant population (to a large extent Arab immigrants). The event is the largest xenophobic manifestation in modern Spanish history. It is commonly agreed that the events in El Ejido triggered a more negative view toward particularly Arab immigrants than before. This is clearly visible in the data in Figures 4 and 5. However, the confrontation in El Ejido was an isolated event insofar that the riots did not persist in time or spread to other localities. Hence, the negative opinion toward the Arab-born population becomes more moderate 1 to 2 years after the riots in January 2000, with increased convergence in the attitudes toward different minority groups as a result. Just after this trend shift, the bombs in Madrid went off, and negative attitudes reach a historical maximum in 2006 after which attitudes again become more moderate.

## Conclusion

We have studied the effects of the 2004 terrorist bombing in Madrid on ethnic segregation in Spain as an example of the consequences of large-scale terrorism. Using Spanish register data consisting of information on 5.4 million international migration events on a monthly basis and 13.9 million interprovincial migration events of which 3.8 million events concern the foreign-born population’s internal migration within Spain, the analyses show that ethnic segregation increased (i.e., the average geographical distance) between Arab immigrants and native Spaniards shortly after the terror bombings but no such effect was found for other immigrant groups. It should be emphasized that this analysis is done on highly aggregate data (on the 52 provinces of Spain) and still a notable change can be recorded. With more fine-grained data on municipalities and neighborhoods, we would expect to pick up even more dramatic changes.

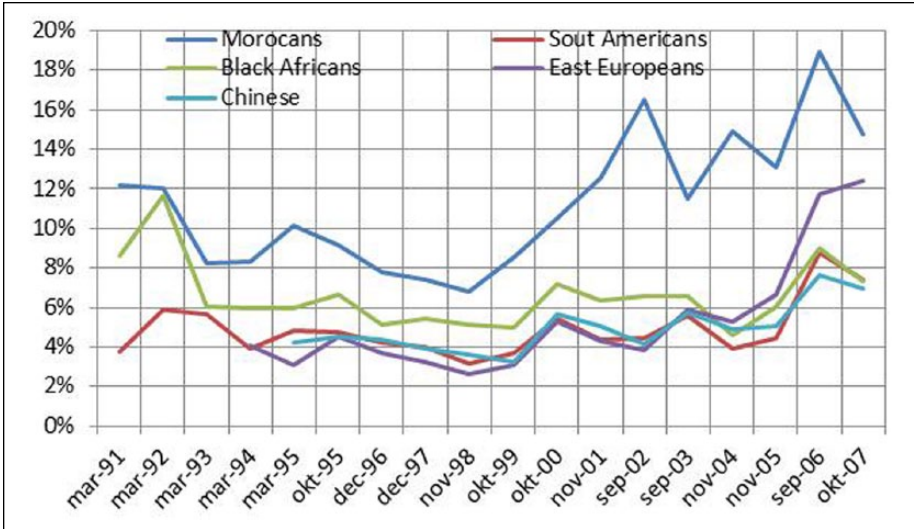


**Figure 4.** Evaluation of people belonging to five distinct minority groups in Spain, 1991 to 2007—Radical views.

Note. The question asked was the following: I will now read a list of people from various areas of the world. In a scale from 0 to 10, please tell me how much do you like each one of them, where 0 means you do not like them at all and 10 means you like them very much. In the graph, we represent the percentage of respondents who have a radical view, that is, those answering in the range from 0 to 2. Source: *Actitudes Hacia los Inmigrantes (1991-2007)* ASEP/JDS.

The empirical analysis shows that this was a relative short-term effect: After about 1 or 2 years, ethnic segregation started to decline again (and thus resumed the declining trend that was observed during the years before the terrorist bombing). This observation in itself is an indication of just how resilient society can be against a terrorist attack. We interpret these results in terms of belief formation mechanisms. Because of priming and framing effects, the terrorist bombing accentuated the salience of ethnic categorizations and induced threat-attributing ethnic stereotypes, which were influencing migration behaviors. However, not only did native Spaniards become more reluctant to live in close proximity to Arab immigrants, Arab migrants also became more inclined to move closer to coethnics, possibly because of a perceived threat to become victims of discriminatory behaviors of the majority population. Priming and framing affects abated after a while, and migration behaviors started to return to normal again. While we currently lack individual-level data to further test the social mechanisms directly, we have discussed a variety of secondary survey data that seem to substantiate our arguments that belief formation mechanisms played an important role in these processes.

By providing micro-level explanans to macro-level explanandum (Coleman, 1986), this article attempts to demonstrate by example the social mechanism approach to sociological explanation. Specifically, we wish to explain the disruption in Spain's



**Figure 5.** Evaluation of the degree of perceived inconvenience of having as neighbors five distinct minority groups in Spain, 1991 to 2007—Radical views.

Note. The question asked was the following: I will now read a list of people belonging to different social or cultural groups. For each one of them, please tell me how much would you mind having them as neighbors, on a scale from 0 to 10, where 0 means that you would not mind at all and 10 means that you would mind very much. In the graph, we represent the percentage of respondents who have a radical view, that is, those answering in the range from 8 to 10. Source: ASEP/JDS.

demographic dynamics that was observed in the aftermath of the 2004 terror bombings in Madrid. The social mechanism approach postulates that a satisfactory explanation has to detail the process by which a macro-level event affects social interaction at the micro-level, and how micro-level social interaction feeds back into the macro-level (e.g., Hedström, 2005). Thus, a social mechanism has to be devised in such a way that macro-dynamics are emergent on micro-interaction and at the same time, micro-interaction is conditioned on macro-dynamics. Our explanation predominantly draws on the literature on belief formation and we argue that taken together, this mechanism can account for the macro-dynamics that we observe in a way that is realistic and plausible.

We would argue that the mechanism approach is helpful in several ways. The search for social mechanisms directs our attention toward substantial explanation rather than establishing statistical correlations. In effect, this means that our primary interest is not the search for socially relevant individual or aggregate variables on which we can regress migration dynamics but rather trying to understand what actually drives the phenomenon. Furthermore, it has us focusing on identifying possible ways in which social interaction is both affected by and affects migration dynamics. This means that we tend to think about, and theorize, social reality in terms of dynamic processes rather than linear causes and effects. By bringing theory to the forefront of explanation, the

social mechanism approach clearly directs the research process; first, we need to establish the fact; second, we need to stipulate the mechanism; and third, we need to test the presence of the mechanism. While in this article, we have achieved the first two goals, we have only barely begun scratching the surface of the third. Nevertheless, the social mechanism approach clearly indicates what the next step should be.

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### **Notes**

1. We dedicate this article to the victims of the Madrid bombings in 2004 and their families.
2. It is debatable whether terrorist acts actually fulfill the intentions of the perpetrators. However, it is beyond doubt that terrorism has consequences that reach way beyond the sufferings of its immediate victims. Oftentimes, we would argue, these consequences are unintended.
3. This does not mean that terrorism is an underresearched phenomena. Particularly, following the September 11 attack in New York, terrorism has become the center of attention in a variety of fields. However, most of the world's joint terrorism research resources has been channeled to questions about prevention and causes, as well as trying to explain why a country becomes a target for international terrorism.
4. Inscription in the Spanish local population register is a basic right and an obligation for both documented and undocumented immigrants. Inscription is reinforced by legal incentives since it gives undocumented immigrants access to health care and education in the municipality in which they reside according to the local population register. Spanish law also includes important mechanisms for regularizing undocumented immigrants which are conditional on the length of undocumented stay in Spain, of which inscription in the local population register is irrefutable evidence. If we also consider that the last amnesty for undocumented immigrants explicitly mentioned inscription in the local population register before a specific date as a precondition for inclusion in the campaign, and that if, or when, Spain embarks on a massive regularization campaign in the future, inscription in the population register is again likely to be a prerequisite, it is to be expected that very few immigrants forsake their right and obligation to inscribe in the population register.
5. See Massey and Denton (1988) for an extensive discussion of the pros and cons of the most common measures of segregation used in today's segregation research and a more extensive discussion of the measures discussed below.
6. We exclude European Union (EU) immigrants from the comparison group because they differ from non-EU migrants in fundamental ways in terms of entry and access to the labor market and other relevant rights due to EU legislation.
7. This is in line with an analysis using Eurobarometer data, showing that concerns about immigration skyrocketed in the Spanish population directly after the terror bombings (see Legewie, 2013).

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### Author Biographies

**Christofer Edling** is Professor of Sociology at Lund University. His research focuses on the constraints and opportunities that people and organizations face through their position in social networks, most recently applied to criminal organizing.

**Jens Rydgren** is Professor of Sociology at Stockholm University. He is working within the fields of political sociology and ethnic relations. Among his recent books is "The Oxford Handbook of the Radical Right" (ed. Oxford University Press, 2017).

**Rickard Sandell** is Professor of Sociology at Universidad Carlos III de Madrid. He is interested in network driven migration processes. His most recent work asks if integration in different contexts in a society is driven by social interaction processes or not.