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ABSTRACT

Terrorism and Integration of Muslim Immigrants*

We study the effect that a series of fundamentalist-Islamic terrorist attacks in Europe had on the attitudes of Muslim immigrants in the Netherlands towards integration. Shortly after the attacks, Muslim immigrants' perceived integration, as measured by various indicators, decreased significantly relative to that of non-Muslims immigrants whereas there is no evidence for the existence of a negative trend in the integration of Muslims prior to the terrorist attacks. We further show that terrorism has a particularly negative impact on the integration of the highly educated, employed, and less religious Muslims – those who arguably have a strong potential for integration.

JEL Classification: F22, J15, Z13

Keywords: terrorism, integration, Muslim immigrants

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I. Introduction:

There is an emerging body of economic literature that deals with the impact of fundamentalist-Islamic terrorism on different outcomes of Muslim immigrants (e.g. Kaushal et al. 2007; Gautier et al. 2009; Goel 2010; Johnstan and Lordan 2011; Cornelissen and Jirjahn 2012; Hanes and Machin 2012; Shannon 2012). The literature shows increasing discrimination against Muslims as a result of terrorism (Gautier et al. 2009; Goel 2010; Hanes and Machin 2012), and negative impacts of this discrimination on Muslim immigrants' health (Johnston and Lordan 2011) and labour market outcomes (Kaushal et al. 2007; Cornelissen and Jirjahn 2012; Shannon 2012). However, there is little evidence on the impact fundamentalist-Islamic terrorist attacks have on the integration of Muslim immigrants in Western societies.

This paper assesses the relationship between terrorism and the integration potential of Muslim immigrants. For this purpose, we exploit a unique panel dataset that oversamples immigrants in the Netherlands and collects detailed information on their attitudes and feelings towards their host country. The dataset consists of two waves. The first wave was collected during the period from October 2002 to January 2004, while the second wave was collected during the period from September 2005 to October 2007. Between the two waves, Western Europe witnessed the first and most violent wave of Islamist terrorism after September 11, 2001 (Bakker 2006). This began with the Madrid bombings on March 11, 2004, which were shown to have been directed by an Al Qaeda-affiliated group and killed 191 people while injuring 1,841.[1] The wave ended with the London bombings on July 7, 2005, which were committed by four Islamist suicide-bombers, grown up in the UK, and left 52 people dead as well as the four bombers, with over 700 more injured.[2]

[1] http://news.bbc.co.uk/2/shared/spl/hi/guides/457000/457031/html/

[2] Detailed coverage of the 2005 London attacks can be found on the BBC website: http://news.bbc.co.uk/2/hi/in_depth/uk/2005/london_explosions/default.stm

The Netherlands was also affected by this wave of radical Islamic terrorism when Theo van Gogh, a famous Dutch film director, TV interviewer, and writer was murdered on November 2, 2004 by a young man of Moroccan origin who had recently converted to radical Islam. The attack received considerable media attention, and triggered a nation-wide outrage against Muslims (Gautier et al. 2009). In the weeks following the murder, there were several attacks on mosques and other Islamic institutions in the Netherlands[3] (Gautier et al. 2009).

We analyse changes in Muslim immigrants' perceived acceptance in the Netherlands, appreciation of living in the Netherlands, and the degree to which they feel at ease with Dutch natives, relative to non-Muslim immigrants, before and after the attacks.[4] We find that Muslim immigrants' perceived acceptance in Dutch society declined much more than that of non-Muslim immigrants following the terrorist attacks. Moreover, Muslims reported a declining appreciation of living in the Netherlands and social acceptance of the Dutch people, whereas other immigrants do not report a decline in these indicators of integration. This pattern is robust to the inclusion of a large set of controls such as socio-demographics, employment status, share of the respondent's ethnic group in the municipality, and length of stay in the Netherlands, among others. The pattern is also robust after controlling for selection bias. As our data consist of only two waves, and because of the relatively long period of time between the two waves, it is difficult to attribute the decline in the integration pattern of Muslims solely to terrorism (or the discrimination associated with it). Other endogenous factors may affect the speed by which different immigrant groups integrate. To check this possibility, we exploit the relatively long

[3] With the exception of some terrorist conspiracies and threats, there were no high-profile terrorist attacks in Europe during the period from September 11, 2001 to March 10, 2004 (Nesser 2008). According to the Global terrorism database (2012), the three attacks listed above represent the most significant Islamic terrorism attacks. For extensive details on the fundamentalist-Islamic terrorism in Europe over this period, see Bakker (2006, p3-4).

[4] The traditional measures of integration (e.g., language use, importance of religion, attitudes towards intra-marriage) are not available in the two waves of the data. However, given that the social integration process of foreign minorities may take generations, assessing changes in immigrants' integration over a short period of time would prove difficult using the traditional measures of integration. Our measures, though not perfect measures of integration, represent the basis of the integration process, and therefore could capture the integration potential. Georgiadis and Manning (2013) show that immigrants who are treated with respect and who feel tolerated by natives are more likely to identify with the host country.

time frame during which data were collected in the first wave, and use the timing of interviews to estimate whether a different trend is observed in the integration pattern of Muslims, relative to non-Muslims, prior to the terrorist attacks. The analysis shows no evidence for a decline in Muslim immigrants' integration before the terrorist attacks, suggesting that the terrorist attacks did in fact affect the integration pattern of Muslim immigrants in the Netherlands.

The rest of the paper is organized as follows. The next section discusses the relevant literature. Section 3 describes the data and variables used. Section 4 explains the empirical strategy and reports the results of the data analysis. Section 5 describes the robustness checks performed, while Section 6 estimates the heterogeneity in the decline of integration across different groups of Muslim immigrants. Finally, Section 7 summarizes the findings and offers conclusions.

II. Related studies

The exogeneity of fundamentalist-Islamic terrorist attacks has been exploited in the literature to study the impact terrorist attacks have on several outcomes of Muslim immigrants. For example, Kaushal et al. (2007) study the impact that the September 11 attacks have on the labour market outcomes of Muslims in the US, and show that those attacks did not significantly affect employment and hours worked for Arab and Muslim men, though they were associated with a temporary 9-11% decline in earnings. The impact of September 11 on the labour market outcomes of Muslim immigrants in other Western countries has been assessed. Cornelissen and Jirjahn (2012) showed that September 11 negatively affected Muslim workers in Germany, especially the low-skilled employed in small- and medium-sized firms. However, Shannon (2012) found no impact of September 11 on Muslim immigrants in the Canadian labour market .

In addition, the impact of terrorism on health outcomes of Muslim immigrants has been studied. Johnston and Lordan (2012) find evidence of increased blood pressure, cholesterol level,

BMI, and self-assessed general health for Muslims, relative to non-Muslims, as a result of September 11. The underlying mechanism described in all these studies is increased discrimination against Muslims due to the anger caused by terrorism. Gautier et al. (2009) show strong evidence for this discrimination by documenting a decline in house prices in Amsterdam neighbourhoods with a large share of Turks and Moroccans following the assassination of Theo van Gogh. Furthermore, hate crimes against Asians and Arabs increased immediately in England after the attacks on September 11, 2001 and July 7, 2005 (Hanes and Machin 2012). The impact that large-scale fundamentalist-Islamic terrorist attacks have on discrimination is not geographically limited to the country in which the attacks take place. For example Schüller (2012) shows that the September 11th attacks resulted in a significant increase in negative attitudes towards immigration and decreased concerns over xenophobic hostility among the native German population.

Although the issues of identity and integration of Muslim immigrants in Western societies start to receive considerable attention in the economic literature (e.g. Bisin et al. 2008; Battu and Zenou 2010; Manning and Roy 2010; Georgiadis and Manning 2011; Georgiadis and Manning 2013), no studies have used a panel structure to estimate changes in the integration of Muslim immigrants over time. Goel (2010) estimates the changes in perceptions of discrimination among Muslims following September 11. Goel (2010) takes advantage of a set of interviews conducted before and after the September 11th attacks to estimate how Muslim-looking immigrants to Australia perceive intolerance, relative to other immigrants. She finds that Muslim-looking immigrants report higher intolerance and discrimination than other immigrants.[5]

[5] Goel's (2010) results were based on a cross-section of recently arrived immigrants (the second wave of the longitudinal survey of immigrants to Australia), making it difficult to account for the unobserved immigrants' heterogeneity. In addition, the measures used in her study were limited to binary perceptions of intolerance and discrimination in Australia. Our study is different from Goel (2010) in that it goes one step further beyond perceptions of fair/unfair treatments and assesses the changes in immigrants' attitudes towards living in the host country and feeling at ease with natives.

III. Data

The Netherlands Kinship Panel Study consists of two datasets. The first dataset covers the Dutch native population while the second oversamples immigrants from the four largest immigrant groups in the Netherlands (Turks, Moroccans, Surinamese, and Dutch Antilleans). The data are collected in 13 Dutch cities in which at least half of the immigrant population lives (Dykstra et al. 2005; Dykstra et al. 2012). We use the data from the second dataset, which oversamples immigrants. The data have a panel structure with two waves. The first wave of data is collected between October 2002 and January 2004, while the second is collected between September 2005 and October 2007.[6] The dataset contains individual information about religion, age, ethnic group, employment status, marital status, year of immigration, whether or not they are born in the Netherlands, and so forth. Furthermore, we include information about the share of the person's own ethnic group in the municipality in which they live, drawn from the Dutch Central Bureau of Statistics (CBS).[7] The dataset also includes information about immigrants' experiences in the Netherlands, attitudes towards living in the Netherlands, and degree to which they feel at ease with Dutch natives.

We measure three aspects of immigrants' integration into Dutch society. The first is the *perceived acceptance by the host country* (cf. Huijnk, Verkuyten et al. 2012). The respondents are asked eight questions on the extent to which they agree with each of the following: (1) 'In the Netherlands foreigners have excellent opportunities', (2) 'The Dutch are hostile to foreigners' (3) 'In the Netherlands your rights as a foreigner are respected', (4) 'The Dutch are hospitable to foreigners', (5) 'In the Netherlands people are indifferent to foreigners', (6) 'Foreigners are treated fairly in the Netherlands', (7) 'Foreigners face many restrictions in the Netherlands', and (8) 'The Dutch are open to foreign cultures'. The answers are given on a five-point scale that ranges from 1 ('strongly disagree') to 5 ('strongly agree'). The scale for items (2), (5), and (7) is

[6] The long period of time over which the data were collected owes to the difficulty of reaching the target groups (Dykstra et al. 2005; Dykstra et al. 2012).
[7] CBS Netherlands: http://statline.cbs.nl/StatWeb/

reversed. We create a measure of perceived acceptance that consists of the average of these eight items. Cronbach's alpha for this scale is 0.76.[8]

The second measure captures the *appreciation of living in the host country* and is measured by a single question: 'How do you like living in the Netherlands?' The answers range from 1 ('very fine') to 5 ('very annoying'). We reverse the scale to assess appreciation of living in the Netherlands. The third measure captures *social life* and is measured by a single question: 'Do you feel at ease in the company of Dutch people?' The answer is on a four-point scale: 1 ('no, not at all'), 2 ('no, not really'), 3 ('yes, a little'), and 4 ('yes, very much so'). To facilitate reading and comparison of the results, we standardized the three variables.

Our sample consists of 1,357 observations for which we have full information on all integration variables, demographics, and religion. Of this set, 619 observations are for Muslim immigrants (302 in the first wave and 317 in the second wave), and 738 observations are for non-Muslim immigrants (402 in the first wave and 336 in the second wave). For 325 individuals (134 Muslims and 191 non-Muslims), data exist in both waves of the panel.

Table A1 provides an overview of all variables used in the study. The table shows that there are significant differences in the integration indicators between Muslim and non-Muslim immigrants. Non-Muslim immigrants' perceived acceptance in the Netherlands, appreciation of living in the Netherlands, and feelings of ease in the company of Dutch natives are significantly higher than they are for Muslim immigrants. The table shows that in our sample, 55% of non-Muslims and 44% of Muslims are females. The share of respondents of the second generation (i.e. those who were born in the Netherlands) is small (7% of the Muslims and 11% of the non-Muslims). This low share is due to the fact that the survey only includes individuals who are 18 years or older. Muslims are, on average, less educated than non-Muslims. In addition, they are

[8] Running a factor analysis suggests dropping item (5): 'In the Netherlands people are indifferent to foreigners'. This increases the Cronbach's alpha of the scale to 0.79. However, removing this item does not affect the results.

less likely to have received education abroad or in the Netherlands than non-Muslims. While the majority of Muslims belong to the Turkish and Moroccan ethnic minorities (92% of Muslims are Turkish or Moroccan), the majority of non-Muslims belong to the Surinamese or Dutch Antillean ethnic minorities (97% of non-Muslims are Surinamese or Dutch Antillean). Non-Muslims are more likely to be employed (65%) than Muslims (47%). In addition, a greater percentage of Muslims in our sample are married and have children.

Figure 1 shows the level of integration for both Muslim and non-Muslim immigrants before and after the terrorist attacks (the integration measures are standardized for ease of comparison). The figure shows that after the terrorist attacks, integration measures declined for both groups. However, the decrease is much more pronounced among Muslims than non-Muslims.

Table A2 summarizes the change and shows diff-in-diff estimates of the integration variables. The diff-in-diff coefficients show that the decline in the three measures of integration is significantly larger for Muslims compared to non-Muslims. Five of the eight items of perceived acceptance decrease more significantly for Muslims than non-Muslims: excellent opportunities for foreigners, rights of foreigners are respected, Netherlands is hospitable to foreigners, fair treatment to foreigners in the Netherlands, and Netherlands is open to foreign cultures.

IV. Empirical model and analysis

To identify the effect that the terrorist attacks in Western Europe have on the integration of Muslim immigrants, we estimate the following simple equation:

$$Y_{it} = \alpha + \beta_1 Muslim_{it} + \beta_2 Second\ wave_t + \beta_3 [Muslim_{it} * Second\ wave_t] + \beta_4 X_{it} + u_i + \varepsilon_{it}$$

Where Y_{it} is the integration level of immigrant *i* at time *t*. *Muslim* is a dummy variable that takes the value 1 if the respondent is Muslim, *Second wave* is a dummy variable that takes the value 1 if the observation is from the 2005-2007 wave (after the terrorist attacks), the interaction term

between *Muslim* and *Second wave* is our measure of change in Muslims' integration compared to that of non-Muslims. X_{it} *is* a set of controls, while u_i is an individual fixed effects which we assume to be uncorrelated with the timings of the terrorist attacks, and ε_{it} is the time-varying error term.

We estimate a generalized least squares model with random effects (RE) clustered on personal identification.[9] Table 1 shows the RE model coefficients. Columns 1, 3, and 5 show the estimated coefficients for perceived acceptance in the Netherlands, appreciation of living in the Netherlands, and feeling at ease with Dutch natives, respectively, without controls. Columns 2, 4, 6, show the coefficients after controlling for a large set of control variables: ethnic group, gender, dummies for marital status and employment status, whether the respondent was born in the Netherlands, length of period stayed in the Netherlands, length of period stayed in the Netherlands squared, education level, whether or not the respondent received education abroad, whether or not the respondent received education in the Netherlands, the municipality in which the immigrant lives, share of the respondent's ethnic minority in the municipality, and number of children.[10]

The table shows that the attitudes of Muslim immigrants towards integration in the Netherlands decreased significantly after the terrorist attacks, relative to non-Muslim immigrants. This can be seen in the interaction coefficients between *Muslim* and *Second wave*,

[9] The time invariant nature of religion may recommend a generalized least squares model with random effects (RE) over a fixed effects model (FE). However, running a fixed effects model or an OLS model with clustering on personal identification yields similar results. This also holds when running an ordered probit model for the appreciation of living in the Netherlands, as well as feeling at ease among Dutch natives.

[10] In addition to the set of controls included in Table 2, we also estimate a model that controls for the birth place of the partner, family income (available only in the first wave), fluency in Dutch, and speaking Dutch when communicating with children (available only in the second wave). Although the number of observations declines sharply when these variables are included, the results are still robust. We also estimate a model in which we control for interaction between the wave of study and employment status, marital status, and education level to account for any possible differences between Muslims and non-Muslims in the change of these variables over time. This model yields similar results. In the analysis offered in this paper, the respondent's age is removed because of potential collinearity with length of stay in the Netherlands. However, adding the variable gives similar results.

which are negative and statistically significant in all columns.[11] Before the attacks, the perceived acceptance in the Netherlands of Muslim immigrants was significantly higher than that of non-Muslims. Muslims did, however, score significantly lower on the item addressing feeling at ease with the Dutch natives (though this result was not robust). Perceived acceptance in the Netherlands decreases significantly for the two groups, with a more significant decline among Muslims. Appreciation of living in the Netherlands and feeling at ease with native Dutch decreased significantly for Muslims. This finding did not extend to other immigrant groups.

Table 1 further shows that a longer stay in the Netherlands is associated with better integration. In addition, the table shows that Turks score lower than other groups on perceived acceptance in the Netherlands, and feeling at ease with natives. This result is in line with the recent literature showing that Turkish immigrants in the Netherlands are less happy than other immigrant groups (Gokdemir and Dumuldag 2012). Conversely, Moroccans score higher than the other ethnic groups on appreciation of living in the Netherlands.

V. Robustness checks

V.1. Possible trend prior to terrorist attacks

Because our analysis begins after September 11, 2001, the effect we find may be biased. As indicated above, the literature shows that the attacks of September 11 were associated with labour market discrimination against certain minority groups, and changed immigration attitudes not only in the US, but in other Western countries as well (e.g. Goel 2010; Cornelissen and Jirjahn 2012; Shannon 2012; Schüller 2012). Since Islamist terrorism affects the integration of Muslim immigrants, it is likely that the perceived integration of Muslim immigrants had already been negatively affected by the September 11th attacks before our analysis started. However, the

[11] To account for the possibility that the decrease in the integration could be affected by different pattern of extreme answers for the integration questions by Muslim and non-Muslim immigrants, we re-estimate the model after removing the extreme answers. The results remain unchanged.

analysis above (Table 1) does not show strong evidence of differences in integration between Muslims and non-Muslims before the wave of terrorist attacks we are interested in. Furthermore, even if Muslims are less integrated, this would make our point stronger as this underestimates our coefficients of integration change.

However, if a pattern of change in Muslim immigrants' integration began before the wave of terrorism of interest (i.e. before March 2004), this would imply that the change in Muslim immigrants' attitudes is not a result of the terrorist attacks, but it could rather be due to some endogenous factors that affect the speed of integration differently for Muslim and non-Muslim immigrants. To account for the possibility that the negative trend in the integration pattern of Muslim immigrants pre-dates the terrorist attacks that hit Western Europe, we exploit the timing of interviews during the first wave of the dataset to analyse whether Muslims interviewed late in the first wave are less integrated than those who were interviewed earlier. If such a pattern already exists before the terrorist attacks, it would be difficult to attribute the decline in the integration of Muslim immigrants to the terrorist attacks. Since the first wave of data is collected over a long time frame, it is feasible that a trend could be identified.

Table A3 shows the coefficients for the regression of the integration items on the time of the interview in the first wave. Although the table shows a negative trend for all immigrants, the interaction term between the dummy variable for Muslim and the date of interview shows that the change in the integration pattern of Muslim immigrants seems to be similar to that of other immigrants.[12] If anything, the negative trend is lower for Muslims than non-Muslims, especially in their feeling at ease with Dutch natives. This means that before the terrorist attacks, Muslim immigrants used to score slightly better than non-Muslim immigrants on self-reported measures of integration. Therefore, the drop in the integration of Muslim immigrants after the attack is not due to a trend that had previously existed. Other attacks may have taken place between the two

[12] The same pattern appears when we limit the analysis to the observations that appeared in the two waves of the study.

waves (apart from the terrorist attacks) that could have negatively affected the integration of Muslim immigrants. However, the analysis shows that the pattern of decline in Muslims' integration did not first develop until the 2004-2005 period of terrorist attacks.

V.2. Selection bias

We acknowledge the potential for selection bias due to the panel attrition in the dataset; out of the 704 respondents who answered integration questions in the first wave, only 325 continued to appear in the second wave. It is reasonable to assume that immigrants absent from the second wave of the sample would have reported lower integration than those who remained. Muslims are, on average, less likely to appear in the two waves of the survey than non-Muslims (Table A4).

Since Muslims' perceived integration is affected by the terrorist attacks more than that of other immigrants, Muslims may also be more likely to drop out of the study (or even leave the country). However, this panel attrition would lead to an under-estimation of the decline in the integration of Muslim immigrants, making the actual decrease in the integration pattern of Muslims more pronounced. To account for any selection bias, we replicate the analysis using a balanced sample made up of respondents for whom we have complete information on integration in the two waves. However, there could be contemporaneous shocks that affected the participation in the second wave of the study. For example as stated earlier, those who are most affected by the terrorist event may be the least likely to participate in the second wave of the survey (or may even have left the country). For this reason, even a balanced panel estimate may not truly reflect the actual change in Muslims' integration. To correct for this, we compute a Mills ratio using a selection variable that equals 1 if the individual is observed in the two waves of the study as our dependent variable in the selection equation. Table A4 shows the estimates from the selection equation as a function of all independent variables, as well as the number of

missing items in respondents' answers to all questions in the first wave.[13] This variable is used to satisfy the exclusion restriction, which is possible since the chance that a respondent will be absent from the second wave should be correlated with the number of questions the respondent did not answer in the first wave of the questionnaire. That is, immigrants who answered fewer questions in the first wave should be more likely to drop out in the second wave. However, the number of missing items should not be correlated with the timing of the terrorist attacks. Table A5 shows the RE model estimates from the balanced sample. The table shows similar results for perceived acceptance in the Netherlands and appreciation of living in the Netherlands as reported in Table 1. However, for feeling at ease with locals, the interaction between *Muslim* and *Second wave* is no longer significant, though it has the same negative sign as before. The coefficients of the inverse Mills ratio are not significant. This shows that selection bias does not motivate our results.

VI. Heterogeneous effects

Having shown a significant decline in the integration pattern of Muslim immigrants relative to other immigrants after the wave of terrorism in Western Europe, we now investigate whether different types of immigrants have been more or less responsive to the attacks.

We examine whether there is any heterogeneity in the decline of integration with respect to gender, education, geographic concentration of immigrants with the same ethnic background, as well as labour market status. Table 2 recalculates the random effects estimations from Table 1 for split samples by gender (Panel A), education level (high vs. low education) (Panel B), geographic concentration of migrants from the same ethnic group (high vs. low concentration) (Panel C), and labour market status (employed vs. unemployed) (Panel D).

The table shows that the decrease in perceived acceptance in the Netherlands is more pronounced for males than for females, while the decreases for appreciation of living in the

[13] This includes all questions in the questionnaire except those included in the regressions above.

Netherlands and feeling at ease with Dutch natives appear to hold only for males. Moreover, integration of immigrants with low education (both Muslim and non-Muslim) decreased significantly. There is no significant difference in the pattern of decline between the Muslim and non-Muslim with low education, except that perceived acceptance in the Netherlands decreases more for Muslims. Notably, highly educated Muslims show a significant decrease in perceived acceptance in the Netherlands compared to highly educated non-Muslims. This implies that the decline in the integration of Muslim immigrants is not driven by economic background.

Table 2 also shows that the decline in integration is entirely driven by Muslim immigrants living in municipalities with a high concentration of Muslims. This suggests that particularly Muslims living in theses geographical areas are more prone to feel the increase in discrimination related to terrorist attacks, and tend, as a result, to isolate from the rest of the society. This is, however, contradictory to the recent findings of Schüller (2012) who shows that in response to the September 11th attacks, natives did not change their attitudes toward immigration depending on whether they live in a region with a low or high share of foreigners. The table also shows that the effect is driven mainly by immigrants who are employed. This could be because they are the ones more prone to deal with natives, and are therefore more likely to feel discrimination. This again shows that the pattern is not driven by economic reasons.[14]

In addition to the heterogeneity checks above, we also perform a heterogeneity analysis to check which characteristics of Muslims are most closely associated with a decline in attitudes towards integration. The degree of religiosity of the Muslim immigrant as well as the ethnic group to which a person belongs are the basis for this heterogeneity check. To this end, we restrict our sample to Muslim immigrants.

We assess religiosity by the frequency the respondent reports going to mosque. We create a dummy variable for being religious that takes the value 0 if the person hardly ever goes to the

[14] Furthermore, there is no significant change in the actual unemployment of Muslim immigrants compared to non-Muslim immigrants after the terrorist attacks.

mosque and 1 if the respondent goes to the mosques on a frequent basis. Table A6 shows that religious Muslims are generally less integrated than less religious Muslims. However, the decrease in the integration of religious Muslims is significantly less pronounced than that of less religious Muslims. This could be explained by the already low integration level of religious Muslims, which makes the decline in the integration of the less religious more pronounced.[15]

Finally, we classified Muslims according to the ethnic group to which they belong. Table A7 shows that the decrease in integration is driven mainly by Turkish Muslims. Compared to Moroccans and other Muslims, Turks are the least integrated, and show a significant pattern of decline in their integration.

VII. Conclusion

In this paper we analyse the integration pattern of Muslim and non-Muslim immigrants in the Netherlands before and shortly after a violent wave of Islamist terrorist attacks hit Western Europe. The wave began with the Madrid Bombings in March 2004, and extended to the London bombings in July 2005. The assassination of Theo van Gogh in Amsterdam by an Islamic fanatic of Moroccan origin took place in the middle of this wave. This event triggered a nation-wide outrage and increased discrimination against Muslims in the Netherlands (Gautier et al. 2009).

We use data from the Netherlands Kinship Panel Survey, which oversamples the four largest ethnic minorities in the country (Turks, Moroccans, Surinamese, and Dutch Antilleans). The panel includes two waves: one collected in 2002-2003 before the terrorist attacks and the second collected in 2005-2007, after the attacks. Our analyses show that Muslim immigrants' perceived acceptance in the Netherlands declined much more after the terrorist attacks than did that of non-Muslim immigrants. Moreover, Muslim immigrants reported a declining appreciation of living in the Netherlands and degree to which they felt at ease with Dutch natives, whereas

[15] Because women (even the most religious) are less likely to go to mosque than men, we replicate the analysis while limiting the sample to men. The results do not change.

other immigrants did not report a decline in these indicators of integration. This pattern holds after including a large set of control variables such as, employment status, share of the respondent's ethnic group in the municipality, length of stay in the Netherlands, and so forth. Our findings are also robust after accounting for selection bias, and are not driven by any existing negative trend in the integration of Muslim immigrants.

Further analysis shows that the difference between Muslim and non-Muslim integration attitudes is driven mainly by men, the highly educated, immigrants living in geographical areas with a high concentration of the same ethnic group, and those who are employed. This shows that the pattern of change cannot be attributed to economic factors, but rather to cultural factors. We also find that among Muslims, the more religious are less integrated than the less religious. However, the decline in the integration of the less religious is significantly more pronounced than that of the more religious. These findings show that terrorism has a stronger negative impact on the integration of Muslim immigrants who previously had strong potential for integration.

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Figure 1: Perceived integration for Muslim and non-Muslim immigrants before and after the terrorist attacks.

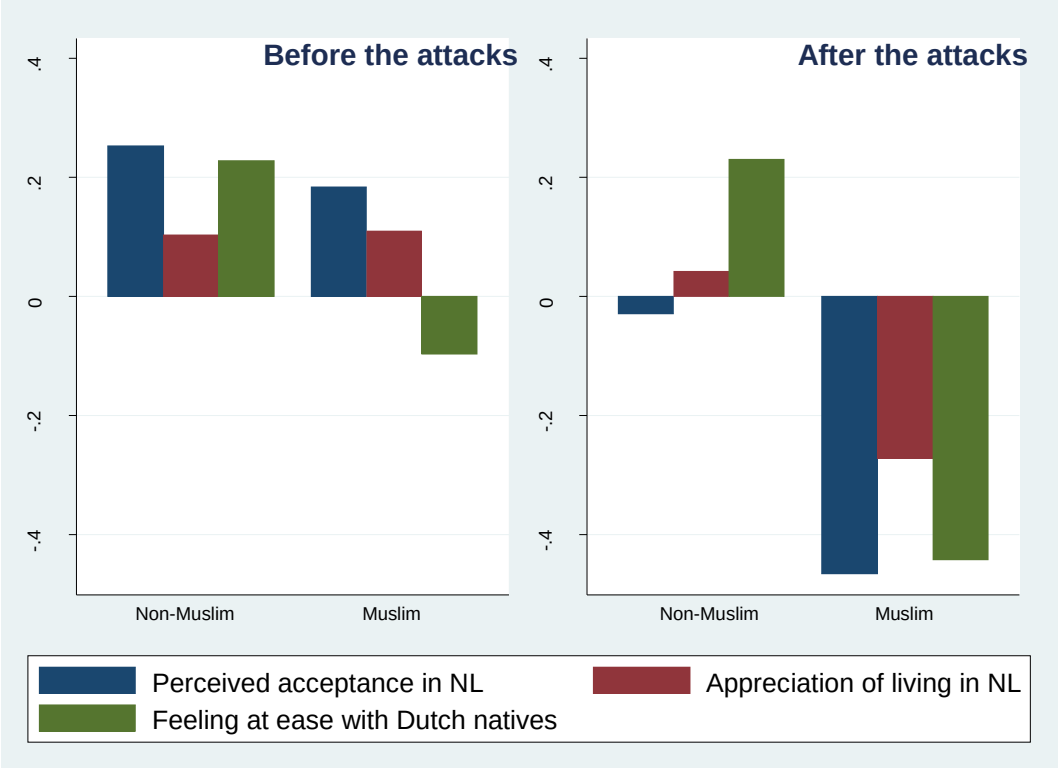

Table 1: Generalized least squares random effects (RE) model for the integration pattern of Muslim immigrants

VARIABLES	(1) Perceived acceptance in NL	(2)	(3) Appreciation of living in NL	(4)	(5) Feel at ease with Dutch natives	(6)
Muslim	-0.066	0.312*	-0.008	0.097	-0.332***	0.065
	(0.067)	(0.167)	(0.072)	(0.167)	(0.071)	(0.148)
Second wave	-0.287***	-0.271***	-0.087	-0.129*	-0.023	-0.111
	(0.064)	(0.073)	(0.060)	(0.071)	(0.061)	(0.076)
Muslim*second wave	-0.361***	-0.401***	-0.300***	-0.283**	-0.318***	-0.260*
	(0.098)	(0.114)	(0.097)	(0.116)	(0.102)	(0.123)
Employed		Reference		Reference		Reference
Unemployed		0.016		-0.133		-0.041
		(0.113)		(0.120)		(0.105)
Housewife		0.017		0.084		-0.272**
		(0.100)		(0.107)		(0.106)
Disabled		-0.226**		-0.172		-0.066
		(0.114)		(0.114)		(0.121)
Student		0.409**		-0.218		0.175
		(0.165)		(0.166)		(0.163)
Retired		0.159		0.142		-0.060
		(0.144)		(0.125)		(0.114)
Female		0.021		0.023		0.090
		(0.073)		(0.069)		(0.069)
Born in Netherlands		-0.084		0.161		0.102
		(0.159)		(0.133)		(0.129)
Never married		Reference		Reference		Reference
Married		0.043		-0.146		-0.049
		(0.096)		(0.092)		(0.082)
Divorced		0.171		-0.202**		-0.047
		(0.106)		(0.101)		(0.099)

Continue Table 1: Generalized least squares random effects (RE) model for the integration pattern of Muslim immigrants

VARIABLES	(1) Perceived acceptance in NL	(2)	(3) Appreciation of living in NL	(4)	(5) Feel at ease with Dutch natives	(6)
Widowed		0.176		-0.047		-0.019
		(0.158)		(0.168)		(0.223)
Number of children		0.008		-0.008		-0.012
		(0.020)		(0.021)		(0.020)
Length of stay in NL		0.037***		0.040***		0.026***
		(0.010)		(0.011)		(0.009)
Length of stay in NL squared (divided by 100)		-0.065***		-0.058***		-0.023
		(0.021)		(0.020)		(0.017)
Educational level		-0.057		0.039		0.059
		(0.055)		(0.056)		(0.055)
Education in NL		0.027		0.036		0.063
		(0.086)		(0.088)		(0.086)
Education abroad		-0.066		-0.118		-0.112
		(0.094)		(0.096)		(0.094)
Dutch Antilles		Reference		Reference		Reference
Turkish		-0.533***		-0.223		-0.408**
		(0.180)		(0.181)		(0.161)
Moroccan		0.152		0.457**		0.100
		(0.202)		(0.197)		(0.181)
Surinamese		0.149		0.123		0.006
		(0.122)		(0.127)		(0.108)
Share of ethnic minority in municipality		-2.746		-0.926		-2.920*
		(1.810)		(1.972)		(1.745)
Regional dummies		Yes		Yes		Yes
Constant	0.250***	-0.107	0.109**	-0.338	0.225***	-0.292
	(0.044)	(0.230)	(0.047)	(0.262)	(0.042)	(0.231)
Number of observations	1,357	1,095	1,357	1,095	1,357	1,096
Number of groups	1,032	877	1,031	877	1,033	878

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 2: Heterogeneity by gender, education, share of immigrants from the same ethnic group, and labor market status

VARIABLES	(1) Perceived acceptance in NL	(2)	(3) Appreciation of living in NL	(4)	(5) Feel at ease with Dutch natives	(6)
Panel A: Gender	Male	Female	Male	Female	Male	Female
Muslim	0.028	-0.019	0.074	0.050	-0.234*	-0.039
	(0.141)	(0.148)	(0.141)	(0.147)	(0.136)	(0.151)
Second wave	-0.273**	-0.267***	0.015	-0.216**	-0.121	-0.175*
	(0.118)	(0.095)	(0.108)	(0.093)	(0.109)	(0.098)
Muslim* second wave	-0.478***	-0.361**	-0.483***	-0.048	-0.278*	-0.265
	(0.168)	(0.161)	(0.157)	(0.158)	(0.157)	(0.166)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	538	564	537	565	538	565
Number of groups	431	455	430	456	431	456
Panel B: Education	Low education	High education	Low education	High education	Low education	High education
Muslim	-0.019	-0.031	0.055	0.016	-0.190	-0.192
	(0.122)	(0.194)	(0.127)	(0.177)	(0.125)	(0.174)
Second wave	-0.368***	-0.167	-0.271***	0.123	-0.296***	0.057
	(0.108)	(0.117)	(0.104)	(0.099)	(0.109)	(0.102)
Muslim* second wave	-0.280*	-0.575***	-0.151	-0.277	-0.141	-0.312
	(0.149)	(0.222)	(0.146)	(0.193)	(0.151)	(0.195)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	686	416	686	416	686	417
Number of groups	582	364	582	364	582	365

Continue Table 2: Heterogeneity by gender, education, share of immigrants from the same ethnic group, and labor market status

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Perceived acceptance in NL		Appreciation of living in NL		Feel at ease with Dutch natives	
Panel C: Concentration of migrants with the same ethnic background	Low	High	Low	High	Low	High
Muslim	-0.144	0.063	-0.070	0.184	-0.315***	0.034
	(0.114)	(0.143)	(0.114)	(0.147)	(0.110)	(0.144)
Second wave	-0.344***	-0.282**	-0.137*	-0.006	-0.081	0.034
	(0.077)	(0.142)	(0.073)	(0.136)	(0.073)	(0.134)
Muslim* second wave	-0.227	-0.398**	0.032	-0.489***	-0.178	-0.383**
	(0.144)	(0.175)	(0.137)	(0.170)	(0.137)	(0.167)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	704	582	705	582	704	582
Number of groups	523	465	524	464	523	466
Panel D: Labor market status	Employed	Unemployed	Employed	Unemployed	Employed	Unemployed
Muslim	-0.067	0.090	-0.023	0.150	-0.124	-0.293**
	(0.113)	(0.130)	(0.113)	(0.135)	(0.108)	(0.136)
Second wave	-0.294***	-0.303**	-0.088	-0.086	-0.033	-0.111
	(0.082)	(0.123)	(0.079)	(0.126)	(0.078)	(0.124)
Muslim* second wave	-0.556***	-0.186	-0.384***	-0.181	-0.446***	-0.110
	(0.138)	(0.161)	(0.133)	(0.166)	(0.131)	(0.163)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	726	563	726	564	727	562
Number of groups	563	464	563	464	564	463

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix A:

Table A1: Description of the data

Variable	Non-Muslim (N=737)		Muslim (N=616)	
	Mean	SD	Mean	SD
Integration variables:				
Perceived acceptance in the Netherlands	3.33	0.60	3.16	0.62
Appreciation of living in the Netherlands	3.91	0.75	3.77	0.88
Feeling at ease with Dutch natives	3.52	0.62	3.16	0.78
Control variables:				
Female	0.55	0.50	0.44	0.50
Born in Netherlands	0.11	0.31	0.07	0.26
Length of stay in the Netherlands	23.15	11.50	21.93	8.63
Education level (6 levels)	3.14	1.67	2.03	1.64
Education abroad	0.75	0.43	0.58	0.49
Education Netherlands	0.73	0.45	0.36	0.48
Share of ethnic group in municipality	0.04	0.03	0.05	0.02
Ethnic group:				
Turkish	0.02	0.15	0.53	0.50
Moroccan	0.01	0.07	0.39	0.48
Surinamese	0.42	0.49	0.06	0.23
Dutch Antilleans	0.55	0.50	0.02	0.13
Employment status:				
Employed	0.65	0.47	0.46	0.50

Continue Table A1: Description of the data

Variable	Non-Muslim (N=737)		Muslim (N=616)	
	Mean	SD	Variable	Mean
Unemployed	0.08	0.27	0.10	0.30
Housewife	0.08	0.27	0.21	0.41
Disabled	0.08	0.27	0.14	0.35
Student	0.04	0.20	0.02	0.15
Retired	0.07	0.24	0.06	0.24
Marital status:				
Never married	0.43	0.4	0.09	0.38
Married	0.30	0.45	0.78	0.42
Divorced	0.24	0.42	0.10	0.30
Widowed	0.03	0.18	0.03	0.18
Number of children	1.95	1.83	2.64	1.95

Table A2: Change over time in integration of immigrants

Variables	Before the attacks		After the attacks		Diff in diff
	Non-Muslim N=402	Muslim N=302	Non-Muslim N=336	Muslim N=317	$(\text{Muslim- non-Muslim})_{after}$ - $(\text{Muslim- non-Muslim})_{before}$
Integration variables:					
Perceived acceptance in the Netherlands	3.40	3.36	3.24	2.97	-0.23***
	(0.55)	(0.54)	(0.65)	(0.63)	
Appreciation of living in the Netherlands	3.93	3.93	3.87	3.62	-0.26***
	(0.77)	(0.79)	(0.72)	(0.93)	
Feeling at ease with Dutch natives	3.52	3.28	3.52	3.04	-0.25***
	(0.60)	(0.72)	(0.63)	(0.81)	
Single items of perceived acceptance:					
Excellent opportunities for foreigners	3.26	3.64	3.01	2.74	-0.65***
	(1.07)	(1.11)	(1.16)	(1.17)	
No hostility against foreigners	3.60	3.50	3.30	3.11	-0.09
	(0.80)	(0.95)	(0.96)	(0.94)	
Rights of foreigners are respected	3.45	3.52	3.29	3.14	-0.22*
	(0.84)	(0.97)	(0.99)	(1.06)	
Netherlands is hospitable to foreigners	3.59	3.43	3.30	2.92	-0.22*
	(0.91)	(1.02)	(1.04)	(1.07)	
People in the Netherlands are not indifferent to migrants	3.00	2.88	3.09	2.88	-0.09
	(0.92)	(1.03)	(0.89)	(0.92)	
In the Netherlands fair treatment to foreigners	3.36	3.51	3.20	2.92	-0.43***
	(0.87)	(0.94)	(0.90)	(0.98)	
In the Netherlands foreigners are not restricted	3.31	2.71	3.13	2.63	0.10
	(0.96)	(1.11)	(0.99)	(1.03)	
Netherlands is open to the foreign cultures	3.70	3.76	3.57	3.39	-0.24*
	(0.85)	(0.88)	(0.93)	(1.02)	

Standard deviation in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table A3: The trend in the integration of Muslim vs. non-Muslim immigrants over the first wave of the study

VARIABLES	(1) perceived acceptance in NL	(2)	(3) Appreciation of living in NL	(4)	(5) Feel at ease with Dutch natives	(6)
1 if Muslim	-0.524*	-0.534	-0.240	0.056	-1.236***	-1.186***
	(0.271)	(0.429)	(0.292)	(0.466)	(0.280)	(0.449)
Time of interview	-0.051***	-0.039*	-0.010	-0.004	-0.029*	-0.013
	(0.017)	(0.023)	(0.018)	(0.025)	(0.017)	(0.024)
1if Muslim*time of interview	0.047*	0.058	0.026	0.000	0.084***	0.106***
	(0.025)	(0.036)	(0.027)	(0.039)	(0.026)	(0.037)
Controls	No	Yes	No	Yes	No	Yes
Observations	667	456	668	456	667	457
R-squared	0.016	0.154	0.002	0.100	0.048	0.132

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A4: Probit estimations for the selection equation. The dependent variable is a dummy that takes the value 1 if the respondent participated in the two waves of the study, and 0 otherwise.

VARIABLES	(1) Participates in the two waves	(2) Participates in the two waves
Number of missings	-0.105***	-0.135***
	(0.007)	(0.009)
1 if Muslim	-0.151**	0.077
	(0.078)	(0.231)
Unemployed		-0.442**
		(0.173)
Housewife		-0.185
		(0.176)
Disabled		-0.160
		(0.177)
Student		-0.641**
		(0.282)
Retired		-0.201
		(0.243)
Married		-0.321**
		(0.148)
Divorced		0.025
		(0.156)
Widowed		0.554*
		(0.325)
1 if female		-0.058
		(0.112)
Number of children		0.115***
		(0.034)
Length of stay in NL		0.026
		(0.017)
Length of stay in NL squared		-0.000
		(0.000)
Educational level		0.183**
		(0.073)
Education in NL		-0.178
		(0.126)
Education abroad		-0.681***
		(0.170)
Turkish		-0.133
		(0.278)
Moroccan		0.043
		(0.298)
Surinamese		-0.073
		(0.207)
Regional dummies		Yes
Number of observations	1,356	1,070

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A5: Generalized least squares random effects model (RE) for the integration pattern of Muslim immigrants using a balanced sample of observations

VARIABLES	(1) Perceived acceptance in NL	(2)	(3) Appreciation of living in NL	(4)	(5) Feel at ease with Dutch natives	(6)
Muslim	-0.119	0.048	0.068	0.522**	-0.325***	-0.164
	(0.105)	(0.297)	(0.111)	(0.240)	(0.098)	(0.274)
Second wave	-0.302***	-0.305***	-0.180**	-0.146	-0.128*	-0.332***
	(0.080)	(0.100)	(0.076)	(0.089)	(0.077)	(0.102)
Muslim*second wave	-0.351**	-0.539***	-0.237*	-0.302*	-0.198	-0.164
	(0.144)	(0.188)	(0.134)	(0.176)	(0.139)	(0.188)
Employed		Reference		Reference		Reference
Unemployed		0.043		-0.307		0.037
		(0.267)		(0.246)		(0.184)
Housewife		-0.031		0.192		-0.204
		(0.184)		(0.166)		(0.166)
Disabled		-0.236		-0.528***		-0.352*
		(0.232)		(0.196)		(0.211)
Student		-0.067		-0.849*		-0.039
		(0.408)		(0.449)		(0.462)
Retired		-0.092		-0.224		-0.112
		(0.258)		(0.259)		(0.173)
Female		0.019		-0.179		0.003
		(0.158)		(0.141)		(0.128)
Born in Netherlands		-0.337		0.336		0.029
		(0.347)		(0.295)		(0.248)
Never married		Reference		Reference		Reference
Married		0.204		-0.251		-0.031
		(0.206)		(0.165)		(0.149)
Divorced		0.334		-0.263		-0.054
		(0.230)		(0.182)		(0.177)
Widowed		0.318		-0.018		0.256
		(0.272)		(0.310)		(0.332)

Table A5: Generalized least squares random effects model (RE) for the integration pattern of Muslim immigrants using a balanced sample of observations

VARIABLES	(1)	(2) Perceived acceptance in NL	(3)	(4) Appreciation of living in NL	(5)	(6) Feel at ease with Dutch natives
Number of children		-0.029		0.020		0.013
		(0.040)		(0.039)		(0.036)
Length of stay in NL		0.025		0.033		0.035*
		(0.032)		(0.026)		(0.021)
Length of stay in NL squared (divided by 100)		-0.051		-0.038		-0.059
		(0.069)		(0.055)		(0.050)
Educational level		-0.050		-0.028		0.010
		(0.038)		(0.036)		(0.035)
Education in NL		0.144		0.019		0.053
		(0.148)		(0.152)		(0.119)
Education abroad		-0.207		-0.334		-0.111
		(0.383)		(0.298)		(0.243)
Dutch Antilles		Reference		Reference		Reference
Turkish		-0.232		-0.604**		-0.333
		(0.330)		(0.297)		(0.315)
Moroccan		0.619*		-0.028		0.137
		(0.374)		(0.343)		(0.343)
Surinamese		0.404		0.215		-0.039
		(0.246)		(0.245)		(0.198)
Share of ethnic minority in municipality		-6.488		-0.294		-2.784
		(4.095)		(3.949)		(3.306)
Regional dummies		Yes		Yes		Yes
Inverse mills ratio	0.224	-0.148	0.082	-0.063	0.029	-0.101
	(0.188)	(0.208)	(0.257)	(0.229)	(0.230)	(0.189)
Constant	0.162	0.159	0.135	0.110	0.342**	-0.032
	(0.133)	(0.479)	(0.170)	(0.427)	(0.146)	(0.323)
Observations	650	414	652	414	648	414
Number of groups	325	207	326	207	324	207

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A6: Religiosity and change in the integration of Muslim immigrants

VARIABLES	(1) Perceived acceptance in NL	(2)	(3) Appreciation of living in NL	(4)	(5) Feel at ease with Dutch natives	(6)
1 if religious	-0.249**	-0.241	-0.229*	-0.398**	-0.310**	-0.116
	(0.126)	(0.175)	(0.138)	(0.193)	(0.141)	(0.195)
Second wave	-0.994***	-1.064***	-0.646***	-0.784***	-0.785***	-0.758***
	(0.139)	(0.176)	(0.147)	(0.189)	(0.151)	(0.191)
Religious*second wave	0.457***	0.449**	0.357**	0.488**	0.627***	0.511**
	(0.170)	(0.208)	(0.182)	(0.225)	(0.186)	(0.228)
Controls	No	Yes	No	Yes	No	Yes
Observations	582	437	581	436	581	437
Number of groups	469	373	467	372	469	373

Robust standard errors in parentheses p<0.01, ** p<0.05, * p<0.1

Table A7: Ethnicity of Muslim immigrants and change in integration

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Perceived acceptance in NL		Appreciation of living in NL		Feel at ease with Dutch natives	
Surinamese and Dutch antillean	Reference	Reference	Reference	Reference	Reference	Reference
Turkish	-0.366**	-0.287	0.167	0.171	-0.268	-0.148
	(0.180)	(0.224)	(0.201)	(0.249)	(0.204)	(0.253)
Moroccan	0.104	0.125	0.055	0.232	-0.369*	-0.198
	(0.182)	(0.242)	(0.204)	(0.268)	(0.206)	(0.272)
second wave	-0.631**	-0.770**	0.028	0.007	-0.086	-0.290
	(0.283)	(0.316)	(0.290)	(0.321)	(0.299)	(0.321)
Turkish # second wave	-0.125	-0.060	-0.886***	-0.763**	-0.616*	-0.430
	(0.300)	(0.335)	(0.308)	(0.342)	(0.317)	(0.342)
Moroccan # second wave	0.283	0.337	0.231	0.140	0.292	0.498
	(0.306)	(0.352)	(0.313)	(0.359)	(0.322)	(0.360)
Controls	No	Yes	No	Yes	No	Yes
Observations	620	471	619	470	619	471
Number of groups	496	400	494	399	496	400

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1