

## THE LONG-RUN EFFECT OF 9/11: TERRORISM, BACKLASH, AND THE ASSIMILATION OF MUSLIM IMMIGRANTS IN THE WEST\*

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This article investigates whether the 9/11 attacks affected the assimilation rate of Muslims in the US. Terror attacks by Islamic groups are likely to induce a backlash against Muslims, thereby raising their costs of assimilation. We find that Muslim immigrants living in states with the sharpest increase in hate crimes also exhibit: greater chances of marrying within their own ethnic group; higher fertility; lower female labour force participation; and lower English proficiency. These findings shed light on the increasing use of terror and concurrent rise in social tensions surrounding Muslim immigrants in the West.

The terror attacks on the US in 2001 impacted the world in many ways. The shock and the loss of life were the most acute and immediate effects. Soon after, the economy was affected by the damage, disruption of air travel and increasing uncertainty in the security situation and world financial markets. Major military campaigns were subsequently launched in Afghanistan and Iraq, creating new tensions and alliances between countries. It is safe to say that the 9/11 attacks transformed the economic and diplomatic landscape on a global scale. In this article, we examine how the 9/11 attacks affected the Muslim community within the US.

In particular, we investigate the general idea that terror attacks by radical Islamic groups are likely to induce a backlash against the Muslim community as a whole, raising their costs of assimilation. Evidence for a backlash after 9/11 is supported by the data on hate crimes against Muslims, which went from 28 to 481 reported incidents from the year 2000 to 2001. A similar backlash against Muslims took place all across Europe (Åslund and Rooth, 2005; Hanes and Machin, 2012; Schüller, 2012). We empirically examine whether this backlash slowed the rate of assimilation by exploiting variation across states in the number of hate crimes against Muslims in the wake of the 9/11 attacks. Using individual-level data from the Census and American Community Surveys from 1990–2010, our results show that Muslim immigrants living in states which experienced the sharpest increase in hate crimes after 9/11 also exhibit:

- (i) greater chances of ‘intra-marriage’ (marrying someone who also originates from a Muslim country);
- (ii) higher fertility;
- (iii) lower female labour force participation; and
- (iv) lower English proficiency.

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Interestingly, the higher rate of intra-marriage is coming at the expense of marrying outside of the ethnic group, rather than a general increase in the marriage rate. All of these patterns are consistent with a less-assimilated outcome, since Muslim countries are characterised by very low rates of female labour force participation and high fertility rates compared to natives in the US.

Overall, our findings show that the 9/11 attacks induced a backlash which made the Muslim community in America more cohesive and traditional. In order to attribute a causal interpretation to our results, it is important to note that the state-level increase in hate crimes against Muslims after the 9/11 attacks was not correlated with the pre-existing state-level trend in any of the assimilation outcomes, or with the characteristics of Muslim immigrants living in the state prior to the 9/11 attacks. In addition, the results are robust to the inclusion or exclusion of a rich set of personal and state-level characteristics, including state-level hate crimes against blacks, Jews and homosexuals. These findings support our identifying assumption that variation in the extent of the backlash across states can be considered exogenous. Moreover, we conduct a placebo analysis by showing no effect of hate crimes on the marriage decisions of older Muslim immigrants, who had largely already made their marriage decisions before the 9/11 attacks, and by showing that no other immigrant group exhibited a slower rate of assimilation in response to hate crimes against Muslims. These findings lend even more support for a causal interpretation for our findings that the 9/11 attacks increased the ethnic identity of the Muslim community in the US.

There is no systematic empirical research on the question of whether the backlash against Muslim Americans after 9/11 affected their rate of assimilation in the US. The lack of research on this subject is surprising, given the increasing social and political tensions surrounding the assimilation of a large influx of Muslim immigrants to Western European countries and North America, and a concurrent increase in the use of large-scale terror attacks on Western cities. The most related literature has been conducted by historians, sociologists, journalists and Islamic scholars, who claim that Muslims and their communities in the US underwent substantial changes after the 9/11 attacks (Abdo, 2006; Barrett, 2008; Bakalian and Bozorgmehr, 2009).<sup>1</sup> These studies argue that American Muslims, who felt under attack by the government, general public and the media in the aftermath of 9/11, sought refuge in their religion and community to withstand the backlash. According to these authors, the 9/11 attacks spurred a renewed sense of solidarity among Muslims and a religious revival in the face of widespread criticism of Islam.

However, the existing literature suffers from several shortcomings. The empirical evidence is based on a small number of selected interviews, rather than a systematic analysis of a large, representative sample of Muslims in the US. Individuals who agreed to be interviewed may not have opinions which reflect the average person's experience, and an individual's thoughts and opinions may not match their actions. In addition,

<sup>1</sup> There is also a large literature studying the immigration of Muslims to Western European countries and the potential for clashes with the native population. Some of these studies speculate that the backlash in the aftermath of terror attacks is associated with the radicalisation of Muslim immigrants but do not conduct a systematic analysis of that connection (Sniderman and Hagendoorn, 2007; Murshed and Pavan, 2009). Others studies focus on the increasing political power of Muslim immigrants in European countries as a major source of conflict between immigrants and the native European population (Dancygier, 2010).

the existing literature does not attempt to establish a causal connection between the backlash and assimilation and, therefore, cannot determine whether the changes in the Muslim community after 9/11 were due to the attacks themselves or were part of a pre-existing trend in their assimilation patterns.

Our article is the first systematic empirical analysis of how the Muslim community in the US. reacted to the 9/11 attacks. We present the first evidence that the backlash against Muslims slowed their rate of assimilation, as reflected by higher rates of intra-marriage and fertility, and lower rates of female labour force participation and English proficiency. In this manner, our findings suggest that terror attacks against Western targets may have a long-term political and socio-economic impact, by creating a more ethnically cohesive Muslim community in this generation and also the next.

The idea that terror groups instigate a backlash is not new in the theoretical literature on political conflict (Rosendorff and Sandler, 2004, 2010; Siqueira and Sandler, 2006; Bueno de Mesquita and Dickson, 2007; Baliga and Sjöström, 2012). However, this literature focuses on the backlash against the country or territory where the perpetrators reside. In the context of 9/11, this is consistent with the US attacking Afghanistan. Our findings raise the possibility that terror groups may also intentionally induce a backlash on persons of a similar ethnic origin in the targeted country, in order to decrease their rate of assimilation.

The remainder of the article is organised as follows. The next Section briefly surveys the literature on Muslim immigrants to the US, focusing on their experiences before and after the 9/11 attacks. Section 2 presents the data on Muslim assimilation and hate crimes. Section 3 presents our empirical strategy, followed by our main results for 'intra-marriage' in Section 4 and other assimilation outcomes in Section 5. Section 6 examines other immigrant groups and Section 7 concludes with a discussion of the broader implications of our results.

## 1. Background and Related Literature

According to a recent survey by the Pew Research Center (2011), the vast majority of Muslims in the United States were born abroad, with only 37% native-born. (Peck, 2004 finds a very similar number – 66% are foreign born.) Among Muslim immigrants, 71% arrived after 1990. So, the Muslim population in America is relatively new and mostly foreign-born, with almost all of the immigrants arriving after the repeal of country-based immigration quotas in 1965. This policy change created a strong positive selection regarding the characteristics of immigrants that were allowed into the US. Consequently Muslim immigrants to America, mostly from the Middle East and South Asia, were substantially more educated and wealthier than their counterparts that immigrated to Europe. These characteristics, along with their pragmatism and drive to succeed, led to a relatively fast integration into the labour market and suburban communities of the US (Abdo, 2006).

Although Muslim immigrants in the West tend to be less assimilated than other immigrant groups (Bisin *et al.*, 2008), several scholars noted that Muslims in the US were on the path of assimilation or 'Americanization' before the 9/11 attacks (Haddad and Esposito, 2000; Abdo, 2006). These immigrants, while still religiously identified as Muslims, started to view traditional practices in their home country as out-

dated and out of place, and adopted customs more similar to their American peers (Hasan, 2000). Some of them even anglicised their names, intermarried with non-Muslims and began to speak Arabic less frequently (Goldwasser, 2000; Kulczycki and Lobo, 2002).

Several scholars argue that the 9/11 terror attacks brought this process of Americanisation to a sudden halt. They suggest that the substantial increase in hate crimes, harassment, racial profiling and discrimination against Muslims in the immediate aftermath of 9/11 started a process of re-Islamisation. At the individual level, Muslim Americans renewed their interest in the Quran and traditional Islamic practices (Bryan, 2005; Abdo, 2006). One example is the growing number of young women wearing the *hijab* (headscarf) as an icon of Islamic pride and defiance to a hostile environment (Haddad, 2007). Another example is the growing demand for Islamic educational and recreational programmes for children and young adults, which led to the creation of numerous Islamic day schools and Sunday schools across the US (Schmidt, 2004), as well as the spread of additional chapters of the Muslim Students Association at numerous universities (Abdo, 2006).

These studies also claim that Muslims in search of community and a safe haven from a more hostile environment started to attend mosque services more frequently (Haddad, 2007; Bakalian and Bozorgmehr, 2009). In turn, mosques and Islamic community centres took a more central role in the lives of Muslims after 9/11, as they ceased to be only places of worship and became social centres. Women's groups began to flourish (Haddad, 2007). Mosques and Islamic centres also started to play a more active political role, with the Muslim community increasing their participation in electoral politics in every election since 2001 (Bakalian and Bozorgmehr, 2009).

While the studies cited above present a poignant picture of how 9/11 affected the Muslim community in the US, the conclusions are based entirely on anecdotal evidence collected from extensive interviews. It is possible that individuals who agreed to be interviewed hold views and underwent experiences that were not representative of the Muslim community at large. In addition, these studies do not attempt to establish a causal connection between the backlash and assimilation, nor do they address whether the changes in the Muslim community after 9/11 were due to the attacks themselves or were part of a pre-existing trend.

Our contribution is to examine this issue with standard econometric tools and with a large, representative sample of Muslim immigrants obtained from the US Census and American Community Surveys. In particular, we control for the aggregate trends in the assimilation rate of Muslim immigrants and for a broad set of personal and state-level characteristics, and exploit the geographic variation in hate crimes across states to explain the changes in the state-level assimilation rate of Muslim immigrants.

Although this article is the first systematic analysis of the assimilation patterns of Muslims in the aftermath of 9/11, several articles have examined whether terrorism increased discrimination against Muslims in the labour market. Overall, the evidence is mixed. Some studies find that terror attacks affected the earnings and employment of Muslims living in the targeted country (Rabby and Rogers, 2009), while others report a significant effect only on earnings (Dávila and Mora, 2005; Kaushal *et al.*, 2007). A third group of studies finds no effect on any labour market outcome for Muslims (Åslund and Rooth, 2005; Braakmann, 2010). Importantly, this literature focuses

exclusively on labour market outcomes in the immediate aftermath of terror attacks. In contrast, we focus on assimilation outcomes measured up to nine years after the attacks, and since these outcomes are difficult to reverse (marital status, fertility etc.), they are much more likely to have long-term implications.

## 2. The Data

### 2.1. *Data on the Assimilation Outcomes of Muslim Immigrants*

Information about the assimilation of immigrants from Muslim countries over time is obtained from the US Census in 1990 and 2000, as well as the American Community Surveys (ACS) for 2007–10.<sup>2</sup> We used the four years of the ACS in order to obtain a large sample of Muslim immigrants after the 9/11 attacks in 2001.<sup>3</sup> Therefore, our main analysis is broken down into two time periods: the pre-attack period of 2000 and the post-attack interval of 2007–10 (which is referred to as the 2010 period throughout the text). In addition, the 1990 Census is used to examine pre-existing trends. Since many of our measures of assimilation concern marriage and fertility decisions which are typically made in early adulthood, our sample of interest is restricted to immigrants between the ages of 20 and 40.

Although it is possible to determine whether someone is an immigrant in the Census and ACS data using information on their country of birth, it is not straightforward to identify who is a Muslim. The Census and the ACS contain no information on a person's religious affiliation (see Ruggles *et al.*, 2008). Therefore, we use information on the respondent's self-reported 'country of ancestry' to infer whether the person is likely to be a Muslim. Specifically, individuals reporting an ancestry from the predominantly Muslim countries in the Middle East, Northern Africa and Asia were classified as Muslims. A similar set of countries was used by Kaushal *et al.* (2007) to examine the effect of the 9/11 attacks on the labour market outcomes of Arab and Muslim residents.<sup>4</sup> However, Kaushal *et al.* (2007) based their definition on the respondent's country of birth, not the respondent's ancestry. For foreign-born individuals, these two variables are almost always the same. However, when the two pieces of information differ, we believe the 'ancestry' variable is likely to be more accurate, since some individuals are born in foreign countries when their parents lived abroad for a brief period of time. More importantly, our definition on ancestry allows us to categorise native-born individuals as having a Muslim background as well. This is important in order to estimate the size of the Muslim population in each state and also to provide a more accurate measure of whether an immigrant who is married to a native has in fact married someone of the same background or not.

<sup>2</sup> The sample size of Muslims in the General Social Survey is too small to analyse (about 10 self-identified Muslims per year).

<sup>3</sup> The ACS is the largest representative survey that was conducted after 2000. Many existing studies examine inequality and other labour issues over time using the Census for years up to and including 2000, and the ACS for the post-2000 period. For example, see Beaudry *et al.* (2010, p. 1005) and Acemoglu and Autor (2011, p. 1050).

<sup>4</sup> The only exceptions are that we did not include Lebanon and Malaysia, since we believe most Lebanese immigrants in the US are Christian and it was not clear that Malaysia is mostly Muslim. However, our results are robust to changing the definition to include or exclude these countries.

If we used country of birth to determine whether a person is likely to be Muslim, any immigrant who is married to a native would be considered to have married outside of his/her group. Since this is one of our main measures of assimilation, we based our definition of being a Muslim on the country of ancestry.

Appendix Table A1 lists the 20 countries of ancestry used in our definition of being a Muslim. The most common countries are Pakistan and Iran, followed by Turkey, Egypt and Bangladesh. As discussed below, there is considerable variation across the different countries of origin in terms of their assimilation outcomes and the extent to which each group experienced a backlash in the wake of the 9/11 attacks.

Using the Census and ACS data, we constructed several standard measures of assimilation for each Muslim immigrant in the sample. Our first measure is whether the person is 'intra-married' in the sense of being married to someone whose ancestry is coded as one of the Muslim countries described above.<sup>5</sup> This measure is widely used to capture the strength of one's ethnic identity and level of assimilation (Bisin and Verdier, 2000; Bisin *et al.*, 2004, 2008). There are two alternatives to being 'intra-married': being single or being 'inter-married' in terms of marrying someone whose ancestry is not one of the Muslim countries described above. Since someone who is single may eventually be 'intra-married', as opposed to someone who is currently 'inter-married' (unless they divorce and remarry), we will also examine the rate of 'inter-marriage' as a relevant assimilation outcome.

Summary statistics for these marriage outcomes are presented in Table 1. For example, 43.4% of the sample is intra-married in the 2000 Census, while 13.5% are inter-married. Among the 69% that have ever been married, 63% are married within the Muslim community according to our measure, while 37% are married outside of the community. So, although intra-marriage is the most common type of family formation within this community, there does appear to be a significant level of integration into the rest of society as measured by the rate of inter-marriage.<sup>6</sup>

However, as seen in Appendix Table A1, the rate of intra-marriage varies considerably across the different countries of origin. For example, individuals from Pakistan and Bangladesh have very strong ethnic identities (their rate of intra-marriage is 53% and 57% respectively), while individuals with a background from Egypt, Iran and Turkey are much more assimilated (the rate of intra-marriage is 46%, 36% and 38% respectively).

Our other measures of assimilation include the respondent's fertility, labour force participation and proficiency in English. Fertility is measured by the respondent's number of children, or alternatively, by the number of children below the age of 5. A higher level of fertility is consistent with a stronger ethnic identity. This can be seen in Appendix Table A1 which shows that immigrants from Pakistan and Bangladesh, which have a high rate of intra-marriage compared to other countries (e.g. Egypt, Iran and Turkey) also tend to have much higher rates of fertility. (Egypt is the exception, with a comparable level of fertility to Bangladesh.)

<sup>5</sup> The spouse is considered a Muslim if he/she meets the ancestry criterion, regardless of whether the spouse was born in the US or not and regardless of whether the spouse meets the age requirements to be included in our empirical analysis (between 20 and 40 years of age).

<sup>6</sup> Table 1 reveals little about the aggregate trends in assimilation outcomes, due to changes over time in the size and demographic composition of the population of Muslim immigrants.



Table 1  
*Descriptive Statistics of Immigrants from Muslim Countries and Number of Hate Crimes  
 Against Muslims*

	1990		2000		2007–10	
	Mean	SD	Mean	SD	Mean	SD
<i>Assimilation outcomes</i>						
Intra-married	0.370	0.48	0.434	0.50	0.451	0.50
Inter-married	0.186	0.39	0.135	0.34	0.131	0.34
Ever married	0.681	0.47	0.690	0.46	0.688	0.46
Number of children	0.896	1.25	0.992	1.31	1.002	1.30
Number of children less than age 5	0.400	0.68	0.425	0.71	0.442	0.71
Home sector (not in labour force or school)	0.171	0.38	0.237	0.43	0.220	0.41
Speak English at home	0.098	0.30	0.075	0.26	0.098	0.30
Speak English well	0.672	0.47	0.649	0.48	0.647	0.48
<i>Demographic characteristics</i>						
Male	0.626	0.48	0.570	0.50	0.514	0.50
Years in the US	8.849	5.94	10.790	7.81	11.280	8.30
Age	30.550	5.64	31.145	5.84	31.106	5.85
High school dropout	0.071	0.26	0.074	0.26	0.063	0.24
High school graduate	0.194	0.40	0.217	0.41	0.191	0.39
Some college	0.284	0.45	0.258	0.44	0.250	0.43
College graduate	0.451	0.50	0.451	0.50	0.495	0.50
Home sector rate for women within state	0.218	0.02	0.222	0.02	0.192	0.02
Male unemployment rate within state	0.058	0.01	0.055	0.01	0.087	0.03
Male mean log wage within state	10.264	0.11	10.567	0.11	10.823	0.12
Percentage of males within state (Muslims)	0.604	0.03	0.560	0.03	0.512	0.05
Percentage Muslim within state	0.005	0.00	0.008	0.00	0.009	0.00
<i>Hate crimes against Muslims</i>						
Muslim hate crimes (since last period)			14.549	14.58	78.966	62.49
Muslim hate crimes <i>per capita</i>			0.004	0.00	0.028	0.03
Muslim hate crimes <i>per capita</i> (excl. 2002–8)					0.014	0.01
Hate crimes against blacks <i>per capita</i>			0.052	0.06	0.037	0.05
Log hate crimes against homosexuals			6.084	1.42	5.884	1.25
Log hate crimes against jews			5.997	1.76	5.519	1.69
Number of observations	13,467		20,139		17,558	

*Notes.* Hate crime data come from the FBI Uniform Crime Reporting (UCR) Program. All other variables are computed from the United States Census (1990 and 2000) and the American Community Surveys (2007–10). The sample is restricted to immigrants from Muslim countries, as detailed in Appendix Table A1.

Female labour force participation is also a useful measure of assimilation, since families with a higher sense of ethnic identity are more likely to adhere to traditional family roles whereby women are less likely to participate in the labour market. Again, evidence for this notion is seen in Appendix Table A1, which shows that women from countries with a higher intra-marriage rate (Bangladesh and Pakistan) have much higher rates of being in the ‘home sector’ (47% and 52% respectively) than women from countries that have much lower intra-marriage rates (31% from Turkey and 24% from Iran). Being in the ‘home sector’ is defined as not being in the labour force and not being enrolled at school. It is worth noting that there are no differences in the rate of being in the ‘home sector’ for men across these countries of origin, which is

consistent with the idea that the differences across groups represent different rates of assimilation choices rather than opportunities.

Similar patterns are also seen with our remaining measures of assimilation which capture the respondent's proficiency in English. Our first measure is whether the respondent speaks English at home (only 7.5% in 2000), and the second measure is whether the respondent speaks English well (65% in 2000). A respondent was classified as speaking well if he/she was coded as speaking 'only English' or speaking 'very well'. Again, we see a consistent pattern whereby immigrants from a more assimilated background (Iran and Turkey) have lower intra-marriage rates, higher female labour force participation, lower fertility and a higher chance of speaking English at home or speaking very well (11% and 76% respectively for Iran, 11% and 63% for Turkey). In contrast, immigrants with less assimilated outcomes (Bangladesh and Pakistan) tend to have higher intra-marriage rates and fertility, with lower rates of female labour participation, speaking English at home, and speaking English well (4.5% and 47% for Bangladesh on the last two outcomes, and 6.6% and 69% for Pakistan). The consistency of these independently-measured and defined assimilation outcomes across groups supports the idea that they individually and jointly capture an accurate picture of the assimilation rate of each group, and therefore, justifies their use as meaningful outcomes in our empirical analysis.

The US Census and ACS surveys also contain a rich set of demographic information such as: gender, age, education level and, notably, the state of residence for each respondent. This geographic information is particularly important for our identification strategy since we do not want to rely on aggregate time trends to identify the causal effect of anti-Muslim hate crimes on assimilation behaviour. Rather, we control for aggregate time trends and exploit the geographic variation in hate crimes across states to explain the changes in the assimilation outcomes across locations. To do this, we need variation in the location of Muslims across the US, which is shown in Appendix Table A2.

## 2.2. *Data on Hate Crimes Against Muslims*

Our goal is to estimate the effect of the anti-Muslim backlash on the assimilation outcomes of Muslim immigrants. However, it is not straightforward to measure the extent of the backlash in an accurate and consistent way across states. To do this, we use information on the reported number of 'hate crimes' against Muslims as a proxy for the extent of the backlash felt across states by immigrants from Muslim countries. Since 1992, the FBI Uniform Crime Reporting Program (UCR) has been collecting data on crimes motivated by racial, religious, ethnicity/national-origin, sexual-orientation and disability bias. A hate crime is not defined as a separate type of crime. Rather, hate crimes are typical types of crime like assault or burglary but are defined as a hate crime if the offender's motive is based on a bias against the victim's gender, race, etc. That is, a crime can be classified as a hate crime only if the police obtain additional information about the motives of the perpetrator and, using their judgment, determine that a biased motivation exists.



Hate crimes are reported to the FBI for eleven categories of offences, but the most common type by far is ‘intimidation’. In Appendix Table A3, we present the number of hate crimes against Muslims in 2001 for all eleven categories. The largest categories are ‘intimidation’ with 53.4% of the total, ‘destruction/vandalism’ with 24.2%, the two types of assault (simple and aggravated) with 16.2% and arson with 3.3%. According to the UCR Hate Crime Report, 2001, ‘hate crimes touch not only the individual victim, but they also affect the entire group associated with the particular bias motivation’. For this reason, the reported number of hate crimes against Muslims is likely to be a good proxy for how Muslims are accepted by the wider public in their locality. To the extent that this measure provides an inaccurate portrayal of the relationship between the Muslim community and the rest of society, our results should be biased towards zero.

Since more populous states will tend to have larger numbers of hate crimes, we divide the number of hate crimes against Muslims in each state by the number of Muslims (individuals with an ancestry from a Muslim country as defined above) found in the 2000 Census in each state. We normalise by the state-level Muslim population from the 2000 Census, and not the earlier or later years, for a few reasons. The main drawback of normalising by the 1990 Census is that this census does not include the large wave of immigration during the 1990s (Table 1 shows that share of the state population represented by Muslim immigrants almost doubled from 1990 to 2000). There are two advantages of using the 2000 Census over the ACS Surveys from 2007–10. First, the 2000 Census is a much larger sample than the ACS samples for 2007–10. More importantly, it is possible that the distribution of Muslims across states in 2007–10 is endogenous to the extent of the local backlash in the wake of the 9/11 attacks, so that estimates of the Muslim population for each state after 9/11 should not be considered exogenous. For these reasons, we normalise the number of hate crimes against Muslims by the 2000 state-level estimate of the Muslim population size, which we refer to as ‘hate crimes *per capita*’.

Appendix Table A2 presents the number of hate crimes against Muslims *per capita* for each state in the post-9/11 period. The Table displays considerable variation in hate crimes against Muslims across states. For example, hate crimes *per capita* were much higher in Michigan, Ohio, Massachusetts, and New Jersey relative to Virginia, Maryland, Texas, Pennsylvania, California, Illinois, Florida and New York. Therefore, a high intensity of hate crimes against Muslims was not limited to the largest states or to any particular region of the country.

For this study, it is important to note that there was a dramatic increase in hate crimes against Muslims in the wake of the 9/11 attacks. With only four months remaining in the calendar year after the incident, the reported total number of hate crimes against Muslims increased 1,600% from 2000 to 2001. This sudden jump is displayed in Figure 1, which also shows that the number of hate crimes against Muslims decreased after the surge following the 9/11 attacks but settled down to a yearly mean of 139.5 incidents after 2001 compared to 23.3 prior to 2001. It is worth noting, however, that even the peak year of anti-Muslim hate crimes does not approach the levels of attacks against other groups (Blacks, Jews, Gays and Lesbians), as seen in

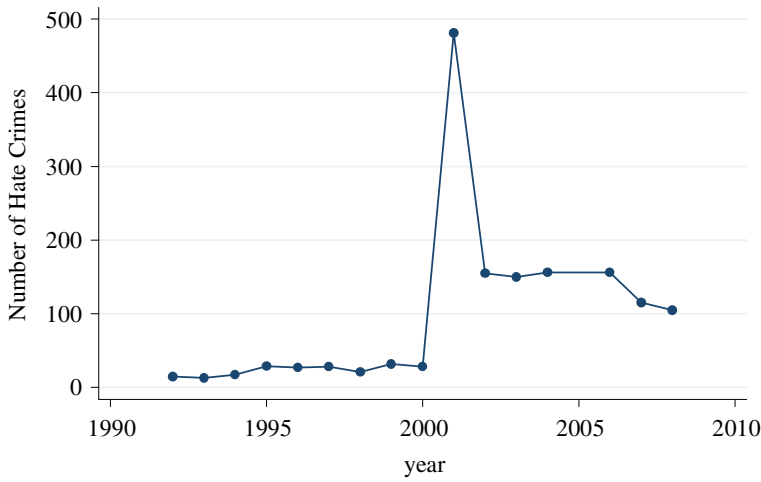


Fig. 1. *Hate Crimes against Muslims in the US*

Source. FBI Uniform Crime Reporting (UCR) Program.

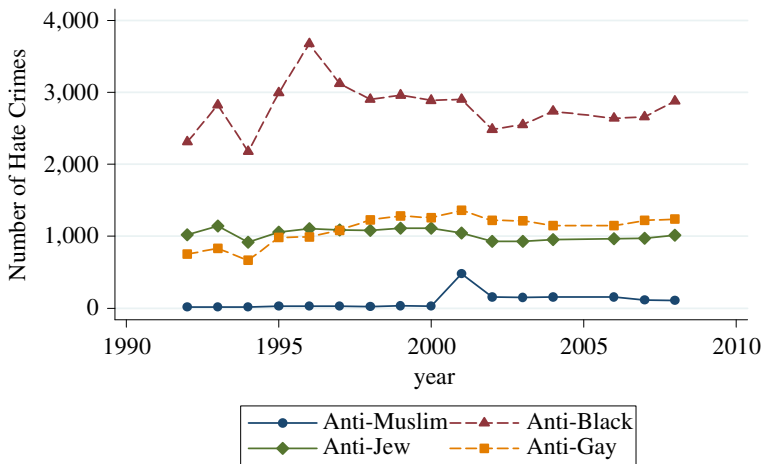


Fig. 2. *Hate Crimes in the US*

Source. FBI Uniform Crime Reporting (UCR) Program.

Figure 2. Even on a *per capita* basis, Table 1 shows that hate crime against blacks after 2001 is considerably more prevalent than hate crime against Muslims.<sup>7</sup>

Although the number of hate crimes against Muslims never approached levels experienced by other groups, it is clear that the 9/11 attacks caused an unexpected surge in anti-Muslim sentiment, which led to a permanent shift in sentiment thereafter. The goal of this article is to examine whether the change in sentiment towards Muslims strengthened their ethnic identify. To do this, our strategy is to examine whether

<sup>7</sup> The Census data do not provide information on the size of the Jewish or homosexual community. Hence, we cannot normalise hate crimes for those groups by their population sizes.

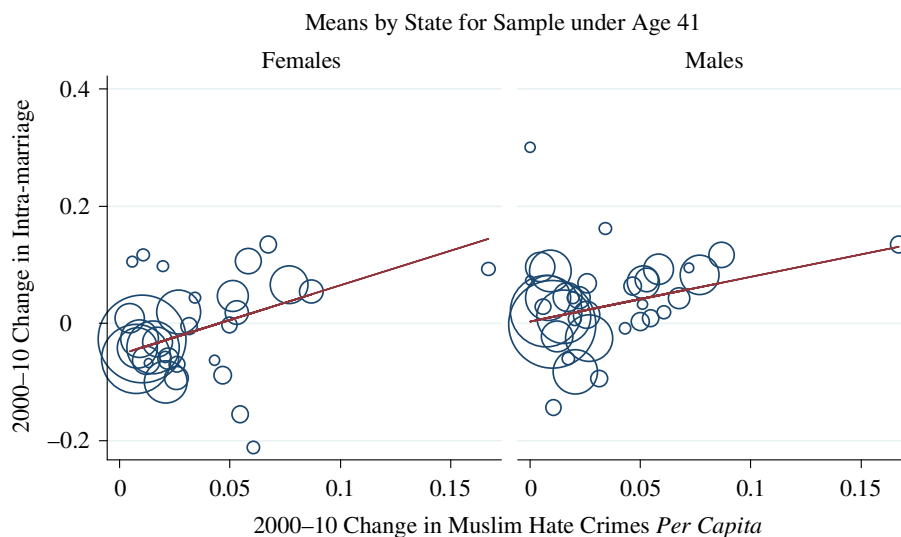


Fig. 3. State Analysis of Intra-marriage, 2000–10

Notes. Female slope = 1.177 (t-stat = 3.56); Male slope = 0.764 (t-stat = 2.31). Regressions are weighted by state sample size, represented by the size of each circle.

changes in the assimilation patterns of Muslims across states since 2001 are associated with the size of the local backlash. Figure 3 presents a first look at whether changes in the state-level intra-marriage rate between 2000–10 are correlated with the state-level changes in Muslim hate crimes *per capita*. For both men and women, there is a statistically significant positive relationship, suggesting that the assimilation rate of Muslim immigrants was indeed slower in places which experienced a more intensive backlash. This preliminary analysis is explored extensively throughout the remainder of the article but Figure 4 conducts a simple placebo analysis by showing that the post-9/11 backlash was not correlated with higher rates of intra-marriage for Muslim immigrants over the age of 40 – most of whom had already made their marriage decision before the 9/11 attacks. It is also important to note that the size of the backlash was not higher in places that were already experiencing slower rates of assimilation. Figure 5 shows that the change in the state-level intra-marriage rate between 1990 and 2000 was not significantly correlated with the backlash felt by Muslim immigrants in the wake of the attacks in 2001. For women, the relationship even appears to be negative. In the next Section, we describe our empirical strategy to establish these results more extensively, while providing support for a causal interpretation of the results.

### 3. Empirical Strategy

Our empirical strategy is designed to identify the causal effect of hate crimes against Muslims on the assimilation outcomes of Muslim immigrants. Our unit of observation is the individual, and we model his/her outcome as a function of his/

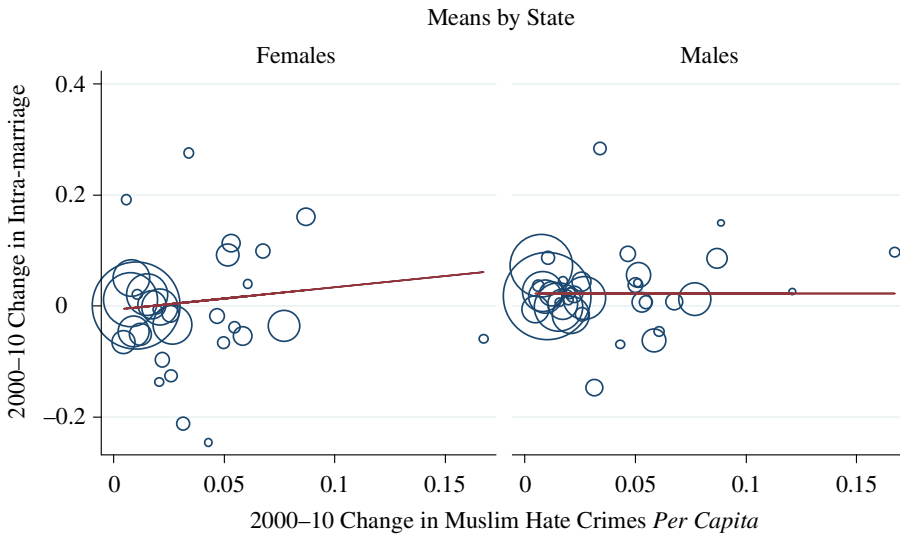


Fig. 4. *Intra-marriage for Those Older than 40, 2000-10*

Notes. Female slope = 0.408 (t-stat = 1.04); Male slope = -0.0022 (t-stat = -0.01). Regressions are weighted by state sample size, represented by the size of each circle.

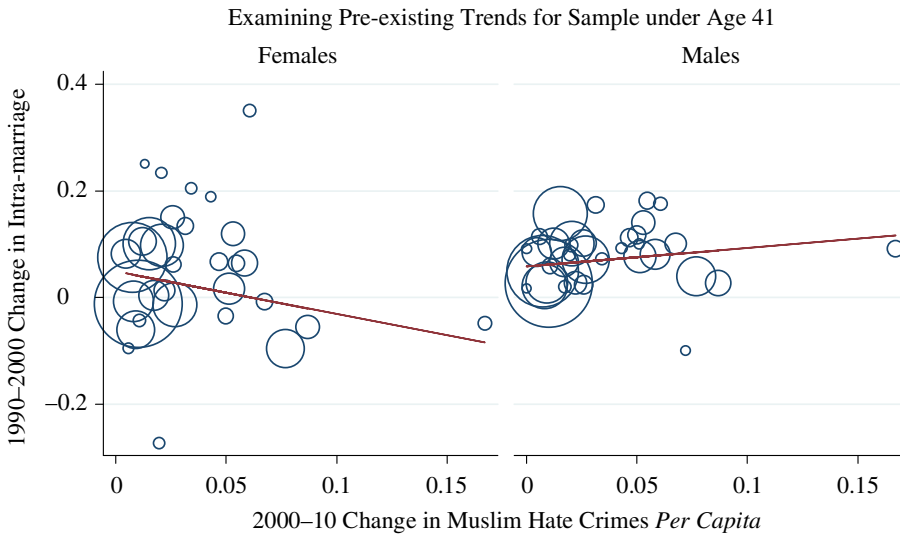


Fig. 5. *State Analysis of Intra-marriage, 1990-2000*

Notes. Female slope = -0.797 (t-stat = -1.60); Male slope = 0.345 (t-stat = 1.05). Regressions are weighted by state sample size, represented by the size of each circle.

her personal characteristics, state of residence, survey year and the level of hate crimes *per capita* in the individual's state of residence. Specifically, we estimate the following model:

$$outcome_{ist} = \alpha \times Muslim\ Hate\ Crimes\ PC_{st} + \beta \times \mathbf{x}_{ist} + \gamma_t + \mu_s + \varepsilon_{ist} \quad (1)$$

where  $outcome_{ist}$  represents the assimilation outcome of individual  $i$  who lives in state  $s$  in year  $t$ ;  $Muslim\ Hate\ Crimes\ PC_{st}$  is the number of hate crimes against Muslims *per capita* in state  $s$  in year  $t$ ;  $\gamma_t$  is a fixed-effect for each survey year  $t$ ;  $\mu_s$  is a fixed-effect unique to state  $s$ ; and  $\mathbf{x}_{ist}$  is a vector of individual and state characteristics which include the individual's gender, age, years of schooling and years living in the US. In some specifications, the  $\mathbf{x}_{ist}$  vector will also include characteristics which vary at the state-year level (computed from the same Census and ACS Surveys) such as the female 'home sector' rate (not enrolled in school or in the labour force) for native women in state  $s$ , the unemployment rate of native men in the state and the mean log wage for native men in the state. Unobserved determinants of the individual's assimilation outcome are captured by the error term,  $\varepsilon_{ist}$ .

As indicated earlier,  $Muslim\ Hate\ Crimes\ PC_{st}$  is the total number of hate crimes in state  $s$  at year  $t$ , divided by the total number of individuals reporting an ancestry from a Muslim country in state  $s$  in the year 2000. When  $t$  equals the year 2000, the total number of hate crimes in that state refers to the sum of the hate crimes in that state from 1992 (the first year that the FBI started collecting hate crime data) to the year 2000. When  $t$  refers to a year after 2001 (2007–10), the total number of hate crimes in that state refers to the sum of hate crimes against Muslims between 2001 and 2008. We use the sum of hate crimes across years in order to obtain a more precise measure of the level of anti-Muslim sentiment, since the number of hate crimes is quite low, particularly in the pre-2001 period. In this manner, our measure of hate crimes *per capita* is designed to capture the extent to which Muslims felt an increase in hate crimes after 2001 within each state.

The goal of the proposed econometric specification is to identify  $\alpha$ , which represents the causal effect of anti-Muslim hate crimes on an individual's assimilation outcome. There are several reasons why hate crimes against Muslims may affect their rate of assimilation. It is likely that hate crimes, which may be accompanied by increased discrimination, harassment, racial profiling and hostile rhetoric against Muslims, create a barrier between the Muslim community and the rest of society. By increasing the isolation of the Muslim community, hate crimes raise the costs of assimilation and perhaps increase the return to investing in social capital within their own community, thus leading to lower rates of integration. As mentioned above, these forces have been highlighted in the existing literature (Abdo, 2006; Barrett, 2008; Bakalian and Bozorgmehr, 2009). However, hate crimes also increase the cost of being publicly identified as a Muslim and, therefore, might lead some Muslims to shed their identity and blend into society at large. Given these two conflicting predictions, the goal of our analysis is to determine which hypothesis is supported by the data.

By including fixed-effects for each state and survey year, we are essentially examining whether changes over time in hate crimes against Muslims within a state are correlated with the changes over time in the assimilation rate of Muslims within that state, after controlling for the national trend and a rich set of personal and state-level characteristics. Our identifying assumption in (1), therefore, is that hate crimes against Muslims at the state level are not correlated with omitted variables that affect the local assimilation rate and that changes in Muslim hate crimes at the state level are

not caused by changes in the assimilation rate within the state (i.e. no reverse causality).

We address these issues in several ways. First, as depicted in Figure 3, we show that changes in the number of hate crimes *per capita* against Muslims are positively correlated with concurrent changes in intra-marriage for younger Muslim immigrants but not with the intra-marriage rates of older Muslim immigrants (Figure 4) who are likely to be characterised by the same unobservable proclivities for assimilation, but were too old to change their marriage behaviour after 9/11. In addition, we conduct extensive robustness checks across assimilation outcomes and by including/excluding a vast array of control variables which are highly significant determinants of assimilation tendencies. Regarding reverse-causality, we show that hate crimes after 9/11 were not more prevalent in states that were already becoming less-assimilated (Figure 5 and Tables 2 and 3) and that the results are similar using the immediate backlash against Muslims, which could not be a response to assimilation trends over the decade after 9/11, as the treatment variable. Finally, we examine whether there is a systematic relationship between the local level of anti-Muslim hate crimes and observable characteristics of the local Muslim population which are likely to affect the local trends in assimilation.

Table 2 analyses which state-level characteristics as of 2000, just prior to the 9/11 attacks, are associated with a larger backlash after the attacks. The Table distinguishes between two broad groups of state characteristics: those associated with the state's non-Muslim population (upper panel) and those characterising the local Muslim population (bottom panel). Each coefficient comes from a simple regression of the state level backlash after 9/11 (*Muslim Hate Crimes PC<sub>st</sub>* for  $t = 2010$ ) on the state mean in the year 2000 of the variable indicated above each estimate. The Table shows that the extent of the backlash was correlated with certain characteristics of the local non-Muslim population. In particular, hate crimes against Muslims were larger in states that tended to be more white, native-born (less immigrants including those from Muslim countries), and where hate crimes were already abundant against blacks and Muslims before the 9/11 attacks.

The bottom panel of Table 2 shows very little connection between the backlash after 9/11 and the characteristics of the Muslim state population in 2000. The backlash is not associated with most of the country-of-origin shares, and most importantly, is completely uncorrelated with the assimilation and education characteristics of the local Muslim community just prior to 9/11.

Overall, Table 2 demonstrates that the backlash was not entirely random – it was indeed larger in areas that had a history of hate crimes against Muslims and other groups (blacks) and tended to occur in areas where immigrants (not just Muslim immigrants) were smaller in concentration. But, the extent of the backlash was not correlated with the local assimilation rates or characteristics of Muslims themselves. This lends support to our identifying assumption that the local backlash was an event external to the behaviour and character of the local Muslim community and, therefore, was not correlated with omitted factors affecting their assimilation rates after 9/11.

To provide further support for this assumption, Table 3 examines whether the backlash after 9/11 was associated with the pre-existing trends (between 1990–2000) in the characteristics of the Muslim and non-Muslim communities before the attacks.



Table 2  
*The Relationship between Anti-Muslim Hate Crimes by State after 9/11 (2001–8) and State Characteristics Just Prior to 9/11*

Dependent variable: anti-Muslim hate crimes *per capita* by State from 2001–8

<i>Characteristics of the state population in year 2000</i>		Male unemployment rate		Male mean wage		% male HS dropouts		% male college grads	
State level hate crimes in year 2000 against:									
Muslim hate crimes PC	Gay hate crimes PC	% White	Male unemployment rate	Male mean wage	% male HS dropouts	% male college grads			
4.033*** (0.768)	-1.489 (3.626)	0.143*** (0.039)	-0.774* (0.390)	-0.037 (0.039)	-0.260 (0.184)	-0.134 (0.127)			
	Jewish hate crimes PC	% Muslim							
	-0.991 (1.572)	-3.200*** (0.908)							
State level demographics and economic conditions for 20–40 year olds in year 2000									
% Native	% Black	% White	% Muslim	% male HS dropouts	% male college grads				
0.119*** (0.034)	-0.081 (0.068)	0.143*** (0.039)	-3.200*** (0.908)	-0.037 (0.039)	-0.260 (0.184)	-0.134 (0.127)			

<i>Characteristics of Muslim immigrants by state in year 2000</i>		Speak English well		Speak English at home		Country of origin in year 2000	
State level assimilation	Number of children < 5 years	Number of children < 5 years	Speak English well	Speak English at home	% HS dropouts	% college grad	
Intra-married	0.023 (0.063)	0.036 (0.068)	-0.008 (0.084)	0.179 (0.140)	0.078 (0.190)	0.007 (0.077)	
State level percentage of Muslim immigrants	Morocco	Iran	Jordan	Iraq	Syria	Turkey	
Egypt	0.104 (0.081)	-0.058 (0.038)	0.692* (0.346)	0.524*** (0.059)	0.141 (0.101)	0.035 (0.168)	
State level percentage of Muslim immigrants	Alghanistan	Bangladesh	Indonesia	Pakistan	Other Arab		
	-0.306* (0.171)	-0.139 (0.086)	0.064 (0.224)	-0.105 (0.090)	0.197 (0.117)		

*Notes.* Robust standard errors appear in parentheses. Each coefficient comes from a separate regression where the number of anti-Muslim hate crimes *per capita* by state is regressed on the state-level variable indicated in the Table above each coefficient. Number of observations in each regression is 50. Regressions are weighted by the state sample size of Muslim immigrants in 2000. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5% and 1% levels, respectively. Hate crimes *per capita* for gays and Jews are created by dividing by the state population size in 2000.

Table 3  
*Relationship between the Change in Anti-Muslim Hate Crimes from 2000–10 and the Change in State Characteristics from 1990–2000*

Dependent variable: change in anti-Muslim hate crimes <i>per capita</i> by state from 2000–10						
<i>Change in characteristics of the state population 1990–2000</i>						
State level demographics and economic conditions for 20–40 year olds						
% Native	% Black	% White	% Muslim	Male unemployment rate	Male mean wage	% male HS dropouts
0.436* (0.245)	0.133 (0.462)	0.339** (0.145)	-7.111** (3.160)	-1.382*** (0.478)	0.428* (0.254)	-0.432 (0.367)
% male college grads 0.623 (0.479)						
<i>Change in characteristics of Muslim immigrants by state 1990–2000</i>						
State level assimilation and education characteristics of Muslim immigrants						
Intra-married	Number of children	Number of children <5 years	Speak English at home	Speak English well	% HS dropout	% college grad
-0.007 (0.070)	0.001 (0.030)	0.013 (0.034)	-0.095 (0.147)	-0.056 (0.054)	0.029 (0.266)	-0.089 (0.081)
State level percentage of Muslim immigrants by country of origin						
Egypt	Morocco	Iran	Iraq	Jordan	Syria	Turkey
0.228* (0.134)	0.171 (0.215)	0.105 (0.169)	0.481 (0.363)	0.549 (0.359)	-0.141 (0.135)	0.192 (0.234)
Palestine	Afghanistan	Bangladesh	Pakistan	Indonesia	Other Arab	
-0.117 (0.266)	-0.209 (0.291)	-0.150 (0.179)	-0.069 (0.089)	0.282 (0.261)	-0.222 (0.203)	

*Notes.* Robust standard errors appear in parentheses. Each coefficient comes from a separate regression where the change in the number of anti-Muslim hate crimes *per capita* by state from 2000–10 (as defined in the text, where 2000 refers to the period 1992–2000 and the 2010 period refers to 2001–8) is regressed on the 1990–2000 change in state-level variable indicated in the Table above each coefficient. Number of observations in each regression is 99, as the regression was performed with a panel data set of states with state fixed-effects and year effects. Regressions are weighted by the state sample size of Muslim immigrants in 2000. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively.

Table 3 does not include measures for the pre-existing trends in hate crimes against various groups, since the FBI did not collect these data prior to 1992. Table 3 shows that the change in Muslim hate crimes *per capita* between 2000–10 was positively associated with certain pre-existing changes in the non-Muslim community between 1990–2000 (states that were becoming relatively more native-born, more white, less Muslim and better economic conditions). However, the backlash after the attacks is completely uncorrelated with the pre-existing assimilation trends of the local Muslim community. This result provides additional support for the assumption that the backlash was not associated with contemporaneous factors which affected Muslim assimilation after 9/11.

This assumption is explored further in Table 4 which examines whether the change in local hate crimes against Muslims after 9/11 is correlated with other factors which may be concurrently affecting the assimilation rate of Muslims in the post-9/11 period. This Table does not include the assimilation outcomes of Muslims, since these are the main outcomes of interest which are examined in the remaining sections of the article. Once again, Table 4 shows that the extent of the local backlash after 9/11 was not correlated with the trend in hate crimes against other groups, the demographic and schooling characteristics of the state population, and the education and country-of-origin shares of the local Muslim population.

Although Table 4 shows that the local backlash was not correlated with a larger share of Muslim immigrants from a particular country, Table 5 examines whether there is an underlying, systematic pattern whereby immigrants with a particular tendency to assimilate became more concentrated in areas with a larger local backlash.<sup>8</sup> As discussed previously, Muslim immigrants from certain countries display much stronger tendencies to be assimilated *versus* others (Turkey and Iran *versus* Bangladesh and Pakistan). In order to see if hate crimes after 9/11 are associated with higher concentrations of immigrations from the group of countries that tend to be less assimilated, we assign to each Muslim immigrant in the 2000 and 2010 samples the mean of the assimilation outcome for that person's country of ancestry in the year 2000, and regress that variable on the state level of hate crimes against Muslims in both periods. This analysis appears in Table 5.

The upper two panels of Table 5 use data from the 2000 and 2010 periods; each coefficient comes from a regression of the mean of the assimilation outcome for the individual's country of ancestry in the year 2000 on a state fixed-effect, year fixed-effects and *Muslim Hate Crimes PC<sub>st</sub>*, as defined above. The bottom two panels use data only on Muslim immigrants that arrived after 2001, so state-fixed effects cannot be included since only the 2010 period is used.

The 10 coefficients in the upper panel of Table 5 do not show any systematic evidence that immigrants from countries with lower assimilation rates tended to concentrate in areas with more hate crimes. Only one of the ten coefficients is significant at the 10% level (which is likely to occur even if the true parameter is zero in all ten regressions). The sign of this coefficient indicates that hate crimes are

<sup>8</sup> The existing literature has emphasised that immigrant assimilation is heavily determined by the country of origin and parental identity (Dustmann, 1996; Casey and Dustmann, 2010).

Table 4  
*Relationship between the Change in Anti-Muslim Hate Crimes from 2000–10 and the Change in State Characteristics from 2000–10*

Dependent variable: the change in anti-Muslim hate crimes <i>per capita</i> by state from 2000–10							
<i>Change in characteristics of the state population 2000–10</i>							
State level hate crimes against:							
Blacks hate crimes PC	Jewish hate crimes PC						
-0.078 (0.150)	3.909 (3.565)						
State level demographics and economic conditions for 20–40 year olds							
% Native	% Black	% White	% Muslim	Male unemployment rate	Male mean wage	% male HS dropouts	% male college grads
-0.328** (0.151)	0.150 (0.295)	-0.201 (0.185)	-8.256 (9.281)	0.429 (0.576)	-0.205 (0.181)	0.184 (0.798)	-0.078 (0.418)
<i>Change in characteristics of Muslim immigrants by state 2000–10</i>							
State level education characteristics of Muslim immigrants							
Percent HS dropout	grad	Percent college					
0.162 (0.184)	-0.080 (0.093)						
State level percentage of Muslim immigrants by country of origin							
Egypt	Morocco	Iran	Iraq	Jordan	Syria	Turkey	
-0.088 (0.152)	-0.167 (0.561)	-0.112 (0.114)	-0.008 (0.391)	-0.545 (0.415)	-0.175 (0.256)	0.058 (0.167)	
Palestine	Afghanistan	Bangladesh	Pakistan	Indonesia	Other Arab		
0.060 (0.360)	0.137 (0.504)	-0.244 (0.255)	0.046 (0.118)	-0.174 (0.281)	0.265* (0.148)		

*Notes:* Robust standard errors appear in parentheses. Each coefficient comes from a separate regression where the change in the number of anti-Muslim hate crimes *per capita* by state from 2000–10 (as defined in the text, where 2000 refers to the period 1992–2000 and the 2010 period refers to 2001–8) is regressed on the 2000–10 change in state-level variable indicated in the Table above each coefficient. Number of observations in each regression is 100, as the regression was performed with a panel data set of states with state fixed-effects and year effects. Regressions are weighted by the state sample size of Muslim immigrants in 2000. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Hate crimes *per capita* for gays and Jews are created by dividing by the state population size in 2000.

Table 5  
*Relationship between Muslim Hate Crimes and Personal Characteristics of Immigrant Muslims*

Country of origin mean in year 2000 assigned to each respondent in each period (2000–10)					
	Intra-married	Number of children	Number of children less than age 5	English at home	Speak English well
	(1)	(2)	(3)	(4)	(5)
<i>2000–10 analysis with all immigrants and state fixed-effects</i>					
Males					
Muslim hate crimes PC	0.051 (0.057)	0.308 (0.192)	0.096 (0.089)	-0.019 (0.031)	-0.050 (0.077)
Sample size	20,422	20,422	20,422	20,422	20,422
Females					
Muslim hate crimes PC	-0.125 (0.101)	0.218 (0.328)	0.069 (0.070)	0.007 (0.034)	0.136* (0.068)
Sample size	17,108	17,108	17,108	17,108	17,108
<i>2007–10 analysis with immigrants arriving after 2001</i>					
Males					
Muslim hate crimes PC	-0.131 (0.130)	0.538* (0.308)	0.192 (0.118)	0.007 (0.070)	-0.053 (0.202)
Sample size	3,019	3,019	3,019	3,019	3,019
Females					
Muslim hate crimes PC	-0.241 (0.209)	0.885 (0.897)	0.273* (0.159)	0.011 (0.054)	0.188 (0.195)
Sample size	3,014	3,014	3,014	3,014	3,014

*Notes:* Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \* \*\* or \*\*\* which represent 10%, 5% and 1% levels respectively. In the upper panel, which uses data from 2000–10, the OLS regressions include as control variables: state fixed-effects, year fixed-effects, age, age-squared, and age-cubed. Using data from 2007–10 in the bottom panel, the OLS regressions include as control variables: year fixed-effects, age, age-squared, and age-cubed.

associated with a higher rate of assimilation for Muslim women (more likely to speak English well) – which is the opposite direction of our main findings.

The bottom panel performs a similar analysis focusing only on those immigrants that arrived after the 9/11 attacks. The results show that new immigrants did not settle down across states in a way that produced a correlation between hate crimes and country of origin. Therefore, there is no evidence that new immigrants, with observable tendencies to assimilate less, settled down in states with a higher intensity of hate crimes against Muslims.

To summarise, the backlash against Muslims after the 9/11 attacks was larger in states which tended to be less familiar with immigrants (i.e. a higher share of native born residents) and already had a history of abundant hate crimes against minorities (Blacks and Muslims). However, we present several arguments in favour of our identifying assumption that local hate crimes against Muslims after 9/11 were not correlated with unobserved factors which affected the assimilation rate of Muslims in the aftermath of the attacks. First, we showed that hate crimes against Muslims after 9/11 were not associated with the pre-existing levels or trends in the demographic and assimilation characteristics of Muslims before the attacks (Figures 3–17, Tables 2–4). Second, Table 5 demonstrates that local hate crimes were not higher in states that were increasingly populated by the type of Muslim immigrants (according to their country of origin) which tend to be less assimilated. Further support for our identifying assumption is provided later when we show the robustness of the results across different assimilation outcomes, and also to the inclusion or exclusion of a vast array of personal and state-level control variables. In addition, we perform a placebo analysis on other groups (older Muslims and members of other ethnic groups) which should not be affected by the anti-Muslim backlash after 2001. Finally, it is important to note that the 9/11 attacks were a total surprise, which resulted in a sudden and unexpected surge in anti-Muslim hate crimes. The extent of this backlash was correlated with pre-existing factors which made the non-Muslim community more prone to commit hate crimes but was uncorrelated with the trend or level of any characteristic or behaviour that is associated with the assimilation rate of the local Muslim community.

Taken as a whole, these results suggest that it is safe to regard the backlash against Muslims in the wake of the 9/11 attacks as an exogenous surge in anti-Muslim sentiment, with variation across states that can be exploited to examine whether the backlash affected the assimilation rate of local Muslim immigrants.

#### 4. The Effect of Anti-Muslim Hate Crimes on Intra-marriage Rates

We now analyse the effect of anti-Muslim hate crimes on our main assimilation outcome variable: being ‘intra-married’ in the sense of marrying someone with a similar background from a Muslim country. Table 6 presents the main results for immigrant Muslim men, while Table 7 presents a similar analysis for immigrant Muslim women. In the first column of both Tables, the ‘intra-marriage’ status of each individual is regressed only on Muslim hate crimes *per capita* and dummy variables for each sample year, with the reported coefficients representing the marginal effects evaluated at the means from a probit analysis. For both men and women, the intra-



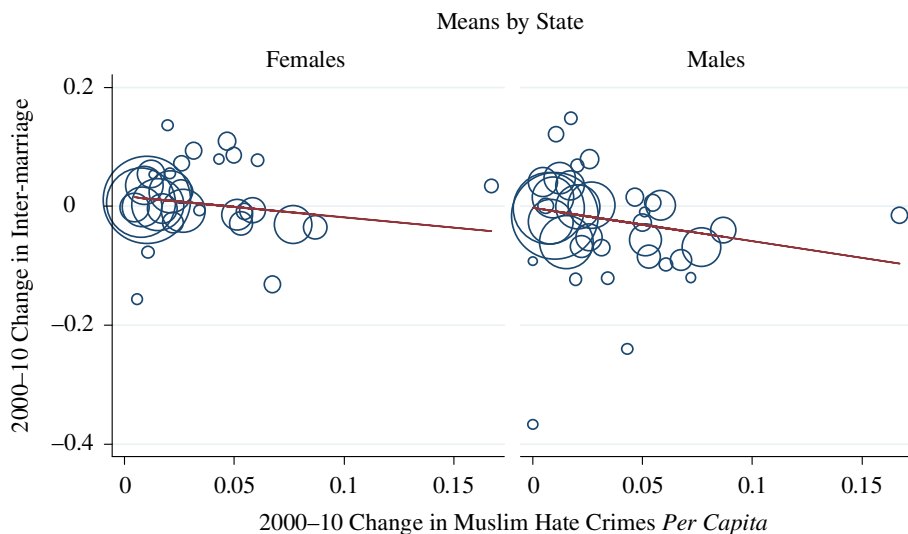


Fig. 6. State Analysis of Inter-marriage, 2000–10

Notes. Female slope =  $-0.352$  (t-stat =  $-1.35$ ); Male slope =  $-0.562$  (t-stat =  $-1.98$ ). Regressions are weighted by state sample size, represented by the size of each circle.

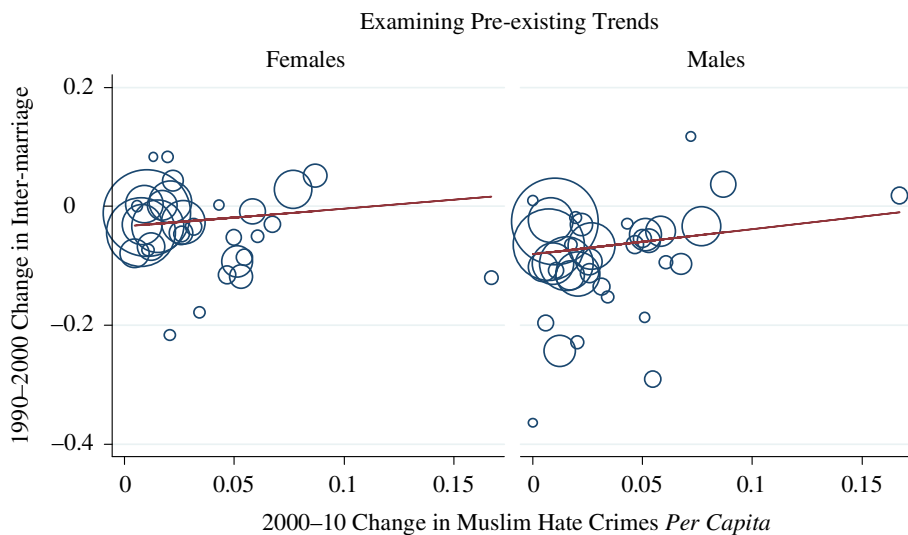


Fig. 7. State Analysis of Inter-marriage, 1990–2000

Notes. Female slope =  $0.300$  (t-stat =  $0.98$ ); Male slope =  $0.421$  (t-stat =  $1.20$ ). Regressions are weighted by state sample size, represented by the size of each circle.

marriage rate increases with the number of hate crimes against Muslims *per capita*, but is significant only for men. In the second column of each Table, ‘basic controls’ for personal characteristics (age, number of years in the US, education, country of origin fixed-effects) are added to the specification. The coefficients are virtually unchanged,

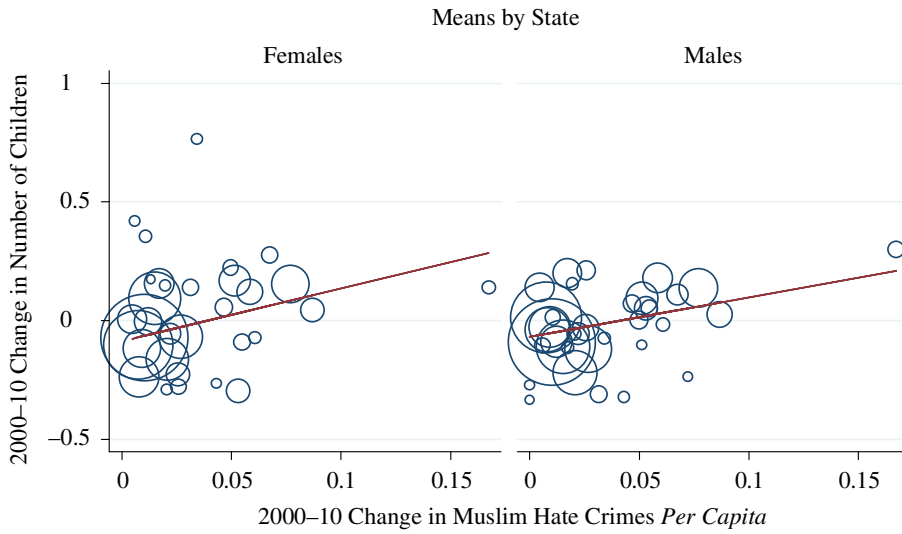


Fig. 8. State Analysis of Number of Children, 2000-10

Notes. Female slope = 2.226 (t-stat = 2.42); Male slope = 1.669 (t-stat = 2.67). Regressions are weighted by state sample size, represented by the size of each circle.

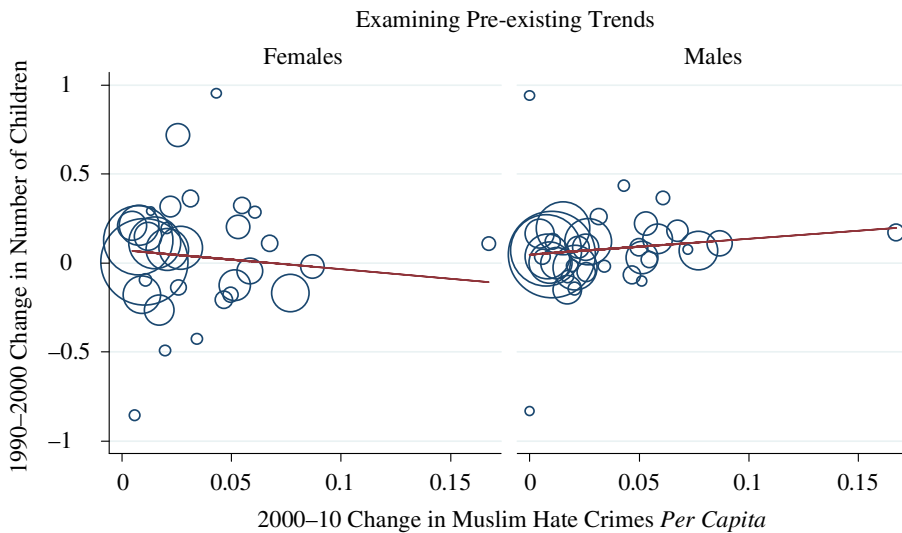


Fig. 9. State Analysis of Number of Children, 1990-2000

Notes. Female slope = -1.065 (t-stat = -0.90); Male slope = 0.882 (t-stat = 1.40). Regressions are weighted by state sample size, represented by the size of each circle.

although both are now very significant since the standard error for women became much smaller. State fixed-effects are added to the specification in the third column of Tables 6 and 7. Again, the coefficients for men and women remain statistically significant.

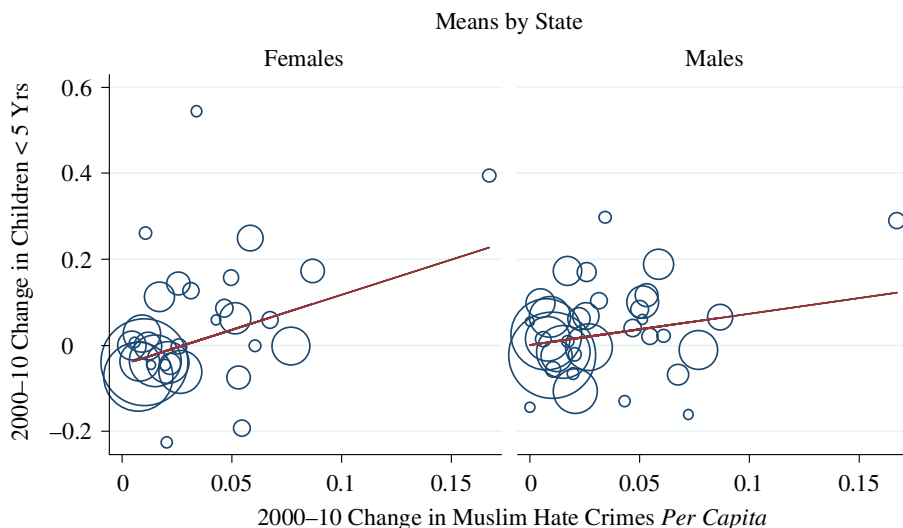


Fig. 10. State Analysis – Children Less Than Age 5, 2000–10

Notes. Female slope = 1.634 (t-stat = 2.95); Male slope = 0.725 (t-stat = 1.75). Regressions are weighted by state sample size, represented by the size of each circle.

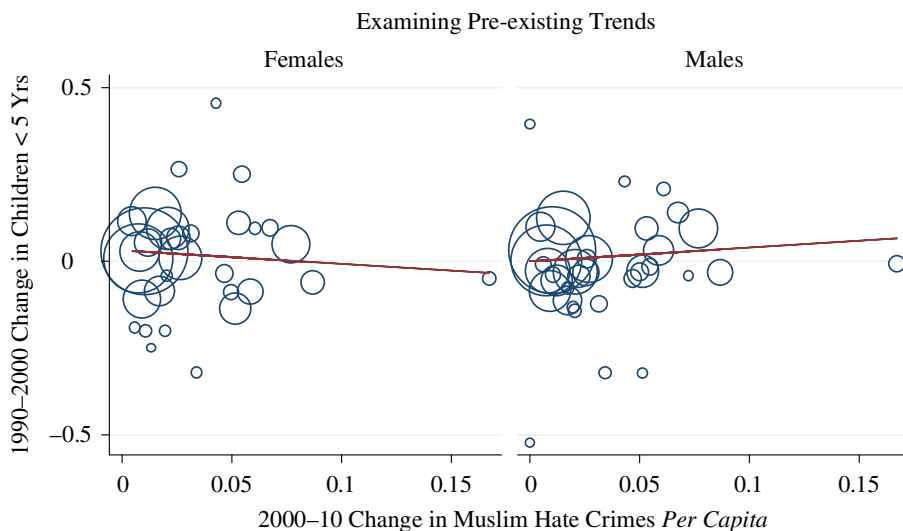


Fig. 11. State Analysis – Children Less Than Age 5, 1990–2000

Notes. Female slope = -0.390 (t-stat = -0.68); Male slope = 0.400 (t-stat = 0.81). Regressions are weighted by state sample size, represented by the size of each circle.

In the next column of both Tables, we examine whether the strong results for hate crimes against Muslims are simply capturing a more widespread atmosphere of animosity to minorities in general. To do this, we add the number of hate crimes against blacks *per capita* (normalising by the state-level size of the black population

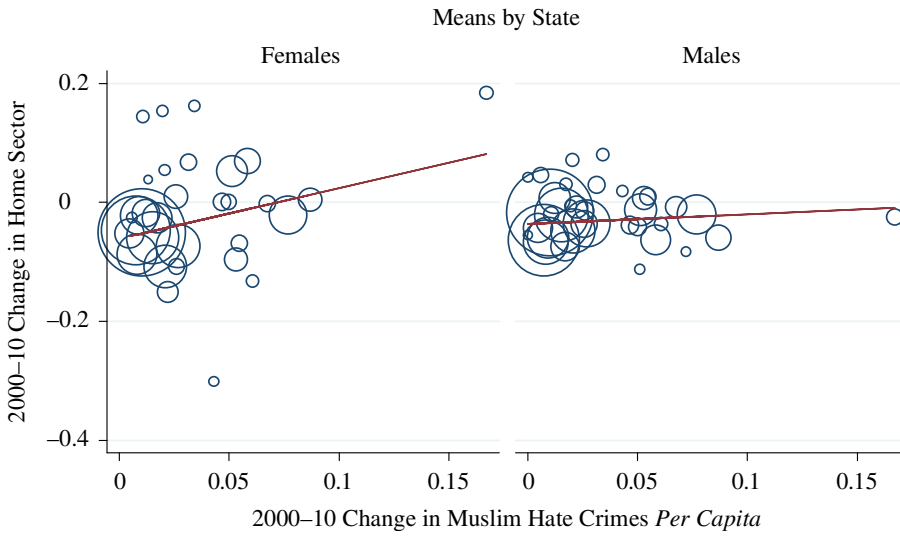


Fig. 12. *State Analysis of Being at Home, 2000–10*

Notes. Female slope = 0.855 (t-stat = 2.68); Male slope = 0.168 (t-stat = 0.93). Regressions are weighted by state sample size, represented by the size of each circle.

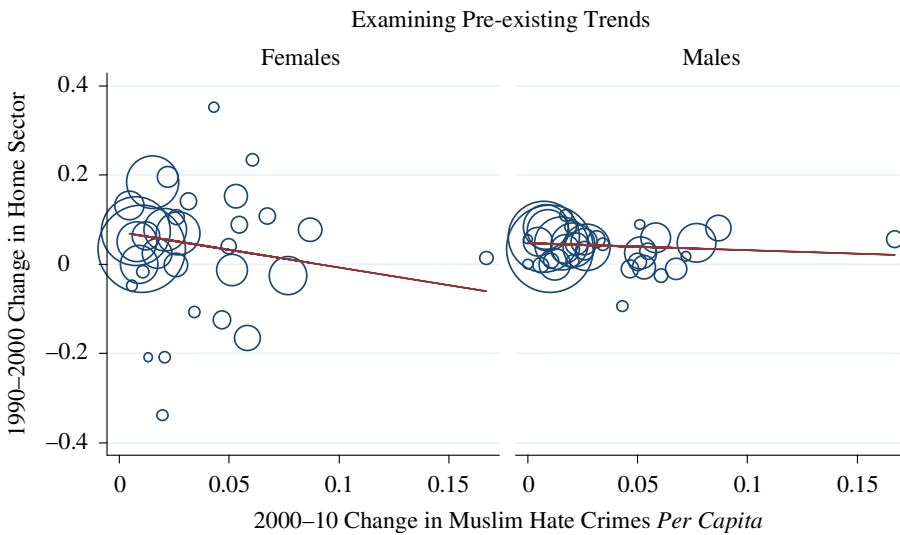


Fig. 13. *State Analysis of Being at Home, 1990–2000*

Notes. Female slope = -0.791 (t-stat = -1.68); Male slope = -0.155 (t-stat = -1.05). Regressions are weighted by state sample size, represented by the size of each circle.

according to the 2000 Census), and the log number of hate crimes against Jews and homosexuals (we cannot normalise by the size of the Jewish and homosexual populations since this information does not exist). Although hate crimes against these groups are much more prevalent than anti-Muslim hate crimes, the estimated effects of

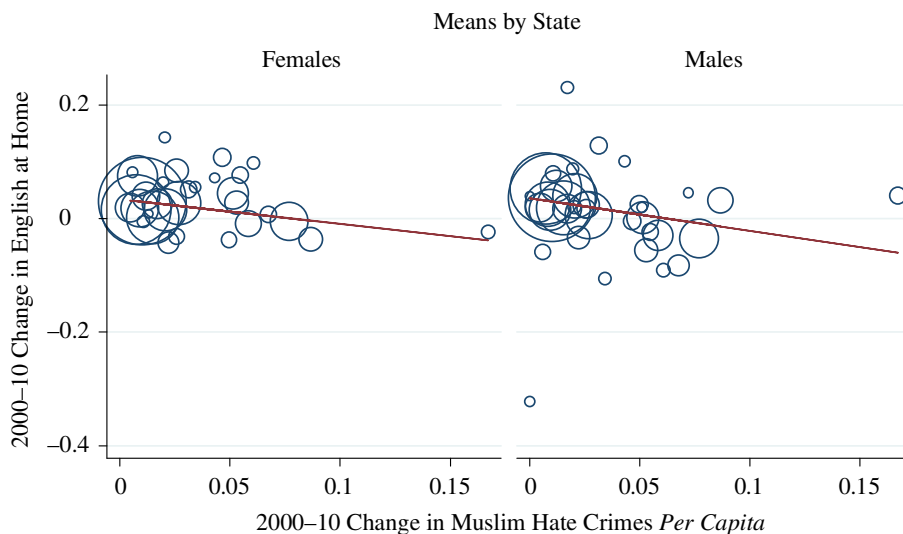


Fig. 14. *State Analysis of English at Home, 2000–10*

Notes. Female slope =  $-0.434$  (t-stat =  $-2.15$ ); Male slope =  $-0.578$  (t-stat =  $-2.58$ ). Regressions are weighted by state sample size, represented by the size of each circle.

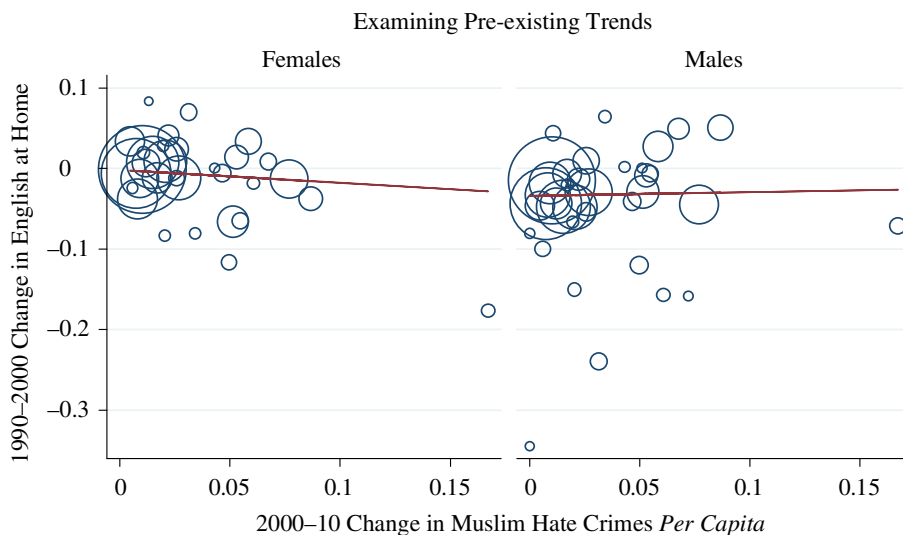


Fig. 15. *State Analysis of English at Home, 1990–2000*

Notes. Female slope =  $-0.159$  (t-stat =  $-0.68$ ); Male slope =  $0.048$  (t-stat =  $0.19$ ). Regressions are weighted by state sample size, represented by the size of each circle.

anti-Muslim hate crimes on the rate of intra-marriage become even larger after controlling for other types of hate crimes. These findings suggest that the intra-marriage rates of Muslim immigrants are responding very specifically to the level of animosity towards Muslims, regardless of the overall level of bigotry to other minorities which typically suffer much higher rates of hate crime.

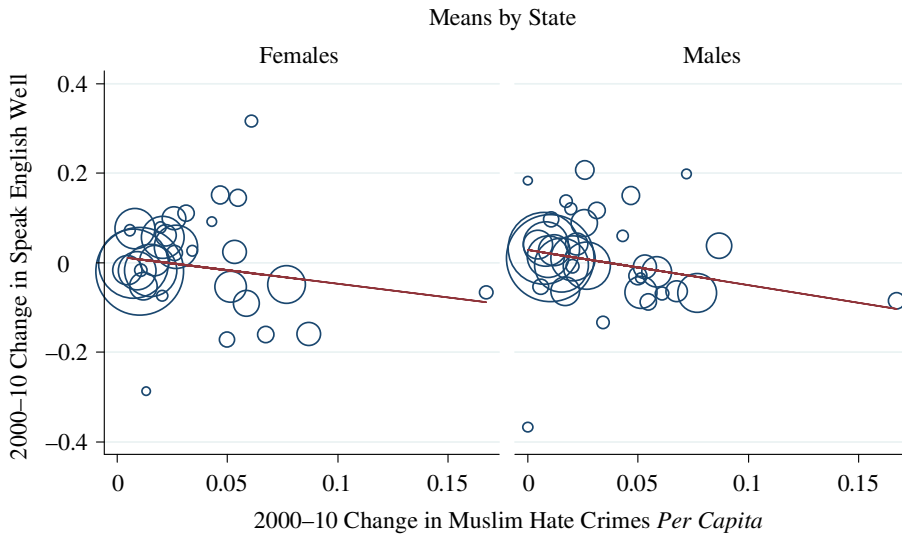


Fig. 16. State Analysis of Speak English Well, 2000-10

Notes. Female slope =  $-0.609$  (t-stat =  $-1.51$ ); Male slope =  $-0.782$  (t-stat =  $-2.65$ ). Regressions are weighted by state sample size, represented by the size of each circle.

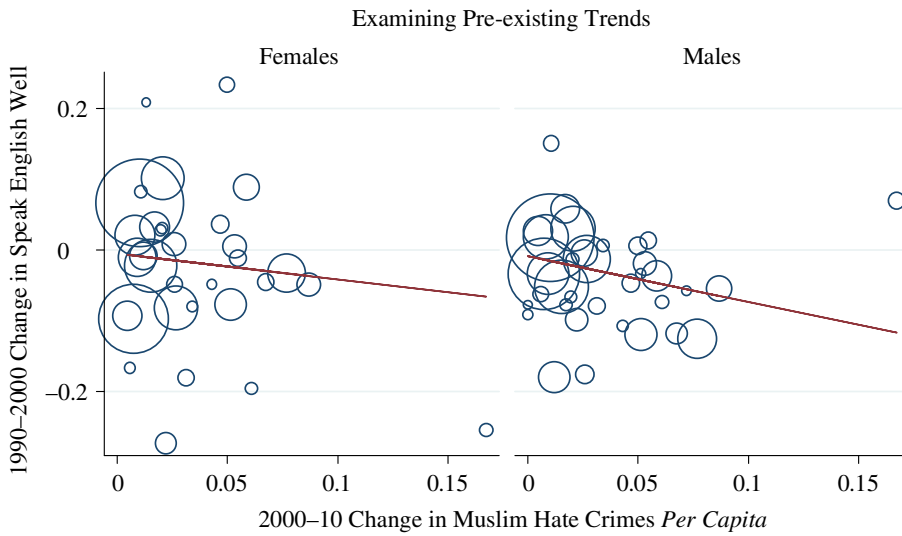


Fig. 17. State Analysis of Speak English Well, 1990-2000

Notes. Female slope =  $-0.361$  (t-stat =  $-0.65$ ); Male slope =  $-0.645$  (t-stat =  $-1.85$ ). Regressions are weighted by state sample size, represented by the size of each circle.

Since our main variable of interest, anti-Muslim hate crimes, varies at the state level for each time period, we now test whether the coefficient on this variable is robust to the inclusion of other variables which vary at the state-year level. These



variables include measures for the state-level marriage market conditions for Muslims (percentage of Muslims in the state and the percentage of males among Muslims in the state) and for state-year economic conditions (percentage of native-born females in the home sector, the unemployment rate of native-born men and the mean log wage for native-born men). In principle, these variables could be endogenous to the level of hate crime against Muslims, particularly the marriage market variables. However, in column 5 of Tables 6 and 7, the estimated effect of anti-Muslim hate crimes on the intra-marriage rate of men and women remains statistically significant and virtually of the same magnitude after including these additional state-year controls. It is worth noting that the gender composition of the local Muslim community is significant and displays the expected sign – a higher percentage of men *versus* women in the state decreases the likelihood that a Muslim male will intra-marry while increasing the chances for Muslim females to do the same. The fact that the intra-marriage rate is responding in expected ways to factors which should be relevant justifies the use of this measure as an accurate and meaningful assimilation outcome.

In column 6 of Tables 6 and 7, we use an alternative measure of anti-Muslim hate crimes which considers only the hate crimes that occurred before the 2001 attacks and those that occurred right after the attacks (only 2001 and 2002). In other words, we ignore anti-Muslim hate crimes that occurred after 2002, since it could be the case that hate crimes after 2002 were responding endogenously to changes in the local Muslim community's behaviour and characteristics, while the sudden burst of anti-Muslim activity after the 9/11 attacks was more of an unexpected, exogenous shock. Column 6 shows that the results are still very significant after discarding the hate crime information after 2002.

So far, the results show that anti-Muslim hate crimes led Muslim immigrant men and women to a less-assimilated marriage outcome and that these findings are robust to specifications which include very few controls or a vast array of personal and state-level characteristics. The robustness of the results to the inclusion of virtually any control variable provides support for the identifying assumption that anti-Muslim hate crimes are not correlated with an omitted variable which affects assimilation outcomes. The estimated coefficients are not only statistically significant and robust across different specifications but also substantial in magnitude. The average number of hate crimes *per capita* after 9/11 is equal to 0.028, which implies an increase in the intra-marriage rate of 2% for men and 4.3% for women, according to the coefficients in column 5. These numbers constitute a 6.4% and a 7.3% increase in the intra-marriage rate of Muslim men and women respectively, relative to their means in the 2000 Census (0.31 for men and 0.60 for women).

We now address whether these findings are due to Muslim immigrants simply getting married at younger ages, or whether they are choosing to marry within their community at the expense of marrying someone outside of their ethnic group. The last two columns of Tables 6 and 7 show very clearly that anti-Muslim hate crimes are significantly lowering the rate of marrying outside of the group (inter-marriage) for men and women, while increasing the chances of being married only for women. In particular, for an individual experiencing the mean rate of Muslim hate crimes after 9/11, the estimated coefficients imply a decrease of 8.3% and 13.1% in

Table 6  
*Marriage Patterns of Immigrant Muslim Men*

	Intra-married				Inter-married			Ever married	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Muslim hate crimes PC	0.684** (0.296)	0.642** (0.257)	0.688*** (0.214)	0.867*** (0.264)	0.697*** (0.240)	1.756*** (0.563)		-0.479** (0.232)	-0.075 (0.325)
Muslim hate crimes PC, 2001-2									
Lead Muslim hate crimes PC							0.300 (0.266)		
Age		0.295*** (0.065)	0.299*** (0.066)	0.299*** (0.066)	0.299*** (0.067)	0.298*** (0.067)	0.133** (0.061)	0.229*** (0.044)	0.241*** (0.048)
Age-squared		-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.002 (0.002)	-0.006*** (0.001)	-0.004*** (0.002)
Age cubed		0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)
Years in US		0.001 (0.002)	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.004 (0.003)	0.006*** (0.001)	0.009*** (0.003)
Years in US squared		-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)
High school graduate		-0.022* (0.013)	-0.022 (0.014)	-0.022 (0.014)	-0.023 (0.014)	-0.023 (0.014)	-0.017 (0.016)	0.062*** (0.017)	-0.003 (0.024)
Some college		-0.055*** (0.011)	-0.055*** (0.010)	-0.055*** (0.009)	-0.055*** (0.010)	-0.056*** (0.010)	-0.060*** (0.016)	0.113*** (0.019)	-0.021 (0.022)
College graduate		0.022** (0.011)	0.020* (0.011)	0.020* (0.011)	0.018 (0.011)	0.018 (0.011)	0.013 (0.014)	0.063*** (0.012)	-0.040 (0.026)
Black hate crimes PC				0.206 (0.190)	-0.046 (0.190)	-0.001 (0.172)		-0.363** (0.149)	-0.246 (0.224)
Log homosexual hate crimes				-0.049** (0.020)	-0.022 (0.018)	-0.021 (0.018)		0.012 (0.014)	0.015 (0.017)
Log Jewish hate crimes				0.023 (0.019)	0.007 (0.017)	0.009 (0.017)		-0.024 (0.023)	-0.036 (0.028)
State % male among Muslims				-0.739*** (0.113)	-0.748*** (0.113)	-0.748*** (0.114)		0.145* (0.084)	-0.504*** (0.112)

Table 6  
(Continued)

	Intra-married			Inter-married			Ever married			
	(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)
State % Muslim	2000-10 Yes	2000-10 Yes	2000-10 Yes	2000-10 Yes	-19.206*** (5.598)	-17.950*** (6.000)	1990-2000 Yes	2000-10 Yes	2000-10 Yes	-26.847*** (8.229)
State female % home (native-born)	No	Yes	Yes	Yes	-0.909 (0.718)	-1.037 (0.695)	Yes	Yes	Yes	-1.286 (0.874)
State Male Unemp. Rate (Native-born)	No	No	Yes	Yes	0.889** (0.425)	0.840** (0.398)	Yes	Yes	Yes	0.473 (0.447)
State male mean wage (native-born)	No	No	No	No	0.038 (0.174)	-0.040 (0.169)	Yes	Yes	Yes	-0.151 (0.194)
Years	2000-10	2000-10	2000-10	2000-10	2000-10	2000-10	1990-2000	2000-10	2000-10	2000-10
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Basic controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin fixed effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other state-year controls	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes
Observations	19,940	19,940	19,940	19,940	19,940	19,940	19,393	19,918	19,918	20,485

Notes. The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. The 'basic controls' include the personal characteristics added to the specification in column (2) relative to column (1), while the countries included in the 'country of origin' fixed-effects are listed in Appendix Table A1.

Table 7  
Marriage Patterns of Immigrant Muslim Women

	Intra-married									Inter-married		Ever married
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
Muslim hate crimes PC	0.532 (0.507)	0.511* (0.282)	1.235*** (0.264)	1.385*** (0.263)	1.543*** (0.282)						-0.462*** (0.173)	0.567** (0.288)
Muslim hate crimes PC, 2001-2						3.363*** (0.842)						
Lead muslim hate crimes PC							-0.838** (0.418)					
Age		0.482*** (0.088)	0.485*** (0.088)	0.488*** (0.089)	0.485*** (0.088)	0.486*** (0.088)	0.355*** (0.061)	0.098*** (0.036)			0.217*** (0.054)	
Age-squared		-0.012*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)	-0.008*** (0.002)	-0.002*** (0.001)			-0.004** (0.002)	
Age cubed		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)			0.000 (0.000)	
Years in US		-0.013*** (0.001)	-0.014*** (0.002)	-0.014*** (0.002)	-0.014*** (0.002)	-0.014*** (0.002)	-0.009*** (0.002)	0.003*** (0.001)			-0.009*** (0.001)	
Years in US squared		-0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)			0.000*** (0.000)	
High school graduate		-0.037** (0.017)	-0.038** (0.018)	-0.038** (0.018)	-0.038** (0.018)	-0.038** (0.018)	-0.026* (0.015)	0.047*** (0.018)			-0.010 (0.014)	
Some college		-0.160*** (0.017)	-0.158*** (0.016)	-0.158*** (0.017)	-0.158*** (0.017)	-0.158*** (0.017)	-0.150*** (0.015)	0.075*** (0.018)			-0.107*** (0.020)	
College graduate		-0.193*** (0.013)	-0.189*** (0.012)	-0.189*** (0.012)	-0.189*** (0.012)	-0.190*** (0.013)	-0.172*** (0.016)	0.074*** (0.011)			-0.148*** (0.017)	
Black hate crimes PC				0.542* (0.285)	0.465 (0.285)	0.495* (0.287)		-0.242** (0.123)			0.271 (0.223)	
Log homosexual hate crimes				-0.015 (0.024)	-0.025 (0.022)	-0.019 (0.022)		0.011 (0.012)			0.025* (0.013)	
Log Jewish hate crimes				0.007 (0.023)	0.015 (0.024)	0.019 (0.026)		-0.011 (0.013)			-0.043** (0.017)	
State % male among Muslims				0.381*** (0.141)	0.350** (0.141)	0.350** (0.138)		-0.106* (0.061)			0.062 (0.115)	
State % Muslim				0.592 (9.604)	0.592 (9.604)	2.958 (9.720)		-13.243*** (3.810)			-12.332** (5.760)	

Table 7  
(Continued)

	Intra-married			Inter-married			Ever married		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
State female % home (native-born)	2000-10	2000-10	2000-10	2000-10	2000-10	2000-10	1990-2000	2000-10	2000-10
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State male unemp. rate (native-born)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State male mean wage (native-born)	No	No	No	No	Yes	Yes	No	Yes	Yes
	No	No	No	No	Yes	Yes	No	Yes	Yes
Years	16,749	16,749	16,749	16,749	16,749	16,749	13,393	16,741	17,156
Year fixed effects									
Basic controls									
Country of origin fixed effects									
State fixed effects									
Other state-year controls									
Observations									

Notes: The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. The 'basic controls' include the personal characteristics added to the specification in column (2) relative to column (1), while the countries included in the 'country of origin' fixed-effects are listed in Appendix Table A1.

the inter-marriage rate of men and women, relative to their respective means in 2000. Therefore, the increasing rate of intra-marriage for men is coming at the expense of a declining rate of inter-marriage, while the increasing rate of intra-marriage for women is coming from both the declining rate of inter-marriage and the increasing probability of being married. For both men and women, the results point to a striking phenomenon whereby immigrants from Muslim countries are increasing their ethnic identity in response to the backlash in the wake of the 9/11 attacks.

We now examine whether our main findings stem from a correlation between the state-level backlash against Muslims and state-level trends in unobserved factors which affect their assimilation rate. First, we perform a similar analysis with data from the pre-2001 period, and test whether the state-level backlash against Muslims after the 2001 attacks was correlated with changes in the intra-marriage rate before the attacks (between 1990 and 2000). This placebo analysis is presented in column 7 of Tables 6 and 7 where we estimate the effect of anti-Muslim hate crimes between 2000 and 2010 ('Lead Muslim Hate Crimes PC') on the intra-marriage outcomes between 1990 and 2000. A comparison between columns 3 and 7 of both Tables reveals that hate crimes against Muslims during the 2000–10 period are very significant and positive determinants of intra-marriage during the same period but are insignificant (for men) or significantly negative (for women) for intra-marriage during the pre-9/11 period between 1990 and 2000. Figures 3–7 show similar results for the state-level means in the intra-marriage and inter-marriage rates, but contain no other controls in the regression.

A further placebo analysis is presented in Table 8 for all Muslim immigrants and for only those that are married. A simple comparison of columns 1 and 7 shows that our main results tend to be stronger for men when the sample is restricted to married individuals but smaller in magnitude (still significant) for women because hate crimes had a much larger effect on the marriage rate for women *versus* men. In the second column for each group in Table 8, we exploit the idea that older Muslims are less able to respond to the sudden backlash after 9/11 in terms of intra-marriage, since they most likely already made their marriage decisions prior to the attacks. However, they are likely to be affected by unobserved determinants shaping the local trends in assimilation. Therefore, a second placebo strategy is to perform a similar analysis on Muslim immigrants who were most likely too old to respond to the 9/11 backlash in the marital outcome. In particular, the sample in the second column of Table 8 is restricted to Muslim immigrants who were older than 40 in the survey year. That is, the youngest people in this sample were 31 at the time of the attacks (those that are 41 in the 2010 ACS Survey).

Consistent with Figure 4, the results in Table 8 indicate that the intra-marriage rate for older Muslim immigrants was indeed unaffected by the state-level backlash against Muslims after 9/11. The differential results for those that were young enough to be affected by the backlash *versus* those that were older, provides further evidence that the changes in the local assimilation rate was a response to the backlash and not due to unobserved factors which should affect young and old alike. The remaining columns in Table 8 pool both samples together, and show that the differential effect is significant. In addition, using the older group as a control group within each state,

Table 8  
*Intra-marriage for Immigrant Muslims with Interactions with Age, 2000–10*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All men						Married men					
Muslim hate	0.688*** (0.214)	-0.055 (0.273)	0.864*** (0.163)		2.239*** (0.493)		1.156*** (0.345)	-0.186 (0.294)	0.824*** (0.169)		2.368*** (0.501)	
crimes PC			-0.986*** (0.307)	-0.980*** (0.297)					-0.823*** (0.263)	-0.834*** (0.253)		
Muslim hate crimes												
PC × above age 40					-0.045*** (0.013)	-0.045*** (0.013)						-0.047*** (0.014)
Muslim hate crimes PC × age 40												
Sample size	19,940	21,427	41,342	41,342	41,342	41,342	11,911	20,299	32,185	32,185	32,185	32,185
	All women						Married women					
Muslim hate	1.235*** (0.264)	0.124 (0.454)	0.823*** (0.235)		1.459*** (0.377)		0.806*** (0.251)	0.247 (0.434)	0.700*** (0.251)		1.377*** (0.390)	
crimes PC			-0.401 (0.265)	-0.408 (0.268)					-0.345* (0.179)	-0.361** (0.180)		
Muslim hate crimes												
PC × above age 40					-0.021** (0.010)	-0.021** (0.010)						-0.021*** (0.007)
Muslim hate crimes PC × age 40												
Sample size	16,749	13,932	30,615	30,615	30,615	30,615	13,078	13,354	26,366	26,366	26,366	26,366
Age ranges	20–40	41–70	20–70	20–70	20–70	20–70	20–40	41–70	20–70	20–70	20–70	20–70
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State specific time trends	No	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes

Notes: The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6, in addition to those indicated at the bottom of each column. State-specific time trends are defined as state fixed-effects interacted with period, where the first period is for 2000 and the second period is for the post-9/11 period (2006–10). The samples which include those above the age of 40 are restricted to those that are not widows.

Table 9  
*Intra-marriage for Muslim Immigrants by Subgroups, 2000–10*

	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Men						Women					
	Married men						Married women					
Muslim hate crimes PC	0.867*** (0.264)	0.601* (0.319)	0.553* (0.286)	0.894* (0.461)	1.023*** (0.218)	0.515 (0.540)	1.385*** (0.263)	0.897* (0.478)	1.898*** (0.433)	0.827*** (0.305)	1.650*** (0.381)	0.851*** (0.385)
Sample size	19,940	11,396	9,662	10,243	10,227	9,679	16,749	8,989	7,680	9,044	9,036	7,701
Muslim hate crimes PC	1.303*** (0.434)	0.974*** (0.423)	0.808 (0.521)	1.404* (0.727)	1.614*** (0.552)	0.962 (0.615)	0.835*** (0.256)	0.679* (0.403)	1.347** (0.551)	0.526* (0.273)	0.923** (0.394)	0.592** (0.234)
Sample size	11,911	7,495	4,737	7,162	5,636	6,258	13,078	6,909	4,903	8,140	7,116	5,944

Notes: The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors appear in parentheses, which are clustered by state. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6.



Table 8 shows that these patterns are significant after pooling both age groups together and controlling for state-specific time trends. This later specification is essentially a triple differences specification and the results demonstrate that the local backlash caused younger individuals to increase their intra-marriage rate relative to older Muslim immigrants in the same state. The last two columns show similar results but instead of using a somewhat arbitrary threshold age for being 'too old' to be affected, we simply interact the treatment variable (hate crimes) with the person's age. Again, the results show a significant positive effect of hate crimes on intra-marriage (even after controlling for state-specific time trends) but the effect weakens dramatically with age.

Along with Figures 3–7, Tables 6–8 show that the local backlash against Muslims in the wake of the 9/11 attacks was not correlated with any pre-existing tendency for local Muslims to become less assimilated over time and that hate crimes led younger Muslim immigrants to a less-assimilated outcome relative to older Muslims in the same state, even after controlling for a broad array of control variables and for the state-specific trends of all unobserved factors affecting the marriage decisions of both groups. These findings support a causal interpretation of our main results in Tables 6 and 7.

Table 9 examines whether the effect of the backlash on the intra-marriage rate varies across different segments of the Muslim immigrant population. Of notable interest is the robustness of the main results to the sample that includes only those immigrants who have been in the US for at least nine years – meaning that everyone in this sample was in the US before the 9/11 attacks in 2001. This finding once again demonstrates that our main results are not due to the placement of new immigrants across locations according to the local upsurge in hate crimes. The results are similar for those that arrived before or after the age of 20 and for different education groups (with or without a college degree) – although the effects appear to be stronger for the less educated immigrants (who tend to be more assimilated) than those with more education. Overall, the evidence indicates that the backlash against Muslims in the wake of the 9/11 attacks led all segments of the Muslim population to a less assimilated marriage outcome. The next Section examines whether these findings are robust to using other assimilation outcomes, which would lend further support to the causal interpretation of our intra-marriage results.

## **5. The Effect of Anti-Muslim Hate Crimes on other Assimilation Outcomes**

We now perform a similar analysis with other assimilation outcomes measured by the individual's fertility, labour market participation, and English proficiency. For each outcome, we first present results from a core specification, and then test the robustness of the results to the inclusion of additional control variables. We also examine whether our findings are possibly due to pre-existing state-specific trends.

Table 10 examines whether anti-Muslim hate crimes affected the fertility level of Muslim immigrants. Fertility is measured by the total number of children in the household, or alternatively, by the number of children less than five years of age. The

Table 10  
Effect of Hate Crimes on the Number of Children for Immigrant Muslims

	Men					Women				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Number of children					Number of children				
Muslim hate crimes PC	1.399** (0.546)	1.647** (0.641)	1.482** (0.603)			1.329** (0.643)	1.560** (0.567)	2.133*** (0.715)		
Muslim hate crimes PC, 2001-2				3.397** (1.269)					4.455** (2.105)	
Lead Muslim hate crimes PC					0.438 (0.492)					-0.492 (0.596)
	Number of children under age 5					Number of children under age 5				
Muslim hate crimes PC	0.678* (0.391)	0.722* (0.410)	0.821** (0.406)			1.157* (0.616)	1.075 (0.682)	1.441** (0.667)		
Muslim hate crimes PC, 2001-2				2.387** (0.908)					2.595 (1.899)	
Lead Muslim hate crimes PC					0.219 (0.446)					-0.201 (0.579)
Sample size	20,485	20,485	20,485	20,485	19,891	17,162	17,162	17,162	17,162	13,664
Years	2000-10	2000-10	2000-10	2000-10	1990-2000	2000-10	2000-10	2000-10	2000-10	1990-2000
Year and state FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other hate crimes	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
Other state-year controls	No	No	Yes	Yes	No	No	No	Yes	Yes	No

Notes: The reported coefficients are from OLS regressions. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6, in addition to those indicated at the bottom of each column. The 'other state-year' controls are those added to the specification in column (5) of Table 6: percentage male among those of Muslim origin, percentage of Muslim origin, percentage of females in the 'home' sector, male unemployment rate among natives, male mean wage among natives.

advantage of the latter measure is that we know that children under the age of five in the 2007–10 period were conceived after 2001 and, therefore, were the product of decisions taken in the aftermath of the attacks.

The first column for each group in Table 10 presents the core specification which includes individual controls and fixed-effects for each year and state.<sup>9</sup> Using either measure of fertility, the results show that anti-Muslim hate crimes led men and women to increase their fertility. The results are a bit stronger when other hate crimes (against blacks, Jews and homosexuals) and other state-year controls (related to the marriage market and economic conditions) are added to the specification in the second and third columns for both men and women. The estimated coefficients imply that the number of children in a Muslim household increased by 5.7% and by 4.5% for males and females, respectively, as a consequence of the mean level of hate crimes against Muslims in the aftermath of 9/11. If we measure the anti-Muslim backlash by the unexpected surge in hate crimes occurring right after the 9/11 attacks (i.e. anti-Muslim hate crimes in 2001–2 only), the results are still significant (columns 4 and 9 of Table 10).

The last column for both groups in Table 10 uses the sample prior to the 9/11 attacks (1990–2000) and shows very clearly that the surge in hate crimes against Muslims after 9/11 was not correlated with pre-existing state-level trends in fertility rates. These findings are illustrated very simply (without any additional control variables) in Figures 8–11, which show that hate crimes against Muslims from 2000–10 are strongly correlated with the changes in fertility during the 2000–10 period but uncorrelated with fertility in the previous period from 1990–2000.

Since the previous Section showed that hate crimes against Muslims affected marriage patterns, it is natural to wonder whether the fertility results are coming indirectly from changes in the propensity to get married. Table 11 investigates this issue and also presents results for different segments of the Muslim immigrant population. In general, the results are stronger for married men *versus* all men but the reverse pattern holds for women. These findings are consistent with our previous results that anti-Muslim hate crimes affected the marriage rate for women but not for men, so the indirect channel of affecting fertility through the marriage rate should be larger for women *versus* men. Furthermore, Table 11 displays similar results, although not always significant, across a broad spectrum of the Muslim immigrant population according to their education, when they arrived in the US, and whether they were in the US at the time of the 9/11 attacks.

Overall, the unexpected increase in hate crimes against Muslims after the 9/11 attacks appears to have made the Muslim community more insular in terms of increasing the rate of intra-marriage, while at the same reinforcing traditional customs by increasing their fertility and subsequent demographic strength.<sup>10</sup> Once again, these

<sup>9</sup> The core specification is detailed in column 3 of Tables 6 and 7.

<sup>10</sup> These results are consistent with an increasing preference by US Muslim immigrants for having children that religiously identify with Islam. Bisin *et al.* (2004) label this the ‘relative intolerance’ parameter. Their dynamic analysis shows that small changes in this parameter have substantial and long lasting effects on the religious composition of the population.

Table 11  
*Effect of Hate Crimes on the Number of Children for Muslim Immigrants by Subgroups, 2000–10*

	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variable: number of children												
	Men						Women					
Muslim hate crimes PC	1.647**	1.298	0.792	2.035**	1.147	1.958**	1.560***	3.779***	3.180***	0.533	1.207	2.157**
Sample size	(0.641)	(0.873)	(0.637)	(0.817)	(0.971)	(0.837)	(0.567)	(1.075)	(0.911)	(0.812)	(0.773)	(0.847)
	20,485	11,714	9,937	10,548	10,581	9,904	17,162	9,178	7,894	9,268	9,318	7,844
Dependent variable: number of children under age 5												
	Men						Women					
Muslim hate crimes PC	2.415**	2.216**	1.354	2.880**	2.091	2.647**	0.983*	3.901***	2.940**	-0.379	0.835	1.535*
Sample size	(0.990)	(1.076)	(1.014)	(1.301)	(1.915)	(1.065)	(0.497)	(1.186)	(1.296)	(0.867)	(0.859)	(0.885)
	12,456	7,816	4,989	7,467	5,974	6,482	13,491	7,095	5,114	8,377	7,404	6,087
Dependent variable: number of children under age 5												
	Men						Women					
Muslim hate crimes PC	0.722*	0.886	0.491	0.812*	0.362	0.998	1.075	1.695**	1.711**	0.965	0.675	1.714**
Sample size	(0.410)	(0.737)	(0.577)	(0.466)	(0.461)	(0.665)	(0.682)	(0.804)	(0.821)	(0.620)	(0.980)	(0.656)
	20,485	11,714	9,937	10,548	10,581	9,904	17,162	9,178	7,894	9,268	9,318	7,844
Dependent variable: number of children under age 5												
	Men						Women					
Muslim hate crimes PC	1.150*	1.432	0.781	1.359**	0.815	1.527*	0.746	1.598**	1.153	0.673	0.278	1.384**
Sample size	(0.575)	(0.973)	(0.937)	(0.597)	(0.882)	(0.895)	(0.691)	(0.792)	(0.980)	(0.664)	(1.072)	(0.677)
	12,456	7,816	4,989	7,467	5,974	6,482	13,491	7,095	5,114	8,377	7,404	6,087

Notes: The reported coefficients are from OLS regressions. Standard errors, which are clustered by year, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6.

Table 12  
*Effect of Hate Crimes on Being in the Home Sector for Muslim Immigrants*

	(1)	(2)	(3)	(4)	(5)
<i>Men</i>					
Muslim hate crimes PC	0.149 (0.168)	0.131 (0.166)	0.031 (0.178)		
Muslim hate crimes PC, 2001–2				0.120 (0.511)	
Lead Muslim hate crimes PC					-0.288* (0.155)
Sample size	20,462	20,462	20,462	20,462	19,714
<i>Women</i>					
Muslim hate crimes PC	0.757** (0.360)	0.987** (0.405)	1.152*** (0.372)		
Muslim hate crimes PC, 2001–2				3.261*** (0.812)	
Lead Muslim hate crimes PC					-1.120*** (0.389)
Sample size	17,154	17,154	17,154	17,154	13,657
Years	2000–10	2000–10	2000–10	2000–10	1990–2000
Year and state FE	Yes	Yes	Yes	Yes	Yes
Other hate crimes	No	Yes	Yes	Yes	No
Other state-year controls	No	No	Yes	Yes	No

*Notes.* The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6, in addition to those indicated at the bottom of each column. The ‘other state-year’ controls are those added to the specification in column (5) of Table 6: percentage male among of those of Muslim origin, percentage with Muslim origin, percentage of females in the ‘home’ sector, male unemployment rate among natives, male mean wage among natives.

findings are robust to the inclusion or exclusion of a broad array of control variables, and the surge in hate crimes against Muslims did not occur in states which were already undergoing an increase in fertility.

Our next assimilation outcome is measured by being in the ‘home sector’, which is defined as a person who is not enrolled in school and not participating in the labour market. Table 12 shows that hate crimes against Muslims increased the probability that females stayed at home, with no effect on immigrant men from Muslim countries. The magnitude of the coefficient implies that the mean level of hate crimes in the wake of 9/11 increased the probability that Muslim women stayed at home by 7.6% relative to its mean in 2000. Furthermore, although the state-level of hate crimes against Muslims is positively related to the change in the ‘home sector’ for females in the aftermath of the 9/11 attacks, the state-level surge in anti-Muslim activity after 2001 was not positively correlated with pre-existing trends in the labour market behaviour of females (the correlation is actually negative in column 5 of Table 12). These results are robust to the inclusion of several control variables (see also Figures 12 and 13 for no controls) and are found across many segments of the female Muslim population (Table 13). The finding that anti-Muslim hate crimes led

Table 13  
*Being in the Home Sector for Muslim Immigrants by Subgroups, 2000–10*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad
			Men						Women			
Muslim hate crimes PC	0.131 (0.166)	0.142 (0.211)	-0.084 (0.206)	0.219 (0.267)	0.214 (0.241)	0.027 (0.243)	0.987** (0.405)	0.340 (0.626)	1.087** (0.535)	0.709 (0.447)	1.705*** (0.655)	0.047 (0.470)
Sample size	20,462	11,635	9,752	10,515	10,532	9,780	17,154	9,151	7,873	9,265	9,309	7,836
			Married men						Married women			
Muslim hate crimes PC	0.379** (0.159)	0.271* (0.161)	0.001 (0.223)	0.515* (0.265)	0.684*** (0.193)	-0.041 (0.247)	0.655* (0.397)	0.215 (0.646)	0.457 (0.664)	0.624 (0.451)	1.307** (0.646)	-0.227 (0.588)
Sample size	12,386	7,635	4,812	7,352	5,827	6,406	13,484	7,075	5,098	8,375	7,395	6,072

*Notes.* The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6.

Table 14  
Effect of Hate Crimes on English Proficiency for Immigrant Muslims

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Men					Women				
	Speak English at home					Speak English at home				
Muslim hate crimes PC	-0.526* (0.290)	-0.484 (0.301)	-0.356 (0.239)			-0.244* (0.125)	-0.361*** (0.139)	-0.407*** (0.148)		
Muslim hate crimes PC, 2001-2				-1.017** (0.486)					-0.810*** (0.274)	
Lead Muslim hate crimes PC					0.111 (0.175)					-0.189 (0.147)
Sample size	20,461	20,461	20,461	20,461	19,856	17,103	17,103	17,103	17,103	13,492
	Speak English well					Speak English well				
Muslim hate crimes PC	-0.730** (0.359)	-0.713* (0.385)	-0.933** (0.402)			-0.406 (0.309)	-0.622** (0.315)	-0.657* (0.373)		
Muslim hate crimes PC, 2001-2				-1.427* (0.790)					-1.177 (0.910)	
Lead Muslim hate crimes PC					0.153 (0.317)					-0.096 (0.465)
Sample size	20,485	20,485	20,485	20,485	19,883	17,154	17,154	17,154	17,154	13,644
Years	2000-10	2000-10	2000-10	2000-10	1990-2000	2000-10	2000-10	2000-10	2000-10	1990-2000
Year and state FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other hate crimes	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
Other state-year controls	No	No	Yes	Yes	No	No	No	Yes	Yes	No

Notes. The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6, in addition to those indicated at the bottom of each column. The 'other state-year' controls are those added to the specification in column (5) of Table 6; percentage male among those of Muslim origin, percentage with Muslim origin, percent females in the 'home' sector, male unemployment rate among natives, male mean wage among natives.

Table 15  
*Effect of Hate Crimes on the English Proficiency for Muslim Immigrants by Subgroups, 2000–10*

	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad	All immigrants	At least nine years in US	Arrived before age 20	Arrived after age 20	Not a college grad	College grad
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variable: Speak English at home												
	Men						Women					
	Married men						Married women					
Muslim hate crimes PC	-0.484 (0.301)	-0.622 (0.475)	-0.690** (0.289)	-0.308 (0.365)	-0.666** (0.325)	-0.298 (0.391)	-0.361*** (0.139)	-0.910*** (0.334)	-0.676** (0.296)	-0.171 (0.151)	-0.313* (0.168)	-0.338 (0.242)
Sample size	20,461	11,679	9,912	10,519	10,501	9,890	17,103	9,136	7,865	9,178	9,151	7,769
Muslim hate crimes PC	-0.586 (0.452)	-0.987 (0.638)	-1.197 (0.757)	-0.199 (0.399)	-0.554 (0.500)	-0.526 (0.540)	-0.423*** (0.144)	-0.908*** (0.292)	-0.889*** (0.262)	-0.174 (0.160)	-0.433** (0.195)	-0.429* (0.232)
Sample size	12,429	7,785	4,963	7,332	5,921	6,454	13,436	7,054	5,095	8,234	7,268	5,973
Dependent variable: Speak English well												
	Men						Women					
	Married men						Married women					
Muslim hate crimes PC	-0.713* (0.385)	-0.884** (0.388)	-0.931*** (0.221)	-0.212 (0.618)	-1.018** (0.473)	-0.351 (0.394)	-0.622*** (0.315)	-0.778** (0.395)	-1.311*** (0.349)	-0.045 (0.410)	-1.118** (0.538)	-0.099 (0.645)
Sample size	20,485	11,696	9,914	10,534	10,576	9,889	17,154	9,165	7,884	9,263	9,312	7,822
Muslim hate crimes PC	-0.452 (0.538)	-0.894 (0.564)	-0.810* (0.482)	0.030 (0.625)	-1.195** (0.503)	0.121 (0.546)	-0.730** (0.347)	-1.285** (0.526)	-1.891*** (0.444)	-0.192 (0.437)	-1.115** (0.563)	-0.306 (0.626)
Sample size	12,450	7,789	4,943	7,460	5,962	6,473	13,485	7,085	5,104	8,372	7,397	6,062

Notes: The reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\*, which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (3) of Table 6.



women, and not men, to be in the home sector, is consistent with a reinforcement of traditional gender roles, thus providing additional support for the idea that the backlash in the aftermath of 9/11 attacks intensified the ethnic identity of Muslim immigrants.

Our last assimilation outcome is based on the individual's level of English proficiency. The two measures of English proficiency are whether the respondent speaks English at home and whether the individual speaks English 'well'. An affirmative answer to either one is indicative of a more assimilated outcome. The results for both measures are presented in Table 14, while Figures 14–17 present a similar analysis without any additional controls. Comparing the first four columns for each group with the fifth column, Table 14 shows that anti-Muslim hate crimes decreased the use and proficiency of English for both men and women, and these patterns were not consistent with pre-existing trends before 2001. These findings are robust across both measures of English proficiency and to the inclusion of many controls. Table 15 shows that the results are similar across many segments of the Muslim immigrant community, including those that were in the US prior to the 9/11 attacks (at least nine years in the US). Overall, the findings for English proficiency are a bit weaker than previous outcomes in terms of statistical significance but are consistent with previous findings that the anti-Muslim backlash in the wake of the 9/11 attacks led to a more insular Muslim community.

## 6. The Assimilation Outcomes of Other Immigrant Groups

The analysis in the previous Sections shows that anti-Muslim hate crimes after 9/11 created a more closed, less-assimilated Muslim community of immigrants in the US. These findings are consistent across a variety of specifications, across men and women, and for several different assimilation outcomes. Even when we control for the level of hate crime activity against other often-persecuted groups, the analysis shows that Muslim immigrants are responding particularly to the hate crimes against their own group. As a further placebo analysis, this Section examines the assimilation outcomes of other immigrant groups to see if they are responding to anti-Muslim hate crimes in a similar way.

Table 16 presents estimates for the effect of anti-Muslim hate crimes on six assimilation outcomes for the following immigrant groups: Hispanics, Chinese, Japanese and Koreans. Our previous results for Muslim immigrants are also presented using the same specification for comparison purposes.

Consistent with a causal interpretation of our previous results, Table 16 shows that Muslim immigrants were the only group that became systematically less assimilated in response to the surge in anti-Muslim sentiment after 2001. For men and women, Muslim immigrants are responding in a significant way for each assimilation outcome towards a more insular and traditional way of life. For the other immigrant groups, most of the coefficients are not significant, and the ones that are significant often point to a more assimilated outcome. The group with the

Table 16  
*The Effect of Muslim Hate Crimes on the Assimilation Outcomes of Various Immigrant Groups, 2000-10*

	Men				Women							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Intra-married	Number of children	Number of children less than age 5	Home sector	Speak English at home	Speak English well	Intra-married	Number of children	Number of children less than age 5	Home sector	Speak English at home	Speak English well
<i>Muslims</i>												
Muslim hate crimes PC	0.867*** (0.264)	1.647*** (0.641)	0.722* (0.410)	0.131 (0.166)	-0.484 (0.301)	-0.713* (0.385)	1.385*** (0.263)	1.560*** (0.567)	1.075 (0.682)	0.987** (0.405)	-0.361*** (0.139)	-0.622*** (0.315)
Sample size	19,940	20,485	20,485	20,462	20,461	20,485	16,749	17,162	17,162	17,154	17,103	17,154
<i>Hispanic</i>												
Muslim hate crimes PC	0.192 (0.148)	0.679 (0.448)	0.097 (0.230)	0.522*** (0.130)	0.143 (0.108)	0.238 (0.238)	-0.013 (0.134)	0.173 (0.272)	0.014 (0.123)	0.272* (0.140)	0.111 (0.092)	0.020 (0.274)
Sample size	308,461	319,234	319,234	319,234	319,234	319,234	260,817	269,866	269,866	269,866	269,866	269,866
<i>Chinese</i>												
Muslim hate crimes PC	0.200 (0.278)	0.976** (0.390)	0.603*** (0.224)	0.284 (0.184)	-0.124 (0.129)	-0.081 (0.340)	-0.278 (0.310)	0.489 (0.651)	0.371 (0.246)	0.389** (0.189)	-0.133 (0.167)	0.106 (0.447)
Sample size	23,599	24,196	24,196	24,088	24,169	24,196	27,468	28,216	28,216	28,216	28,136	28,216
<i>Japanese</i>												
Muslim hate crimes PC	0.616 (0.410)	0.006 (0.763)	-0.498 (0.547)	-0.194 (0.323)	0.297 (0.383)	-0.697 (0.586)	-0.191 (0.336)	-0.392 (0.778)	-0.970* (0.520)	-0.582 (0.504)	-0.064 (0.304)	0.365 (0.567)
Sample size	4,035	4,147	4,147	3,863	4,120	4,121	6,394	6,678	6,678	6,672	6,677	6,670
<i>Korean</i>												
Muslim hate crimes PC	-0.600 (0.385)	0.461 (0.504)	-0.046 (0.361)	-0.069 (0.213)	0.396** (0.171)	0.965* (0.540)	0.127 (0.344)	0.779 (0.494)	0.453* (0.260)	0.501** (0.246)	0.301 (0.223)	0.225 (0.437)
Sample size	12,041	12,233	12,233	12,109	12,233	12,222	15,609	15,993	15,993	15,959	15,993	15,968

Notes. The reported coefficients from regressions using the number of children are from OLS regressions. In the other columns, the reported coefficients are the marginal effects from a probit, computed at the means of the independent variables. Standard errors, which are clustered by state, appear in parentheses. Significance levels are indicated by \*, \*\*, or \*\*\* which represent 10%, 5%, and 1% levels, respectively. Each regression includes the set of control variables in the core specification described in column (4) of Table 6.

most significant coefficients is the Koreans but two of the four significant coefficients are pointing to increased assimilation. While it is *a priori* conceivable that the assimilation behaviour of other immigrants could respond to the overall level of bigotry against their group or even other groups, the consistent pattern pointing to less assimilation is found only for Muslim immigrants. By showing that our findings for Muslim immigrants are not part of a general pattern found for other groups, the results in this Section support a casual interpretation of our previous findings showing less assimilation by Muslim immigrants in response to the unexpected surge in anti-Muslim sentiment after the 2001 attacks.

## 7. Conclusions

Our analysis shows that the 9/11 attacks induced a backlash against the Muslim community which, in turn, increased the ethnic identity and demographic strength of the Muslim immigrant community in the US. The results are not due to pre-existing trends in the assimilation outcomes of Muslim immigrants across states and are found to be robust to the inclusion or exclusion of a wide array of personal and state-level characteristics. Notably, we show that Muslim immigrants are reacting specifically to hate crimes against Muslims, after controlling for the level of hate crimes against other groups. Further support for a causal interpretation comes from our findings that other groups (Hispanics, Chinese, Japanese, Koreans, as well as Muslims who already made their marital decisions before the 9/11 attacks) did not respond in a similar way to the anti-Muslim backlash. In this manner, our analysis supports the idea that 9/11 may have a long-term political and socio-economic impact, by creating a larger and more ethnically cohesive Muslim community in this generation and also the next.<sup>11</sup> Our findings are consistent with the anecdotal evidence in the current literature which argues that the 9/11 attacks led to a galvanised and more observant Muslim community.<sup>12</sup>

Overall, our analysis highlights a new type of 'backlash' that has been ignored in the literature on political conflict. Existing models argue that extremist groups commit terror attacks with the goal of provoking a backlash in order to radicalise moderate supporters that reside in the same country as the perpetrators (Rosendorff and Sandler, 2004, 2010; Siqueira and Sandler, 2006; Bueno de

<sup>11</sup> While we show that hate crimes against Muslims lead to an increase in the demographic strength of the US Muslim community, Adida *et al.* (2011) show that Muslim demographic strength leads to more discrimination against Muslims. Hence, the combination of both results suggests the existence of a potential feedback loop between Muslim demographic strength and discrimination against Muslims that reinforces itself over time.

<sup>12</sup> Although Westerners tend to link a heightened Islamic identification with radicalisation and violence, there is no consistent and systematic evidence of such a link. For example, whereas Chen (2006) uncovers a strong relationship between Islamic religious intensity and social violence during the Indonesian financial crisis of 1997, Clingingsmith *et al.* (2009) find that participation in the Hajj among Pakistanis causes an increase on the observance of Islamic practices, together with an increase in more tolerant attitudes towards fellow Muslims and non-Muslims, and beliefs of harmony and peace among different religions. Similarly, Manning and Roy (2010) report that second generation Muslim immigrants to Britain tend to think of themselves as British almost as much as the white UK-born population.

Mesquita and Dickson, 2007; Baliga and Sjöström, 2012).<sup>13</sup> Despite differing mechanisms and modelling assumptions, most of these models analyse how the counter-terror response by the targeted country affects the local political support for the terrorist group and their aims, and the subsequent recruitment of members from the local population to commit terror attacks in the future.<sup>14</sup> The predictions of these models are consistent with the idea that Al Qaeda provoked the US to invade Afghanistan. Our findings, however, suggest that terror groups may try to provoke a backlash against their own ethnic or religious group in the targeted country, in order to halt the assimilation of Muslim adherents into Western society.

Although our analysis uses data from the US, our results are likely to be highly relevant for Europe for several reasons. First, the 9/11 attacks in the US produced a backlash against Muslims in several countries throughout Europe (Åslund and Rooth, 2005; Hanes and Machin, 2012; Schüller, 2012). Second, there were subsequent attacks by Al Qaeda on major European cities after the 9/11 attacks (Madrid in 2004 and London in 2005), which may have induced a further backlash. Third, Muslim immigrants in Europe tend to be less assimilated than other immigrant groups, even before the 9/11 attacks (Bisin *et al.*, 2008). In general, the assimilation of Muslim immigrants is a much larger public issue in Europe than in the US, most likely because of the larger scale of the immigration wave and perhaps due to the lower education levels of Muslims who migrated to Europe *versus* the US. Therefore, our findings shed new light on our understanding of the increasing use of terror attacks on Western countries, with the concurrent rise in social and political tensions surrounding the assimilation of Muslim immigrants in Europe and the US.

<sup>13</sup> In addition to a strategy of backlash, the related literature mentions a myriad of other goals behind a terror campaign. See, for example, the analyses of Lapan and Sandler (1993), Kydd and Walter (2002, 2006), Berman and Laitin (2005, 2008), Bloom (2005), Bueno de Mesquita (2005, 2013), Berrebi and Klor (2006), Benmelech and Berrebi (2007), Rohner and Frey (2007), Abadie and Gardeazabal (2008), Gould and Klor (2010), Becker and Rubinstein (2011) and Benmelech *et al.* (2012).

<sup>14</sup> The empirical evidence on the effectiveness of provoking a military response to gain political support at home is limited. Focusing on the Israeli-Palestinian conflict, Jaeger *et al.* (2012) show that Palestinian fatalities cause the short-run radicalisation of the Palestinian population but the effect is fleeting and disappears within ninety days. Jaeger *et al.* (2012) also show that more critical events of the conflict, like the occurrence of the first Palestinian uprising or the signing of the Oslo accords, do have a long lasting effect on Palestinians political attitudes, an effect that remains substantial even over 20 years after the event. For other empirical studies on the effects of terrorism and political violence on the political attitudes of the affected population, see Karol and Miguel (2007), Berrebi and Klor (2008), Gardeazabal (2010), Gould and Klor (2010), Montalvo (2011), Shayo and Zussman (2011) and Jaeger *et al.* (2015).

Table A1  
*Mean Characteristics and Outcomes by Country of Origin, 2000–10*

Country of ancestry	Number of observations, 2000–10	Intra-married	Inter-married	Ever married	Number of children	Number of children below age 5	Home sector men	Home sector women	Speak English at home	Speak English well	Years in US	Male	College grad	Muslim hate crimes PC
Afghan	1,516	0.473	0.061	0.638	1.137	0.427	0.096	0.356	0.057	0.621	13.822	0.490	0.242	0.013
Algerian	117	0.365	0.191	0.692	0.923	0.479	0.079	0.296	0.128	0.564	8.744	0.538	0.487	0.027
Arab	1,697	0.440	0.143	0.726	1.240	0.542	0.095	0.518	0.067	0.642	10.702	0.617	0.377	0.016
Arabic	2,443	0.436	0.146	0.726	1.325	0.588	0.114	0.532	0.067	0.567	10.620	0.602	0.300	0.019
Bangladeshi	2,631	0.570	0.049	0.742	0.956	0.396	0.078	0.466	0.045	0.470	8.701	0.506	0.454	0.011
Bengali	441	0.460	0.127	0.705	0.980	0.324	0.055	0.417	0.068	0.560	11.129	0.494	0.435	0.015
Egyptian	2,909	0.457	0.144	0.699	1.006	0.478	0.083	0.397	0.116	0.672	10.773	0.579	0.622	0.016
Indonesian	1,533	0.277	0.240	0.596	0.663	0.305	0.055	0.305	0.146	0.575	8.954	0.416	0.491	0.015
Iranian	6,349	0.363	0.140	0.606	0.671	0.286	0.067	0.241	0.107	0.761	14.506	0.499	0.578	0.011
Iraqi	1,065	0.433	0.098	0.628	1.139	0.462	0.158	0.437	0.059	0.481	9.232	0.553	0.266	0.030
Jordanian	1,050	0.522	0.144	0.768	1.358	0.625	0.080	0.527	0.071	0.706	11.221	0.581	0.428	0.015
Kashmiri	19	0.421	0.158	0.632	0.737	0.316	0.000	0.375	0.263	0.947	9.579	0.579	0.737	0.002
Middle Eastern	944	0.421	0.156	0.702	1.070	0.460	0.069	0.360	0.131	0.755	12.989	0.550	0.544	0.021
Moroccan	1,276	0.267	0.276	0.707	0.672	0.374	0.074	0.322	0.114	0.595	7.937	0.645	0.354	0.016
Other Arab	479	0.345	0.166	0.630	0.814	0.443	0.082	0.432	0.113	0.589	6.023	0.662	0.478	0.034
Pakistani	7,175	0.527	0.082	0.727	1.135	0.474	0.068	0.519	0.066	0.687	10.626	0.538	0.496	0.014
Palestinian	1,273	0.511	0.178	0.793	1.605	0.679	0.079	0.531	0.065	0.687	13.182	0.586	0.367	0.015
Syrian	1,074	0.485	0.152	0.740	1.253	0.533	0.089	0.518	0.088	0.656	11.710	0.525	0.424	0.014
Turkish	3,349	0.379	0.173	0.655	0.660	0.310	0.072	0.311	0.105	0.631	8.300	0.566	0.561	0.017
Yemeni	357	0.529	0.081	0.840	1.695	0.700	0.070	0.771	0.025	0.398	10.790	0.597	0.154	0.030

*Note.* The sample and data sources used for these calculations are described in Table 1.

Table A2

*Number of Hate Crimes Against Muslims by State after the Year 2000*

	Number of Muslims in 2000 Census	Hate crimes, 2001–8	Hate crimes in 2001–2	Hate crimes <i>per capita</i> (2001–8)	Hate crimes <i>per capita</i> (2001–2)
Wyoming	9	3	2	0.333	0.222
Minnesota	293	54	23	0.184	0.078
Vermont	14	2	2	0.143	0.143
Nebraska	91	12	4	0.132	0.044
Maine	46	6	1	0.130	0.022
New Hampshire	79	8	4	0.101	0.051
Montana	20	2	0	0.100	0.000
Arizona	599	59	29	0.098	0.048
Michigan	2,014	186	68	0.092	0.034
Idaho	56	5	5	0.089	0.089
Tennessee	385	30	12	0.078	0.031
Utah	137	10	6	0.073	0.044
Delaware	97	7	2	0.072	0.021
Ohio	1,129	78	48	0.069	0.043
Colorado	449	30	18	0.067	0.040
Kentucky	214	14	7	0.065	0.033
Missouri	347	21	15	0.061	0.043
Washington	715	40	21	0.056	0.029
Massachusetts	1,204	64	34	0.053	0.028
Oregon	381	20	9	0.052	0.024
North Dakota	20	1	0	0.050	0.000
Alaska	40	2	2	0.050	0.050
Kansas	209	10	1	0.048	0.005
South Carolina	176	7	2	0.040	0.011
New Jersey	3,291	124	66	0.038	0.020
Nevada	286	10	5	0.035	0.017
West Virginia	94	3	2	0.032	0.021
Wisconsin	254	8	6	0.031	0.024
Oklahoma	244	7	3	0.029	0.012
Indiana	386	11	6	0.028	0.016
Connecticut	495	14	9	0.028	0.018
North Carolina	584	15	9	0.026	0.015
Virginia	2,215	51	27	0.023	0.012
District of Columbia	174	4	1	0.023	0.006
Maryland	1,397	29	18	0.021	0.013
Texas	2,955	60	38	0.020	0.013
New Mexico	128	2	2	0.016	0.016
Rhode Island	202	3	2	0.015	0.010
Pennsylvania	1,155	17	10	0.015	0.009
Arkansas	75	1	0	0.013	0.000
Illinois	2,179	28	12	0.013	0.006
California	13,756	173	87	0.013	0.006
Louisiana	281	3	2	0.011	0.007
Iowa	109	1	0	0.009	0.000
Florida	2,586	23	13	0.009	0.005
New York	7,302	55	0	0.008	0.000
Alabama	169	1	0	0.006	0.000
Georgia	862	4	3	0.005	0.003
South Dakota	37	0	0	0.000	0.000
Mississippi	89	0	0	0.000	0.000
Hawaii	67	0	0	0.000	0.000

*Note.* Data sources used for these calculations are described in Table 1.

Table A3  
*Muslim Hate Crimes by Type of Crime in 2001*

	Number of reported offenses	Percent
Intimidation	257	53.43
Destruction/vandalism	116	24.12
Simple assault	57	11.85
Aggravated assault	21	4.37
Arson	16	3.33
Burglary	4	0.83
All other larceny	4	0.83
Robbery	2	0.42
Weapon law violations	2	0.42
Shoplifting	1	0.21
Motor theft	1	0.21
Total	481	100

*Note.* Hate crime data come from the FBI Uniform Crime Reporting (UCR) Program.

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### Data S1.

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