ESSAYS ON THE POST-9/11 LABOR MARKETS FOR "MUSLIMS" IN THE WEST – EVIDENCE FROM THE US AND THE UK

by

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ABSTRACT OF THE DISSERTATION

Essays on the Post-9/11 Labor Markets for “Muslims” in the West

– Evidence from the US and the UK

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Theories of both statistical and prejudiced discrimination predict adverse effects of terrorist events on workers who are demographically similar to terrorists. Using a difference-in-differences framework, this paper assesses the impact of the 9/11 attacks in the US and of the July 2005 bombings in Britain.

In the US, the outcomes worsened for those with nativity profiles closer to the terrorists’. The author finds a relative decrease in employment of very young (ages 16 to 25) target-group men associated with 9/11 in the US. A similar decrease in employment of these very young “Muslims” living in the UK is also found after 9/11 and again after the bombings in London in July 2005.

JEL Code: J1, J7

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Chapter 1

The Estimation of Labor Market Discrimination

Section I: Introduction

The 9/11 terrorist attacks in the US, the bombings in Madrid in March 2004 and the July 2005 London bombings generated animosity towards Arabs, Muslims and certain other minorities living in the West. These two events along with the other terrorist incidents have offered natural experiments in the labor markets of the US and the Western European countries. Exploring changes in the labor market outcomes of the above minorities associated with these events can make important contribution to social science and policy. The events present themselves as sudden shocks to labor-markets generating important data that relate to the study of labor-market discrimination. The role of government and its policy to protect minority groups adversely affected by a negative association with the terrorist acts of co-ethnics is also an important topic of concern. This empirical study of the effects of the two recent terrorist events on the economic wellbeing of certain minority groups may contribute to our understanding of discrimination and generate questions for future research. For example, findings in this dissertation shed new lights on which segments of the work force are affected due to terrorist events. These findings may open up the door for future research on identifying possible channels through which discrimination occurs due to this kind of external shocks generating policy implications as well as new thoughts on theories.

In section II of this chapter I outline the standard discrimination theories that predict relative deterioration of earnings and/or employment of immigrants from Muslim-majority countries in the US and the UK after the terrorist events. Then I develop a simple demand-side model to demonstrate the changes in labor market outcomes of these immigrant groups after their co-ethnics carry out a terrorist event. In section III the

method of the natural experiment used in my study is briefly outlined followed by literature related to this method. Section IV presents a survey of some previous empirical research on the effects of terrorist events on the labor market outcomes of certain minority group workers and section V has a few remarks.

Section II: A Theoretical Backdrop

The study of discrimination in labor markets flourished during the civil rights movement of 1960s and was facilitated by Becker's (1971) seminal model. The neoclassical theory of discrimination is almost entirely a demand-side theory. The supply side of the labor market is effectively neutralized by the assumption that minority and majority groups of workers have equal taste for work and have equal productivity. Although the effects of discrimination on minority workers' employment and earnings would depend on the elasticity of supply too, empirical evidence from various studies suggests that the elasticity of supply is relatively small and should have little effect on employment (Killingsworth, 1983). The demand side may be characterized by a competitive or monopolistic structure but has mainly been studied under the assumption of competitive market structures. There have been two broad definitional concepts of discrimination under "Prejudicial" versus "Statistical" or information-based models. Theories of statistical and prejudicial discrimination both predict that terrorist events can affect certain minority worker groups in the labor market. Statistical discrimination is rooted in information problems in the labor market where employer fears lower productivity (or higher cost) of a minority worker relative to the majority group's average productivity (or average cost). After a terrorist event, expected productivity of workers from certain

minority groups may decrease due to rise in interrogations, detentions and other acts by the law enforcement agents. Potential costs of hiring them may also increase due to increased paper-work requirements, work-place inspections, fees and possible penalties etc. These may cause a rational and unprejudiced employer to reduce hiring or wages of minority group members. Prejudicial discrimination on the other hand, stems from the employer's or customers' desire to be physically separated from the minority workers due to bigotry. A rise in animosity towards a minority group after a terrorist event may increase discrimination of this kind.

Theories of statistical discrimination emphasize wage-rate differentials as a source of compensation for risk when the process of screening the minority applicant is unreliable (Aigner and Cain, 1977; Phelps, 1972). In this case minority workers pay a risk premium, in terms of lower wages, to the unprejudiced employers. The post-9/11 anti-terrorism measures in the US increased work-place inspections by law-enforcement agents, detentions of "Muslim" workers and paper-work related hassles. These might have caused potential increase in employers' psychic or financial costs of hiring Muslim and Arab men. A simple prediction of statistical discrimination is that an "Islamic" terrorism would cause earnings and/or employment of Arabs and Muslims to decrease relative to other groups living in the affected country. If there has been statistical discrimination against Muslim workers after 9/11, they would receive lower earnings. If on the other hand, employers are not allowed to practice wage discrimination, "Muslim" workers' employment would decrease after 9/11 assuming an inelastic labor supply.

Prejudice or a discrimination taste against a minority group may cause employers, co-workers or customers to become non-cooperative towards them. According to theories

of aversion (Arrow, 1972; Becker, 1971), employers' prejudice may lower the wage rate and/or employment of some minority groups compared to the majority. According to Becker (1957), if an employer has a taste for discrimination, he would be willing to sacrifice some profit to be associated with one person instead of other. Even an unprejudiced employer may discriminate against a minority in response to customers' or other workers' prejudice. Prejudicial discrimination can be costly for an employer and therefore it may not sustain in the long run in a competitive market. However, if the labor market becomes less competitive due to recession or greater immigration etc, or if the discriminated group is very small relative to the majority, this cost of discrimination may be negligible. The economic recession in the USA more or less coincided with the 9/11 terrorist attacks. If economic agents became increasingly prejudiced against Arab and Muslim workers after 9/11, there would be some effects on their earnings and/or employment

In general the relationship between prejudice, employment and wage-gap is ambiguous. Both prejudicial and statistical motivations would often generate the same outcome (Han, 2001). Even in a competitive market some labor market discrimination can persist over time due to consumer prejudice (Nardinelli and Simon, 1990). For instance, Holzer et al. (1998) finds that the racial composition of a firm's customers has sizable effects on the race of who gets hired, particularly if the job involves direct contact with customers. Both in the US and the UK, immigrants from Muslim-majority countries are highly concentrated in sales occupation and Hotel/Restaurant industries where significant customer contact is inevitable.

Discrimination has been a dynamic and complex process in the changing demography and globalization. Theories are difficult to test as no single theory or empirical work can be fully relied on to assess causes and magnitude of discrimination in general. When it comes to estimating the effects of discrimination, experimental methods offer to potentially control not only for the effects of supply and demand factors, but also for psychological aspects of hiring behavior. Evidence suggests that social behaviors like attitude and stereotyping are not fully under our conscious control (Nosek et al., 2007). Unconscious or implicit attitude and stereotyping too, are being suggested to explain discrimination (Rooth, 2007), complementing, if not challenging the traditional concepts of taste-based or statistical discrimination.

The terrorist events in the recent years offer us some natural experiments on labor market discrimination. Credible evidence to support theoretical insights on discrimination especially on how social bigotry can translate into labor market discrimination and possible relations between racial and religious discrimination can be found from studies of this type.

A simple Demand-side Concept:

One way to conceptualize the analysis of this dissertation is to hypothesize that after a terrorist event, "Muslim" men become less employable and/or earned less at least in the short run than other men because of employer, employee, or customer discrimination (Becker 1971, Phelps 1972). This theory argues that short-run wage gaps between majority and minority workers can arise because of animosity towards them or a

fear of legal hassles of hiring from these groups. In either case demand for the minority workers would decrease. Consider the two panels in figure 1.

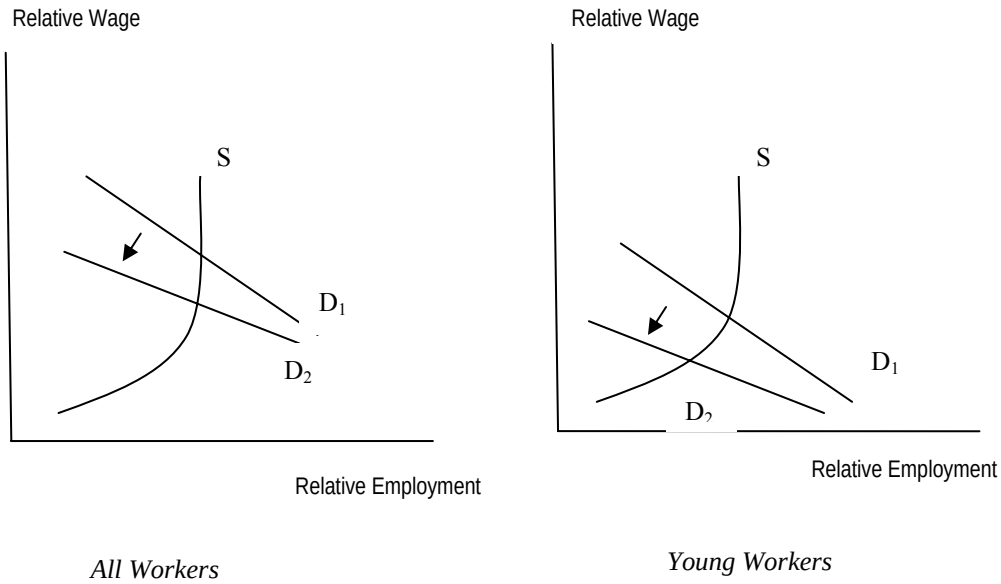

Figure 1: Effects of Decrease in Demand for Minority group Workers.

The horizontal axes show the Relative Employment Ratios and the vertical axes show relative wages of the minority groups compared to the majority group. A relative decrease in the demand (D_1 to D_2) due to a rise in discrimination against this ethnic or religious group can have different effects on different age-groups. Given the inelastic nature of the supply of the minority group overall, their average wages can fall relative to the majority group. Very young workers on the other hand are usually new entrants and lower-paid. Certain minority groups may differ from the mainstream population in terms of family supports and other cultural aspects affecting labor-supply behavior of their younger members differently than that of the majority group's younger members. An

unexpected change in wage can lead to a relative decrease in employment ratio for these groups due to a relatively bigger elasticity of supply. On the other hand, if the fear of younger "Muslims" is too high after a terrorist event due to continual terror alerts and anti-terrorism programs, and customers' bigotry, the demand can shrink in an erratic manner (not shown in the figure) even if supply is inelastic leading to a relative decrease in their employment.

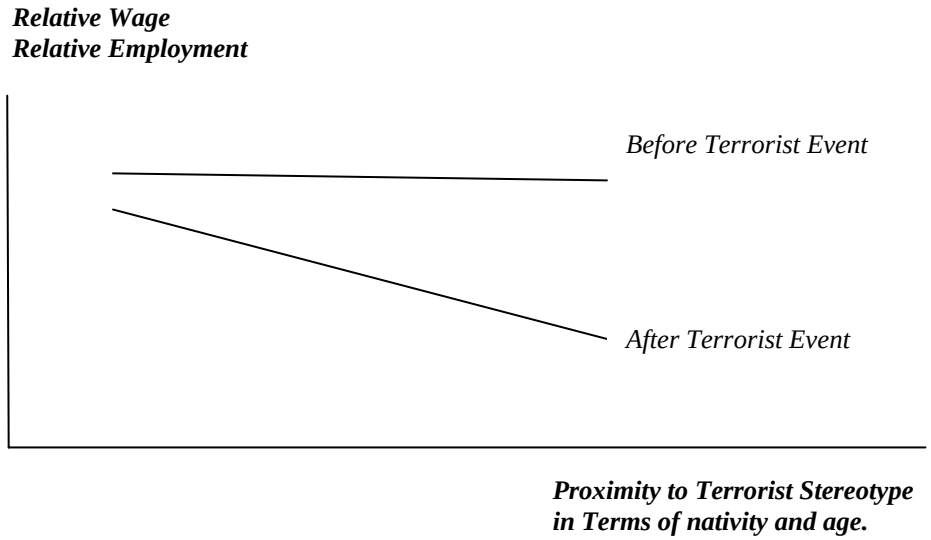

Figure 1: A simple discrimination Model

Figure 2 relates the intensity of adverse effects of a terrorist event on the earnings and employments of "Muslims" to their closeness to the terrorist stereotype. The relation curve shifts downward after the terrorist event as the wages and/or employment decrease for them. The curve also becomes downward-sloping showing bigger decrease in relative earnings and/or employment for men whose nativity profiles are closer to the terrorists and who are younger in age. The intensity the adverse effects could also be related in the

same fashion to the minority groups' visibility levels and geographical and occupational concentrations too.

Arguably, after the 9/11 events, the visibility of Arab American men increased, given the strong media attention targeted toward this group. Employers might have expected an increase in the frequency of government-sponsored workplace inspections (and employee detentions or deportations) following 9-11 if they hired workers with potential terrorist ties. To be compensated for the risk of facing such additional costs, firms might have tried to avoid hiring from particular demographic groups. While the conceptual explanations of the short-run impact of the 9-11 events predict lower earnings and employment of men from the Middle East region, it is not clear whether this effect would be uniform across regions or occupations. The information-based discrimination model predicts that Arab workers with fewer ties to their current employers would have larger wage declines than their "tenured" counterparts and the new entrants would find securing a job increasingly difficult after 9/11.

The prediction of the above theoretical concept about the economic wellbeing of "Muslims" in the post-9/11 labor markets totally depends on the assumption that sufficient level of prejudice and/or fear in fact occurred after 9/11. The following section provides some anecdotal evidence and surveys as a rough idea of the extent to which animosity and fear arose in the social spheres in the US and in the UK. Interestingly, some of the surveys below indicate that men with very young age profile become objects of suspicion and fear more frequently than older men after terrorist events.

III. Some Anecdotal Evidence of Post-9/11 Social and Economic Discrimination

Evidence from the US:

Evidence suggests that 9/11 generated animosity towards immigrants from Muslim-majority countries. Reports by the Council on American-Islamic Relations have found a 64% increase in discrimination complaints reported by the end of 2002 compared to pre-9/11 complaints. In 2003, reported discrimination jumped by another 70%. From 2003 to 2004 a 49% increase was reported.[1] As per labor-market discrimination, Muslim workers reportedly faced some difficulties after 9/11.[2] According to annual reports by CAIR (Council on Arab Islamic Relations), reported civil rights violations increased significantly after 9/11. About 18 to 26 percent of those reported violations occurred in the workplace.

A nationwide survey of 1,050 Muslim adults living in the United States carried out by the PEW research center (2007) finds 53% of all respondents agreeing that since the 9/11 attacks it had become more difficult to be a Muslim in the United States. Muslims reported discrimination, being perceived as terrorists, and stereotyping as the most important problems facing them. However, only 2% of the Muslims reported job/financial problems as their top worry. Interestingly, younger Muslims (ages 18-29) more frequently reported being the object of suspicion (32% in contrast to 22% of older Muslims). In a survey by Baker et al. (2004), the Arab Americans in Detroit listed the fight against negative stereotypes and misrepresentation as one of their community's most pressing needs. The survey interviews about 1,016 Arabs and Chaldeans (a Christian

[1] The increase in reported incidences may exaggerate the increase in actual incidents for two reasons. First, reporting might have increased because CAIR's online reporting system became more familiar to Muslims after 9/11. Second, CAIR counts all hate-crime and discrimination reports, verified and not-verified.

[2] According to US Equal Opportunity Commission (Washington, DC 20507) between 9/11/2001 and 12/11/2002, 705 charges were filed under Title VII with Process Type Z. - CAIR Annual Report 2002.

group from the Middle East) and 508 members of the general population in three counties of Detroit. About 15% of the respondents reported having had negative experiences after 9/11. These experiences included verbal insults, workplace discrimination, targeting by law enforcement etc.

The post-9/11 anti-terrorism programs enacted by the US government translated into a difficult legal environment for certain Arabs and Muslims in the US. As a response to the 9/11 terrorist attacks the executive branch of the U.S. government implemented a number of anti-terrorism programs. Some of the initiatives were targeted towards certain categories of non-citizens. Mass round-ups of predominantly Arab and Muslim immigrants started weeks after 9/11 and ended within two years. The Department of Homeland Security was founded in 2002. An executive order was signed allowing military tribunals against any foreigners suspected of having connections to terrorist acts, planned or implemented, on the United States. Other salient initiatives include the special registration program, [3] (initiated in November 2002 and abolished in December 2003); "voluntary" interviews (about 13,434 interviewees were placed in removal proceedings for visa violations); the Justice Department's efforts to involve local police in the enforcement of federal immigration law; and holding Muslim detainees without charge.

[3] On November 6, 2002, a Federal Register Notice was issued. “Call-In” Requirements for Special Registration for Males form specific countries. It was a system that would let the US government keep track of non-immigrants that come to the U.S. Any affected individual failing to follow these requirements was subject to lose his immigration status. Approximately 35 million non-immigrants were required to register with immigration authorities either at a port of entry or a designated immigration office in accordance with the special registration procedures. These special procedures also require additional in-person interviews at an immigration office and notifications to immigration authorities of changes of address, employment, or school. Non-immigrants who were to follow these special procedures would also have to use specially designated ports when they left USA and report in person to an immigration officer at the port on their departure date. Non-immigrant adult males from the following countries were called in for the program: Iran, Iraq, Libya, Sudan and Syria, Afghanistan, Algeria, Bahrain, Eritrea, Lebanon, Morocco, North Korea, Oman, Qatar, Somalia, Tunisia, United Arab Emirates, and Yemen, Pakistan, Saudi Arabia, Bangladesh, Egypt, Indonesia, Jordan and Kuwait.

Arab and Muslim organizations described these programs as detrimental to community relations and as generating feelings of anxiety and isolation.[4]

Evidence from the UK/Western Europe

A comprehensive record of the impacts of the terrorist events in Europe can be found in the reports from the European Monitoring Center on Racism and Xenophobia (EUMC) (May 2002, November 2005). Two points should be noted about the findings from these reports: First the sudden increase of adverse social effects of each terrorist event on "Muslims" started to dissipate within months. Second, 9/11 had a significantly greater impact in Europe than the July bombings did in terms of number of incidences of civil right violation. Response by the UK government, police forces, and local authorities were more positive and integrated after the July bombings than after 9/11.

It appears that in the UK, perceived discrimination existed prior to 9/11. The unrests in some northwestern English towns in the summer of 2001 are indicative of pre-existing disunity in British communities. There might have been pre-existing discrimination against Muslim immigrants due to the resilient nature of their religious identity, the slow pace of assimilation into the rest of the British society, and their lack of language and other soft skills. Shields and Price (2003) find that even after accounting for differences in job-related characteristics, across the various ethnic minority migrant groups, Pakistani and Bangladeshi migrants appear to be less successful in the labor market. This may be due to a lower demand by employers, and a lower scope for women to engage in the labor market for these migrant groups.

[4] Lawyers committee for human rights (www.lchr.org); September 2003 Report. "Assessing the New Normal: Liberty and Security of the Post-September 11 United States"

After 9/11, the anti-Islamic repercussions were felt in certain European countries, including Britain. The far-right British Nationalist Party launched an Islamophobic campaign even as mainstream politicians called for solidarity with Muslim communities and for the need to differentiate between Islam and terrorism. The local election results in 2003, and again in 2006, indicate that support for the British Nationalist Party, the far right political group, increased after 9/11.[5] Ameli et al. (2004) finds from a nationwide survey of 1200 Muslims in the UK that Muslim women used to report far greater discrimination than Muslim men (IHRC 1999, 2000) before 9/11. After 9/11, reported discrimination became almost equal for men (78%) and women (80%). The targeting of Muslim men by the police and security services appears to be factor in explaining this rise. About 80% of the employed Muslims reported incidences of discrimination in the workplace. Similar situations arose in the Netherlands and Denmark.[6]

A significant rise in attacks on Muslims was reported in a range of media in the immediate aftermath of 9/11. Sikh men as well as Muslims found themselves to be targets. *The Guardian* reported by mid-December 2001 that there had been about 300

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[5] BBC News, 5 May 2006, "BNP doubles number of councilors." Can be found here: http://news.bbc.co.uk/2/hi/uk_news/politics/4974870.stm
Similar evidence is found in Spain after the Madrid bombings. Montalvo (2006) finds from the pre- and post-Madrid bombing Congressional voting behavior in Spain that a terrorist attack can have a large impact on the outcome of democratic elections.

[6] In the Netherlands and Denmark, many Islamic websites were inundated with hate speech and the amount of anti-Muslim text messages increased dramatically after 9/11. A number of opinion polls confirmed that the Danish majority believed that 9/11 had made them become more negative towards Muslims, where the vast majority of the population felt that Muslims should be made to take lessons in Danish democratic values. Denmark had national elections coinciding with the aftermath of 9/11 and animosity towards Muslims seemed to be visible in the political sphere too. Changes in attitude towards Muslims and a resulting trend of hostility were identified in the Danish workplaces too. Series of opinion polls in the Netherlands indicate that a large part the population was in favor of the deportation of Muslims whilst others were keen to see asylum seekers from Muslim backgrounds being refused entry to the country. Another poll declared the Dutch population's belief that Islam presented them with a very real threat. The killing of the author of a documentary about Muslim immigrants by a Dutch-Moroccan (November 2004) Muslim added to the perceived danger.

reported civil right violations against Muslims.[7] At the end of September 2001, the *Times* stated, "This is a bad time to be Asian in Britain."[8] A large number of violations including verbal abuse, physical attacks, attacks at mosques, threats over telephone, Islamophobic statements over the Internet, and an incidence of rape were documented by the European Monitoring Centre on Racism and Xenophobia (EUMC).[9] After the start of the Iraq War, xenophobic incidents rose again and included the murder of three immigrants.[10] In Wales the *Western Mail* reported that racist incidents had increased by as much as three times since September 11th.[11] The number of such incidents rose again after the July bombings.

The July bombings stirred up serious concerns about "home-grown" terrorism and a new wave of animosity towards Muslims, Asians, asylum seekers and political refugees in the UK. The Metropolitan Police in London and some NGOs reported a sharp increase in hate crimes against British Muslims during the month after July 7, 2005.[12] Even though assaults against Muslims quickly subsided to the 2004 level, various sources reported that British Muslims continued to feel that they were under suspicion. Very

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[7] The Guardian, 08/12/01, "Britain has a proof record for it's treatment of Muslims"
[8] The Times, 27/09/01 "A bad time to be Asian in Britain"
[9] European Monitoring Centre on Racism and Xenophobia (EUMC), Anti Islamic Reactions in EU after Terrorist Acts Against the USA. A collection of Country Reports form RAXEN National Focal Points (NFPs) – 12th September to 31st December, 2001. http://eumc.europa.eu/eumc/index.php?fuseaction=content.dsp_cat_content&catid=3fb38ad3e22bb&contentid=3fb4f8d82d72a
[10] Raxen Focal Point For the UK"National Analytical Study of Racist Violence and Crime". Available at: http://eumc.europa.eu/eumc/material/pub/RAXEN/4/RV/CS-RV-NR-UK.pdf
[11] The Western Mail, Nov.01, 2001; "Racist attacks treble after September 11 atrocities."
[12] Two such NGOs collecting data on hate-crimes are:
The Institute of Race Relations (IRR). IRR news can be found here:
http://www.irr.org.uk/2005/july/ha000017.html
South East Wales Race Equality Council.
http://news.bbc.co.uk/2/hi/uk_news/wales/south_east/4704593.stm

recently British Intelligence has mentioned that the terror organizations have been intentionally and methodically targeting young men.[12]

Section II. Research Design and Related Literature

This paper studies three labor market outcomes: the employment-population ratio, usual hours worked per week and real weekly earnings. Central approach of this study is difference-in-differences (i.e., comparison group method). The difference-in-differences method is essentially a comparison of the change in outcome of an affected group (i.e. target group) to the change in outcome for an unaffected group (i.e. comparison group). The following table demonstrates the concept of the difference-in-differences of an outcome variable.

	After Event	Before Event	First Differences
Target Group	$\overline{Y}_{11}$	$\overline{Y}_{10}$	$\overline{Y}_{11} - \overline{Y}_{10}$
Comparison Group	$\overline{Y}_{01}$	$\overline{Y}_{00}$	$\overline{Y}_{01} - \overline{Y}_{00}$
Difference-in-differences			$(\overline{Y}_{11} - \overline{Y}_{10}) - (\overline{Y}_{01} - \overline{Y}_{00})$

The use of a comparison group helps to difference out the effects of unobserved and confounding factors that can be expected to affect the two groups equally. In this way, we can potentially isolate the net effect of an experiment on the target group's outcome. However, some concerns about the validity of the estimate of net effect may remain if other factors (e.g. laws and business cycles) affect the groups in different

[12] CNN; 5 November, 2007.

manners over time. For the difference-in-differences models in this research I attempt to control for these potentially different effect of business cycle across groups by interacting the business cycle variables with the target-group dummy. I use a pool of cross sections of "Muslims" and the comparison (i.e. Non-Muslim) groups. The specification used is as follows:

$$\begin{aligned} Y_{ist} &= \beta_0 + \beta_1 After_t + \beta_2 Muslim_{ist} + \beta_3 (After_t * Muslim_{ist}) + \beta_4 X_{ist} + \beta_5 (X_{ist} * Muslim_{ist}) \\ &+ \beta_6 Z_{st} + \beta_7 (Z_{st} * Muslim_{ist}) + \beta_8 Quarter + \beta_9 (Quarter_t * Muslim_{ist}) + \beta_{10} State_s \\ &+ \beta_{11} (State_s * Muslim_{ist}) + \beta_{12} Trend_t + \beta_{13} Trend_t * Muslim_{ist} + u_{ist} \end{aligned} \quad (1)$$

where Y_{ist} is the labor market outcome of person i in state s at time t. $After_t$ is a dummy variable with value one if the observation was taken from any month after a terrorist event (i.e., September 11th 2001 for the USA and Britain and July 7th 2005 for Britain), and zero otherwise. The term X_{ist} denotes a vector of individual characteristics that include potential experience, education, race, marital status, (the variable "presence of children" is not included in any models in this paper) length of stay in the US (or UK), citizenship status, and generation in the US (or UK). Z_{st} represents the state/regional unemployment rate and state per-capita income. $Quarter_t$ is the interview quarter (ranging from 1 to 4) to capture seasonality and $Trend_t$ is as a cubic function of time (starting from 1 for January 1999). A cubic time trend may be expected to approximate the unmeasured, time-varying influences.[13] *State* dummies were used to capture effects of location. The coefficient β_3 measures the difference-in-differences effect of a terrorist

[13] I follow Kaestner et al. (2004) specifications here. I find coefficients of the time-trend variables always negligible and statistically insignificant. Models with month dummy variables yielded similar results.

event on the labor market outcomes of "Muslims" in the case of OLS regressions. Note that as most of the effects are allowed to change by the *Muslim* dummy variable, equation 1 turns out to be a minimally restrictive specification of the model.

The keys to identifying the impact of terrorist attacks on labor market outcomes is the proper identification of target and comparison groups and to control for the fact that business cycle movements may affect the two groups differently. In particular, using multiple target and comparison groups is suggested (Meyer, 1994). Like in other disciplines, there are a significant number of empirical studies in economics on the effects of natural experiments on labor markets. Several very recent research works (discussed in the next section) have used 9/11 and other terrorist events as natural experiments on the labor market outcomes of Arabs and Muslims in some Western countries and most of them have used the difference-in-difference framework for their analyses.

Section IV: *A Survey of Previous Studies on the Adverse Effects of Recent Terrorist Events on "Muslims" in the West*

There have been three studies for the US and another three for the Europe that investigate the impact of the recent terrorist events on the economic wellbeing of certain minority groups. All of these studies consider the working age population (or a relatively younger segment of the working age population) of certain minority groups. The studies for the US find some relative adverse changes in earnings but no changes in employments of these groups associated with 9/11. The research for the UK however, finds no evidence

of deterioration of the chosen minority groups' earnings or employment attributable to any of the recent terrorist events. The studies are summarized below.

Using the Public Use Micro Data Samples from the American Community Survey, Dávila and Mora (2005) find that between the years 2000 and 2002 (2001 excluded), Arabs and Muslims experienced a significant decline in earnings as compared to non-Hispanic Whites (those who speak only English at home). Their interpretation is that the 9/11 attacks affected the labor market outcomes of the groups that most closely match the ethnicity of the terrorists. Their sample includes men between the ages of 25 and 40 who worked at least twenty hours per week and for thirty-two weeks or more in the survey year. Their target group includes men from Afghanistan, Pakistan, Iran and the Middle-eastern Arab countries. Using quantile regressions of earnings Dávila and Mora show that the difference in earnings between Muslims and non-Muslims widened for all deciles of earnings during 2002 relative to those of 2000. Their results from a Juhn-Murphy-Pierce decomposition reveal that the unexplained earning gap increased in 2002 for men from the Middle East. Unexpectedly, they find that the earnings situation improved for African Arab men compared to non-Hispanic Whites. Their study also indicates that the decrease in earnings for Muslims was bigger in states with larger Muslim populations (i.e. in states where "Muslims" are more noticeable). They find that earnings gap for Middle Eastern Arab men (relative to non-Hispanic Whites) widened by about 35 percentage points and for men from Afghanistan, Iran and Pakistan the gap rose by about 29 percentage points in 2002.

Using the CPS's Merged Outgoing Rotation Groups (MORG) files, Kaestner, Kaushal, and Reimers (2007) find that September 11th was not associated with a reduction in employment and hours worked of Arabs and Muslims. However, September 11th was associated with about a fourteen to sixteen percentage-point decline in the real wage and weekly earnings of Muslim and Arab men. Kaestner, Kaushal, and Reimers use MORG data files from January 1999 to December 2002 and restrict samples to men between the ages of 21 and 54. To make the groups geographically more similar, they took men from 20 states in which about 85% (about 2900 observations) of the "Arabs and Muslims" live. In their difference-in-differences analysis of labor market outcomes, they study the interaction of "Arab or Muslim" dummy and the "Post-9/11 months" dummy. They kept their model minimally restrictive by inter-acting the "Muslim" dummy with all other explanatory variables. They find that changes in occupation and industry account for some of the decrease in wages. They infer that the distribution of Arab and Muslim men by occupation and industry changed after 9/11 and that these changes adversely affected earnings of Arab and Muslim men. They also find decreased internal migration by Arabs and Muslims after 9/11. This is suggestive of a decrease in gain from mobility for them post-9/11. Finally, they find evidence that over time, the adverse impact of 9/11 became smaller.

Orrenius and Zavodny (2005) study the effect of 9/11 on earnings of male immigrants from Latin America aged 18 to 39 who have, at most, completed a high school education. They apply difference-in-difference estimation using Current Population Survey data sets. They find no effect on employment, but they do find about a

4 to 7 percentage-point decrease in hours worked and a 3 to 6 percentage-point drop in employment of the target group relative to Hispanic Natives.

Braakmann (2007 a) applies difference-in-differences using the British Labor force survey data to study the impact of 9/11, the beginning of the war in Iraq on March 20th, 2003, the Madrid train bombings on March 11, 2004 and the London bombings on July 7th, 2005 on the labor market outcomes of Arab and Muslim men age 16 to 64 living in the UK. The study finds the real wages, hours worked and employment probabilities of Arab men were unchanged by the terrorist attacks.

Braakmann (2007 b) studies the effects of 9/11 on the re-employment prospects of unemployed Arabs living in Germany. The study applies difference-in-differences analyses using a representative database of German working-age population and finds no change in employment prospects of Arabs in Germany.

Aslund and Rooth (2005) find from a longitudinal Swedish survey data that public attitude towards certain minorities clearly changed in Sweden after 9/11. However, analyzing detailed unemployment-exit data on the entire Swedish working-age population, they find no evidence of relative changes in the unemployment exit or entry of any of the eight Muslim-looking minority groups they construct on the basis of nativity. They infer that employers behave rationally and do not respond to changes in attitudes toward immigrants as a group. However, note that this study, like the study by Braakmann (2007 b), does not inquire into effects on earnings of the target groups.

Section V: *Remarks*

The theoretical concept of discrimination offered in chapter predicts that fear or animosity towards a minority group arising from a terrorist event may lead to increased labor market discrimination against that group. The picture that emerges from the anecdotal reports and surveys is consistent across countries in the sense that both 9/11 and the July bombings led to a sudden increase in fear and animosity the social sphere both in the US and in the Europe. However, the findings from the recent empirical research on the relation between terrorist events and labor-market discrimination provide a partial answer to the question of whether similar fear or animosity towards a group would lead to labor market discrimination. For instance, research shows 9/11 was associated with relative decrease in earnings of "Muslims" in the US but no such association between the July bombings and earnings of "Muslims" is found in the UK. This is counter intuitive because the concern over "home-grown" terrorism in the UK generated significant level of suspicion towards the "Muslim" minority living there. There are different possible channels to reconcile this anomaly: *First,* the US was the direct target of 9/11 attacks and the attacks occurred on a much larger scale than the others. Even in Europe the anti-Islamic repercussions felt after 9/11 appear to be more widespread than what they were after the July bombings. *Second,* unlike in the US, the institutional structures of Labor markets in some Western European countries often discourage firing employees. *Third,* unlike in the US, the employment- and earning-gaps have always been significant in the UK, even after controlling for job related characteristics (Shields and Price, 2003). This fact might have left narrower scope for further deterioration of "Muslims" condition in the UK. *Fourth,* the extent of anti-

terrorism measures taken by the US government was unmatchable, affecting the lives of thousands, if not millions, of Arab and Asian "Muslim" immigrants. There were in effect two simultaneous natural shocks on the US labor market for "Muslims": the 9/11attacks and the ensuing anti-terrorism measures targeting men from the "Special Registration" countries. Problem with the last explanation is that "Muslims" who were not targeted by the anti-terrorism programs in the US also experienced deterioration in labor-market outcomes.[14]

To reconcile the differences in findings on the effects of terrorist events across the two countries, this dissertation designs the analysis of the US- and the UK data according to the simple demand-side concept outlined above. Specifically, I analyze the labor market outcomes both by ethnicity groups and age-groups within the "Muslim" minority in each country. Given the age profile of the terrorists and the media coverage especially about the British youth, it is reasonable to hypothesize that the very young "Muslims" may experience stronger backlash after a terrorist event compared to their older counterpart. The findings in this study on the effects of the two recent terrorist events on the labor market outcomes of certain minority groups may contribute to advancement of our knowledge about how social animosity translates into labor market discrimination and in which segments of the workforce more significant discrimination may occur. According the theoretical concept, magnitude of labor market discrimination arising from 9/11 should vary across age groups as well as ethnicity groups after a terrorist event.

[14] The impact of anti-terrorism programs by the US government on the labor market outcomes of "Muslims" is unclear. The program did target mainly non-citizen "Muslims" and did lead to thousands of cases of deportations and visa rejections. However, for the immigrants who stayed in the US after 9/11, research (Kaestner et al. 2007, Rabby 2008) finds no evidence that the adverse effects of the event were more intense for the first generation- or the non-citizen "Muslims".

Furthermore, a difference in the levels of this discrimination arising in the US and the UK may relate to differences between the nature of the quasi-experiments that occurred in the US- and the UK labor markets. The quasi-experiments occurring in these two countries were in fact different because unlike the UK, the US labor market went through an additional shock of its government's antiterrorism programs generating significant possibility of statistical discrimination against certain minorities. These newer findings in this particular area of research may generate scope for future studies on identifying possible channels through which discrimination occurs, thereby generating policy implications as well as new thoughts on existing theories.

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Chapter 2

The Post-9/11 Labor Markets for "Muslims"* in the West – Evidence from the US and the UK†

by

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* Please see appendix IV for definition.

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I. INTRODUCTION

The 9/11 terrorist attacks in the US, the bombings in Madrid in March 2004, and the London bombings in July of 2005 (the bombings on 7th July and the attempted bombings on July 21st will be called the "July bombings" hereafter) generated animosity towards Arabs and Muslims living in the West. Did they lead to worse labor market outcomes of Muslims and similar minority groups ("Muslims" hereafter) that fit the Muslim stereotype? These events are exogenous shocks that could potentially change employers' attitudes towards Muslim and Muslim-looking workers. This study takes advantage of the natural experiments on labor markets offered by the two terrorist events. The findings on the labor-market effects of the two recent terrorist events for certain minority groups may contribute to the advancement of our knowledge of how social animosity translates into labor market discrimination and in which segments of the workforce more significant discrimination occurs. In particular, this study finds that the magnitude of labor market discrimination arising from 9/11 varied across age groups as well as ethnicity groups. Before proceeding to the empirical method, I outline the traditional theories on discrimination that predict adverse effects of these terrorist events on earnings and/or employment of workers who fit the Muslim or Arab stereotype.

Theories of both statistical and prejudicial discrimination predict that terrorist events can affect certain minority worker groups in the labor market. Statistical discrimination is rooted in information problems in the labor market where employer fears lower productivity (or higher cost) of a minority worker relative to the majority group's average productivity (or average cost). After a terrorist event, expected productivity of workers from certain minority groups may decrease due to increases in interrogations, detentions, and other acts by law enforcement agents. Potential costs of

hiring them may also increase due to increased paperwork requirements, fees, and possible penalties. These factors may cause a rational and unprejudiced employer to reduce hiring or wages of minority group members. Prejudicial discrimination, on the other hand, stems from the employer's or customers' desire to be physically separated from the minority workers due to bigotry. A rise in animosity towards a minority group after a terrorist event may increase discrimination of this kind.

Theories of statistical discrimination emphasize wage-rate differentials as a source of compensation for risk when the process of screening the minority applicant is unreliable (Aigner and Cain, 1977; Phelps, 1972). In this case, minority workers pay a risk-premium to the unprejudiced employers in the form of lower wages. If the perceived risk is sufficiently high, the employer might refrain from hiring the minority worker. The post-9/11 anti-terrorism measures in the US increased work-place inspections by law-enforcement agents, detentions of "Muslim" workers and paperwork related disturbances. These might have caused increase in the psychic or financial costs of hiring Muslim and Arab men. A simple prediction of statistical discrimination is that an "Islamic" act of terrorism would cause earnings and/or employment of Arabs and Muslims to decrease relative to other groups living in the affected country. If there has been statistical discrimination against "Muslim" workers, they will have received lower earnings. If, on the other hand, employers have not been allowed to practice wage discrimination, "Muslim" workers' employment will have decreased after 9/11.

Prejudice or a taste for discrimination against members of a minority group may cause employers, co-workers, or customers to become non-cooperative towards them. According to theories of aversion, employers' prejudice may lower the wage rate and/or

employment of minorities (Arrow, 1972; Becker, 1971). According to Becker (1957), if an employer has a taste for discrimination, he would be willing to sacrifice some profit to be associated with one person instead of another. Even an unprejudiced employer may discriminate against a minority in response to customers' or other workers' prejudice. Prejudicial discrimination can be costly for an employer and therefore it may not be sustainable in the long run in a competitive market. However, if the labor market becomes less competitive due to recession or increased immigration, for example, or if the discriminated group is very small relative to the majority, the cost of discrimination may be negligible. The economic recession in the US more or less coincided with the 9/11 terrorist attacks. Even in a competitive market some labor market discrimination can persist over time due to consumer prejudice (Nardinelli and Simon, 1990). If economic agents became increasingly prejudiced against Arab and Muslim workers after 9/11, there might be some effects on their earnings and/or employment.

Testing for discrimination in general is ambiguous. Both prejudicial and statistical motivations often generate the same outcome (Han, 2001), and if discrimination is prejudicial, it is difficult to identify whether its source is employers, co-workers, or consumers. There have been some studies that identify whether discrimination is due to employer prejudice or due to prejudiced employees/customers. For instance, Holzer et al. (1998) found that the racial composition of a firm's customers has sizable effects on the race of its employees, particularly if the job involves direct contact with customers.[1] It is to be noted that both in the US and the UK, immigrants from Muslim-majority countries are highly concentrated in sales occupation and Hotel/Restaurant industries where

[1] Bodvarsson and Patridge (2001) find evidence consistent with co-worker discrimination by white player and customer discrimination by non-white fans using data from National Basketball Association

significant customer contact is inevitable. Customer prejudice might have contributed to the adverse changes in employment and earnings of "Muslims." Another potential source of discrimination might be the legal changes in the US after 9/11. Neither 9/11 nor the July bombings led to any significant change in the legal and institutional environment in the UK.[2] In the US, however, the post-9/11 changes in the legal environment affected immigrants from all the special registration countries more or less equally.[3]

Anecdotal evidence suggests an increase in discrimination in the post-9/11 period in the US and in Britain. Reports by the Council on American-Islamic Relations (CAIR) have found a 64% increase in discrimination complaints reported by the end of 2002 compared to pre-9/11 complaints. In the following year the number of these reported discriminatory incidents jumped 70% and increased another 49% in 2004.[4] As per labor-market discrimination, Muslim workers also reportedly faced difficulties in workplaces

[2]The only change in British law after 9/11 was the adoption of the "Anti-Terrorism, Crime and Security Act 2001" (ATCSA). The ATCSA affects only those foreign nationals whom the British government can neither prosecute nor deport. The ATCSA addresses both the detention of foreign national terrorist suspects and the protections to which they are entitled. Citizens of the United Kingdom continue to be subject only to the 2000 Act (which prohibits indefinite detention, mandates due process protections for terrorist suspects). No legal changes were made after the July 2005 bombings.

[3] On November 6, 2002, a Federal Register Notice was issued. "Call-In" Requirements for Special Registration for Males form specific countries. It was a system that would let the US government keep track of non-immigrants that come to the U.S. Any affected individual failing to follow these requirements was subject to lose his immigration status. Approximately 35 million non-immigrants were required to register with immigration authorities either at a port of entry or a designated immigration office in accordance with the special registration procedures. These special procedures also require additional in-person interviews at an immigration office and notifications to immigration authorities of changes of address, employment, or school. Non-immigrants who were to follow these special procedures would also have to use specially designated ports when they left the US and report in person to an immigration officer at the port on their departure date. Non-immigrant adult males from 24 countries were called in for the program. Most of the requirements were revoked by the end of 2003. According to newspaper reports, over 130,000 male visitors, students, tourists, businessmen, or those on other temporary visas (predominantly Muslims) were interviewed between December 2002 and April 25, 2003. Of these, 10 percent have been given orders for deportation. Newspaper reports also indicate large scale fleeing of undocumented immigrants to Canada (Swarns and Drew, New York Times, April 25, 2003; Swarns, New York Times, June 9, 2003).

[4] The increase in reported incidences may exaggerate the increase in actual incidents for two reasons. First, reporting might have increased because CAIR's online reporting system became more familiar to Muslims after 9/11. Second, CAIR counts all hate-crime and discrimination reports, verified and not-verified.

after 9/11.[5] According to annual reports by CAIR, about 18 to 26 percent of the reported violations between 2001 and 2002 occurred in the place of work. A survey by Ameli et al. published by Islamic Human Rights Commission (UK), reported a sharp rise in discrimination against Muslims in the UK after 9/11. The Metropolitan Police in London and some NGOs[6] reported a sharp increase in hate crimes against British Muslims during the month after the July bombings. Even though assaults against Muslims went back to the 2004 level shortly, various sources reported that British Muslims continued to feel that they were under suspicion. The British intelligence has recently mentioned that the terror organizations have been intentionally and methodically targeting young men.[7]

This paper investigates the following questions. Did the labor market outcomes become worse for Muslims (i.e. immigrants from Muslim-majority countries) after 9/11? Have these effects been short-lived (i.e. did they dissipate by the year 2004)? Have the effects been similar across all age groups or have they been more evident for the younger members of the target groups? Have the impacts been greater on immigrants with nativity profiles closer to those of the terrorists? Have there been similar effects of the July bombings in the UK labor market?

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[5] According to US Equal Opportunity Commission (Washington, DC 20507) between 9/11/2001 and 12/11/2002, 705 charges were filed under Title VII with Process Type Z. - CAIR Annual Report 2002. In a survey by Baker et al. (2003), the Arab Americans in Detroit listed the fight against negative stereotypes and misrepresentation as one of their community's most pressing needs. After the US's 9/11 terrorist attacks, the anti-Islamic repercussion was felt in some European countries including Britain. The local election results in 2003 and then in 2006 indicated that support for the British Nationalist Party, the far right political group, increased after 9/11. After the start of the Iraq War, xenophobic incidents rose again and included the murder of three immigrants. The July bombings stirred up serious concerns about "home-grown" terrorism and a new wave of animosity towards Muslims, Asians, asylum seekers and political refugees in the UK. The Metropolitan Police in London and some NGOs reported a sharp increase in hate crimes against British Muslims during the month after July 7.

[6] Two such NGOs collecting data on hate-crimes are: The Institute of Race Relations (IRR). IRR news can be found here: http://www.irr.org.uk/2005/july/ha000017.html
South East Wales Race Equality Council; their report can be found here:
http://news.bbc.co.uk/2/hi/uk_news/wales/south_east/4704593.stm

[7] CNN; 5 November, 2007.

Using the Census Bureau's Current Population Survey (CPS) and the British Labor Force Survey (LFS) and applying the comparison group method, I find that 9/11 was associated with a relative decrease in earnings of immigrants from Muslim-majority countries overall in the US. Among men with the youngest age profile (ages 16 to 25), there were decreases of employments of "Muslims" relative to others in both the US after 9/11 and in the UK after the July bombings. In the US, the post-9/11 changes in outcomes were worst mostly for a narrow group of "Muslims": immigrants from Middle-East region (excluding Israel), Iran and Afghanistan. Compared to a broader category of "Muslim" immigrants, this small group experienced greater drops in employment and earnings and the effects lasted longer for them.

II. METHODS

This paper studies three labor-market outcomes: the employment-population ratio (samples include all individuals who are employed, unemployed or out of the labor force); usual hours worked per week (hours worked is set equal to zero if not employed); and real weekly earnings (OLS models include men who were employed whereas the quantile regressions use all men assuming log of earning to be zero if not employed).[8]

The central approach of this study is difference-in-differences (i.e. comparison group method). This method essentially compares the change in outcomes of a target group to that of a comparison group after an exogenous shock occurs. Thus it potentially controls for the effects of supply, demand and other confounding factors like business-

[8] Kaestner et al. (2007) regress "earnings" for employed individuals. For their "hours-worked" regressions, they include all individuals setting hours equal to zero for men who were not employed. I do the same in the OLS regressions but for the quantile earning regressions, I include all men assigning log of earnings equal to zero if not employed. This is done to avoid the sample selection bias occurring in the mean

cycle movements on the outcomes of the target group. The use of this approach helps to filter out the effects of unobserved factors can potentially isolate the net effect of an experiment on the target group's outcome.[9] The terrorist events were completely exogenous, the target groups are well-identified minority groups that faced social discrimination after 9/11, and the survey methods and definitions generating the data were consistent over the time period that we consider.

For the difference-in-differences models I use a pool of cross sections of "Muslims" and the comparison (i.e. non-Muslim) groups. The specification used is as follows:

$$\begin{aligned} Y_{ist} &= \beta_0 + \beta_1 After_t + \beta_2 Muslim_{ist} + \beta_3 (After_t * Muslim_{ist}) + \beta_4 X_{ist} + \beta_5 (X_{ist} * Muslim_{ist}) \\ &+ \beta_6 Z_{st} + \beta_7 (Z_{st} * Muslim_{ist}) + \beta_8 Quarter + \beta_9 (Quarter_t * Muslim_{ist}) + \beta_{10} State_s \\ &+ \beta_{11} (State_s * Muslim_{ist}) + \beta_{12} Trend_t + \beta_{13} Trend_t * Muslim_{ist} + u_{ist} \end{aligned} \quad (1)$$

where Y_{ist} is the labor market outcome of person i in state s at time t. $After_t$ is a dummy variable with value one if the observation was taken from any month after a terrorist event (i.e., September 2001 for the US and Britain and July 2005 for Britain), and zero otherwise. The term X_{ist} denotes a vector of individual characteristics that include potential experience, education, race, marital status, (the variable "presence of children" is not included in any models in this paper) length of stay in the US (or UK), citizenship status, and generation in the US (or UK). Z_{st} represents the state/regional unemployment

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regression.

[12] The recession that began in March 2001 is potentially one such confounding factor. Estimation of the pre- and post-9/11 changes in outcome using only the target-group (i.e. Mislims) sample may generate a negative coefficient simply because of the business-cycle downturn.

rate and state per-capita income. $Quarter_t$ is the interview quarter (ranging from 1 to 4) to capture seasonality and $Trend_t$ is as a cubic function of time (starting from 1 for January 1999). A cubic time trend may be expected to approximate the unmeasured, time-varying influences.[10] *State* dummies were used to capture effects of location. The coefficient β_3 measures the difference-in-differences effect of a terrorist event on the labor market outcomes of "Muslims" in the case of OLS regressions.[11] The interaction of the dummies "After" and "Muslim" is used to estimate the average effect of being a Muslim in the post-terrorism months.

Most of the effects are allowed to change by the *Muslim* dummy variable. This is done to allow for the fact that some factors like recession, citizenship status, etc. might have affected the two groups differently over time. Controls for occupation categories and industry sectors do not affect the difference-in-differences effects significantly in the earnings regressions.[12] For individuals who do not have jobs, industry and occupation categories are not reported, therefore I do not control for these in the employment and hours worked regressions.[13] In the earnings regressions, inclusion of occupation or industry categories in the model did not change the effect of being a "Muslim" after a terrorist event.

Two recent reports by the American-Arab Anti-Discrimination Committee (Ibish

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[10] I follow the specifications of Kaestner et al. (2004) here. I find coefficients of the time-trend variables always negligible and statistically insignificant. Models with month dummy variables yielded similar results.

[11] In the case of probit, the interaction effect is estimated by taking the average of difference-in-differences of the predicted probabilities.

[12] To control for industry of work, 9 major industry dummy variables were used. To control for occupations I constructed ten major occupation groups. However, I use "percentage of group members working in the respective occupation" to control for occupational variations instead of using occupation dummies. Exclusion of this variable does not significantly affect the difference in differences effect.

[13] *Hours Worked* was assigned a value of zero if person is not employed.

and Stewart 2003) and the Council on American-Islamic Relations (CAIR 2002 to 2005) suggest that the amount of discrimination varied by location. However, other than using the state/region dummies and "Muslim" to "non-Muslim" population ratios as an index of their visibility, no control is used for this variation across locations.[14]

The key to identifying the impact of terrorist attacks on labor-market outcomes of "Muslims" is the proper definition of the target and comparison groups. The more similar the comparison group is to the target group, the better. Often multiple comparison groups are suggested to check the robustness of results (Meyer, 1994). There have been two recent empirical studies on the effects of 9/11 on the labor market outcomes of immigrants from Muslim-majority countries living in the US and both of them used the comparison group approach.

Dávila and Mora (2005) use men, aged 25 to 40 from Afghanistan, Pakistan, Iran and the Middle-eastern Arab countries as their target groups. As a comparison group, they use US born non-Hispanic Whites who speak English only. Kaestner et al. (2007) take immigrants aged 21 to 54 from all Muslim-majority countries as the group in their difference-in-differences. The two comparison groups they use are other immigrants and US natives. Both of these studies find relative decreases in earnings of the target groups after 9/11 but no such decrease in their employment. Davila and Mora also find an unexpected relative increase in earnings for African Arab men. Braakmann (2007) finds

[14] Kaestner et al. allowed the effect of September 11th to differ according to an index of hate crime/discrimination against Arabs and Muslims. They used three measures of September 11th related hate crime or discrimination: number of hate crime/discrimination incidents reported in a state; number of hate crime/discrimination incidents per Arab population in a state; and number of hate crime/discrimination incidents per state population. While the first two capture the risk of discrimination Arabs and Muslims face in a state, the third is an indicator of the prevalence of prejudice among the non-Arab population. Prior to October 2001, value of hate-crime index was assumed to be zero in all states[14]. They estimated the results using all three indices and found the effects of all of them to be statistically insignificant. Due to the insignificant effects and the limited nature of the data, I do not include the indices in the analyses.

no relative change in the labor market outcomes of Arabs and Muslims aged 16 to 64 in the UK after any of the terrorist events.

This Dissertation attempts to show that there are some other considerations in constructing the target and comparison groups that are needed to facilitate the understanding of the possible impact of 9/11 on the labor-market outcomes of Muslims and Arabs: *First*, the impact of 9/11 on labor-market outcomes for Muslims and Arabs might have been different across age-groups in the US and in Britain. New job-market entrants might have experienced different outcomes than experienced workers. Given the usual profiles of terrorists, younger Muslims/Arabs should be more susceptible to discrimination (both statistical and prejudice-based).[15] *Second*, the labor market outcomes of Muslims might have been affected by the laws and programs that ensued after 9/11 as well as by the animosity that emerged after 9/11. Third, Similarities between the possible effects of terrorism in the US to those in the UK would be an evidence of robustness of the research findings.

This chapter studies the changes in outcomes of several target groups consisting of either Muslim men or immigrant men from Muslim-majority countries. The CPS datasets of the US do not identify individuals' religious affiliations but they identify each person's as well as his parents' nativities. The UK LFS datasets identify each person's nativity. Since spring 2002, the UK-LFS data has also been identifying individuals' religious affiliations. As the target groups in the US, I use (a) Immigrant men from all

[15] There has been no study on whether the 1st generation immigrants were affected more than the 2nd-generation immigrants. Anti-terrorism laws and programs targeted primarily those 1st generation immigrants who are not US citizens, especially those who are not residing or working legally in the US. A fraction of the 1st generation immigrants in the CPS datasets should be illegal immigrants. Demographic research suggests that at least a fraction of the illegal immigrants are in the CPS since the number of immigrants enumerated by the survey (and by the decennial Census, upon which the CPS weights are

special registration countries (except North Korea, Somalia and Eritrea), (b) Immigrant men from African and Middle Eastern Arab countries, Iran, Afghanistan and Pakistan and finally a much narrower subgroup: (c) Immigrant men from Middle Eastern Arab countries, Iran and Afghanistan. In the case of the UK, two target groups are constructed: (a) Male immigrants from Muslim-majority countries and (b) Men who are Muslims by religious affiliation. As most of the target groups are immigrants or of immigrant descent, our preferred comparison group is immigrants from non-Muslim majority countries. This is due to the fact that in terms of socio-cultural aspects, soft-skills, language proficiency etc, which affect worker's employability and wages, other immigrants are a better match than natives. Each difference-in-differences analysis in this study is carried out for young age-groups (age 16 to 25 and age 16 to 29) as well for the whole sample.

IV. US DATA AND RESULTS

For the US, I use the 1999 to 2004 Merged Outgoing Rotation Groups files from the Current Population Survey (CPS-MORG). Sample is limited to men who were 16 to 64 year old and were not enrolled in school. The construction of the target and comparison groups and some salient features of the data are described below.

A. *Target and Comparison Groups in the US Data*

Possibly the appropriate approach for identifying whether an individual is Muslim is to use information on his religious affiliation which the CPS does not collect. However,

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based) exceeds estimates of the number of the foreign-born legally present in the U.S.

evidence suggests that people did not discriminate with much accuracy after 9/11.[16] News reports and other studies[17] find cases of non-Muslims with Muslim appearance facing backlashes at their work-places. In many cases it is very difficult to distinguish Arab Christians from Arab Muslims by name and appearance. The US-CPS does not contain any information about individuals' religious affiliations. However, the survey questionnaire asks the reference person's country of birth as well as his parents' nativities making it possible to identify 1st and 2nd generation immigrants from most of the Muslim-majority countries.

Most of the Muslim-majority countries (except Turkey and Malaysia) were in the "Special Registration" list of the Department of Justice.[18] In November 2002, the call-in requirement for Special Registration was imposed on Men from those countries. The CPS identifies 12 of the 24 countries that were enlisted for the special registration program. Nine other countries are combined in two regions: the "Rest of North Africa" and the "Rest of Middle East" which excludes Israel. Two countries, Somalia and Eritrea are mixed with some "other African countries" that were not included in special registration. Therefore Somalia and Eritrea as well as North Korea, are excluded from construction of

[16] Allen and Nielsen (2002) find that after 9/11, the single most predominant factor in determining who was to be a victim of an attack or infringement was their visual identity as a Muslim. This was found to be the case across reports from all 15 EU member states. Also, there were seven reported cases of murders of Sikh men between September 2001 and February 2005. Sikhism is a religion which in no way is affiliated to Islam. All of the cases appear to be hate-crimes. Details can be found here: http://www.sikhcoalition.org/ListReports.asp

[17] Detroit Arab American Study-2003, University of Michigan; ICPSR Study No.: 4413; CAIR Annual Reports on Civil Rights Violations.

[18] Non-immigrant adult males from the following countries were called in for the special registration program: Iran, Iraq, Libya, Sudan and Syria, Afghanistan, Algeria, Bahrain, Eritrea, Lebanon, Morocco, North Korea, Oman, Qatar, Somalia, Tunisia, United Arab Emirates, and Yemen, Pakistan, Saudi Arabia, Bangladesh, Egypt, Indonesia, Jordan and Kuwait. From CPS-MORG files do not separately identify Algeria, Libya, Somalia, Sudan, Tunisia and Eritrea. But they identify immigrants from North-Africa which consists of Algeria, Egypt, Libya, Morocco, Sudan, Tunisia and Western Sahara.

the "Muslim" groups.[19]

From the US data three target groups (i.e., three groups of "Muslims") are constructed on the basis of nativity profiles. Target group C consists of 1st and 2nd generation immigrants from all the special registration countries identifiable from CPS data: Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries (Bahrain, Jordan, Kuwait, Iraq, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen), Iran, Libya, Morocco, North Africa,[20] and Pakistan. Turkey, Indonesia and Malaysia are Muslim-majority countries but were not listed under special registration program. There has been relatively little evidence that the immigrants from these countries experienced intolerance after 9/11. India has the 2nd largest Muslim population but it is not clear whether non-Muslim and non-Sikh Indians experienced significant discriminatory incidents.[21] So neither the target groups nor the comparison groups include immigrants from the above countries.

Immigrants from Bangladesh, Indonesia and North Africa do not fit as well as Arabs with the nativity and ethnic profiles of the 9/11 terrorists. Therefore a sub-group that is closer to the terrorists in nativity and ethnicity profiles is constructed and is called target group B. This group consists of 1st and 2nd generation immigrants from Afghanistan, Middle Eastern Arab countries, Iran, Pakistan, Egypt and Morocco –

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[19] The "Rest of Africa" which includes Somalia and Eritrea is dropped from the data. This is done to make sure that none of the comparison groups contains immigrants from the special registration program.

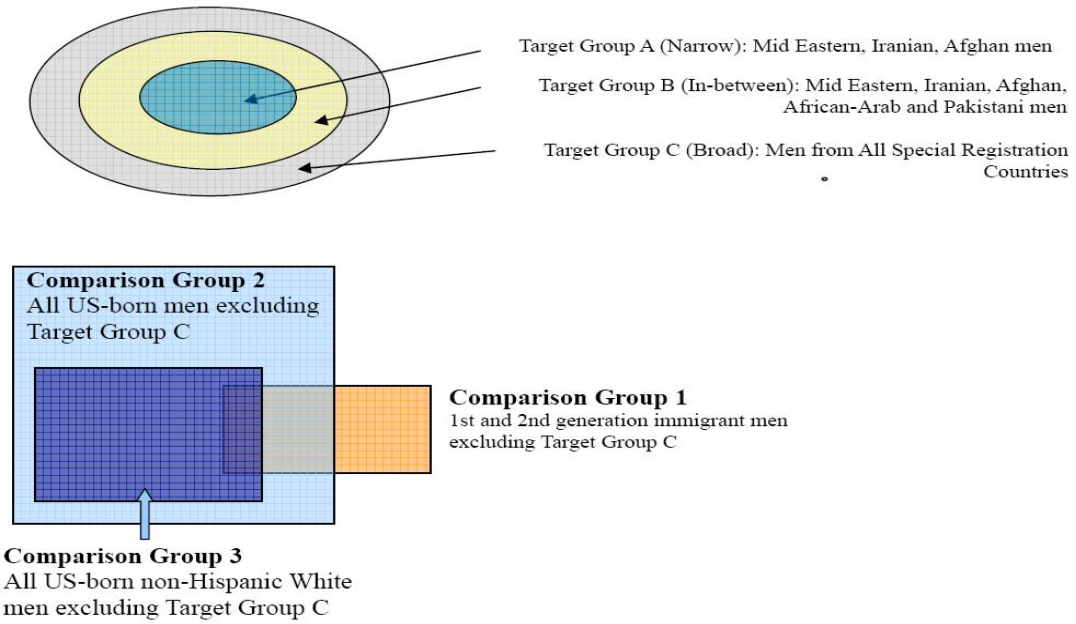
[20] Algeria, Libya and Tunisia cannot be identified separately but they are geographically included in North Africa. Most North African countries excluding Sudan were under the special registration list. Inclusion of North Africa might have created some contamination in Target group C. For Target group B, I dropped North Africa.

[21] The 2005 CAIR report shows that there were over 1500 alleged incidents of civil-rights violations against Muslims. 198 of them were reported as employment discrimination. Most of the victims in CAIR (2002 and 2005) and ADC (2003) reports had Arab, Afghanistan or Pakistani nativity. In its 2003 report, ADC (American-Arab Anti-discrimination Committee) mentions 800 cases and summarizes 101 cases of employment discrimination. None of the summary cases of employment discrimination were about Indian

immigrants from these countries should be closer to the nativity and ethnic profiles of the terrorists.

The ongoing war in Iraq, attack in Afghanistan, and longstanding unrest in Palestine and the Madrid Train Bombings on March 11, 2004 might have made Arabs and Muslims from these regions the main subjects of discrimination. Therefore I construct a narrower sub-group, Target Group A which consists of men only from Middle Eastern Arab countries, Iran and Afghanistan.

Figure 1: *Construction of Target and Comparison Groups*



As the validity of the difference-in-differences approach largely depends on the appropriateness of the comparison group, three comparison groups were taken in the analyses. In constructing the comparison groups, I try to take those sets of individuals

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natives.

who should not be affected by the post-9/11 intolerance but at the same time would be similar to "Muslims" in terms of observable characteristics. Ideally, the unobserved factors contemporaneous with 9/11 should have the same effects on the labor market outcomes of the target and the comparison groups.

Comparison Group 1 consists of 1st and 2nd generation immigrants. However, it excludes 1st and 2nd generation immigrants from Mexico, Central America, and the Caribbean.[22] The education and other characteristics of immigrants from these areas are not very similar to immigrants from the target groups. These countries were dropped to keep the target groups and comparison groups similar in characteristics (and possibly unobserved characteristics such as legal status in the US etc.). To avoid contamination in the target and comparison groups, immigrants from Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other Africa" are also dropped[23] even though these countries and regions have Muslim populations. Two special-registration-countries, Somalia and Eritrea are inside "Other Africa" which contains several non-Muslim majority countries too.

Comparison Group 2 consists of all US-born men excluding the 2nd generation immigrants from target group C; Mexico, Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and Other Africa. As mentioned earlier, respondents from these countries are dropped from both the target and the comparison groups to avoid possible contamination in each group. Comparison group 3 consists of all

[22] The reason why immigrants from Mexico, Central America and the Caribbean are excluded from the US- sample is that their educational achievements and language proficiency are not similar to other immigrants. Besides, a recent study (Orrenius and Zavodni, 2005) found that the relatively new immigrants from Mexico experienced some decrease in earnings after 9/11.

[23] Turkey and Malaysia were not listed under the special registration program but are Muslim-Majority country. None of the excluded African countries were enlisted for special registration but they have significant Muslim population and they are close to immigrants from Egypt and Morocco in terms of

US born non-Hispanic Whites who are not in target group C. I exclude Blacks and Hispanics from this group because some of their observable characteristics (e.g. education, earnings) are different from those of Whites.

"Muslims" are concentrated in states. This study takes only 18 US states where more than 75% of all Muslims reside.[24] This helps to keep target groups' geographic concentration similar. Target Group C has more than three thousand observations. All the demographic variables used are provided by the CPS-MORG datasets.[25]

B. *Descriptive Statistics of the US data:*

For the US, cross-sections were pooled from January 1999 to December 2004. In the selected 18 states/districts[26] and between ages 16 and 64, there are about 2500 observations in the narrow target group (group A) and more in the broader groups. For ages 16 to 25 in the eighteen selected states, there are about 180 out-of-school men in the narrow target group (group A) and more than 340 such observations in the broad target group (group C).

Table 1 shows descriptive statistics for the youngest men (i.e. ages 16-25) for "Muslims" and non-Muslim immigrants (Comparison group 1).[27] Most of the

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nativity and ethnicity.

[24] Kaestner et al. included 20 states in their study. I excluded two of those states to keep number of younger Muslims reasonably large in each state.

[25] except state unemployment rates, state per capita income, and CPI which I obtained from BLS and BEA sources

[26] Arizona, California, Colorado, District of Columbia, Florida, Illinois, Massachusetts, Maryland, Michigan, New York, New Jersey, Texas, Virginia, Ohio, Pennsylvania, Kansas, Rhode Island, New Hampshire.

[27] Descriptive statistics for men age 16 to 64 are shown in appendix table I.1. for all ages, around 85% of the observations in the target groups are 1st generation immigrants whereas only 64% of the members of comparison group 1 are 1st generation immigrants. On the other hand, in the youngest age group (ages 16 to 25) the distributions of 1st and 2nd generation are similar between target groups and comparison group 1 (around 60% are 1st generation immigrants). Special registration and other similar legal requirements ensuing from 9/11 were targeted towards the first generation immigrants. If legal rigidities have had

demographic characteristics for comparison group 2 (all US born men) and 3 (US-born Non-Hispanic White men) are similar to those for group-1 and are not reported here.[28] There are two noticeable differences between the target and the comparison groups, often irrespective of age. *First*, the target groups tend to have higher education (Bachelors degree and above) in contrast to all of the comparison groups. *Second,* the target groups have relatively more observations (more than 20 percent) under the "Sales" occupations category when compared to the comparison group (about 10 percent). This large difference in concentration might have affected Muslims and non-Muslims differently after 9/11. A slow-down in the sales sector probably would have proportionally larger effects on Muslims' labor market outcomes. Of the nine industry-categories, Muslims have relatively higher concentration in "Distribution, Hotels & Restaurants".

From Table 1, one can see that among the very young men, the employment gap between other immigrants and the target group A (Immigrants from Middle Eastern and Afghanistan) was about 7 percentage points before 9/11. This gap widened to about 24 points by year 2002 but then narrowed to about 9 percentage points by the end of 2004. For young men from all special registration countries, the employment gap widened from about 13 percentage points to about 19 percentage points by year 2002. However, this gap went back to the pre-9/11 level by 2004. The Homeland Security Act was passed in October 2001. For the older "Muslims" from special registration countries, average weekly earnings tend to become lower relative to immigrants from non-Muslim countries after the Special Registration Program that started in November 2002. It is not clear from the descriptive statistics whether these adverse effects were caused by animosity towards

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negative impacts on some group of workers (conditioning for other factors), one should find negative outcomes for the older Muslims (age 26 and up), as most of them are 1st generation immigrants.

"Muslims" or by the laws/programs that followed 9/11 or by the business cycle downturn. If the rigid legal environment after 9/11 was negatively affecting the employability of young immigrants from the Muslim-majority countries, the possible discrimination would be statistical, not prejudice based. However, the magnitude of negative impacts should not significantly vary across target groups as all the target-group members were brought under the special registration and other anti-terrorism programs. One of the possible explanations of the varying degrees of effects on different target groups could be that the intensity of animosity towards these groups varied.

C. *Results from the US data:*

Table 2 reports the key results. It shows regression-adjusted difference-in-differences estimates (i.e. the interaction effect of "*Muslim*" and "*After*" in equation-1) from pooled cross-section samples of the target groups A, B, C and comparison group 1. The upper panel shows the difference-in-differences effects in a shorter-time period (1999 to 2002). Results for the longer-time period (1999 to 2004) are shown in the lower panel. Under each target group, the three columns contain results for the three age groups. Probit models were used to assess the effect of 9/11 on employment-to-population-ratio of target groups. For estimating effects of 9/11 on the target groups' log-weekly-earnings and hours worked, ordinary least squares regressions were used. For these log-weekly-earnings and hours worked models, robust standard errors, clustered by repeated observations (Huber and White method) are shown in parentheses.[29] Standard

[28] Descriptive statistics for comparison groups 2 and 3 are shown in appendix tables A1 and A2.

[29] For the employment regressions, the difference-in-differences of employment-ratio was predicted for each observation separately and the mean of all the difference-in-differences is reported for each age-range under each target group in table 3. Standard error was estimated for each prediction and the mean of those

errors for the probit models were estimated using Delta method.

In Table 2, results in the first row of the upper panel shows that by the end of 2002, among the younger men, employment-gap between target and comparison groups widened after 9/11. This relative decrease in employment tends to dissipate as one progresses from group A (only the Middle Eastern, Iranian and Afghan men) to group C (immigrants from all Special Registration countries). The employment-gap among men ages 16 to 25 widened by about 45 percentage points for target group A by the year 2002. This short-term effect becomes 38 percentage points when Pakistani and African Arabs men are added and 29 percentage points when men from all other Special Registration countries are included. This was a year in which the reported number of civil-rights violations against Arabs and Muslims increased dramatically compared to previous years. Those aged 16 to 25 who are out of school comprise a very small fraction of the entire sample of men. This may make findings in this paper seem weak. However, when men aged 16-29 are considered, a 15 percentage-point decline in relative employment for the *broad* target group (the effects for the *narrow* target groups were negative but not statistically significant) is still found. When it comes to men aged 16 to 64, there was no change in employment of these target groups associated with 9/11. The lower panel of Table 3 shows that by 2004, only those very young men who are in the narrow target group (group A) were still experiencing a relative decline (about 30 percentage points) in employment attributable to 9/11. The lower panel shows that there has been no statistically significant effect of 9/11 on employment of the broader target groups by the year 2004.

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standard errors is shown in parentheses. Appendix table I.8 shows the results from OLS regressions. The relative effects of 9/11 on employment of young "Muslims" estimated by OLS models are qualitatively

There was a relative decrease in hours worked for the youngest target group members after 9/11. This is consistent with the decrease in their employment ratio as I set hours worked at zero for men who are not employed. By 2002, the narrow target group's weekly work time diminished by 17 hours relative to comparison group 1. For the broad group, this relative decrease was about 10 hours. This decline in hours for the youngest "Muslims" persisted through the end of 2004 as shown by the results in the lower panel of Table 2. This relative decrease was bigger for narrower groups (about 16 hours) than for the broad group (about 8 hours). It is possible that the elasticity of demand for young Muslims' labor increased after 9/11 due to rising animosity, fear, or legal stringencies. Except for the youngest Muslims, there was no statistically significant change in hours worked for any of the Muslim groups.

The relative changes in mean weekly earnings after 9/11 were unfavorable for older members of the target groups. After 9/11, earnings of the narrow group of "Muslims" (Group A: men from the Middle East, Iran and Afghanistan) aged 16 to 64 decreased by 17 to 20 percentage points relative to other immigrants (Table 2, third column). When men from Pakistan and African Arab countries are added in the target group, the magnitude of this relative decrease becomes about 13 percentage points (table 2, column 6) and adding men from the remaining special registration countries shrinks this effect to about 9 percentage points (table 2, column 9). By the end of 2004 this difference-in-differences effect dissipated for the broader groups but a 6 percentage-point decrease still persisted for the narrow target group. There was no significant change in hours worked attributable to 9/11 for Muslims aged 16 to 64. The unchanged employment and hours worked by the stereotyped Muslims indicate that their overall

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similar to those by probit models even though smaller in magnitude.

labor market participation did not change after 9/11. However, the decrease in their earnings might have been caused by a rise in prejudice against "Muslim" men overall or by the increased anti-terrorism measures. In either case, the target group members might have been forced to accept lower income from the same occupation or to switch from higher-income jobs to lower-income ones. Kaestner et al. (2007) find evidence that Arab and Muslim men were more likely to report switching from higher to lower-income occupations in the post-9/11 months.

In the year after 9/11, there was no statistically significant change in earnings of the very young members of the narrow target groups (groups A and B). However men in the broad group aged 16 to 29 had about a 24 percentage-point increase in mean earnings. By the year 2004, the young men in group C had significant increases in mean weekly earnings (about 22 to 26 percentage points). It seems paradoxical that the average earnings of the very young members of the broad target group increased relative to non-Muslims after 9/11. However, note that the above results on earnings change are estimated only for men who are employed. It is possible that the low-income young "Muslims" dropped out of employment after 9/11 pushing the average earnings for the target group upward for the post-9/11 months. To assess this possibility, quantile regressions of earnings using the same difference-in-differences framework is applied. Median regressions include all men employed and not employed. Log of earnings is set equal to zero for men not employed. If low income young Muslims dropped out of employment after 9/11, one should see negative difference-in-differences effects in the lower quantiles of earnings for young men.

Table 3 shows the results from quantile regressions of earnings where samples

include the broad target group and other immigrants. The interaction effects of *Muslim* and *After* dummies were given by separate regressions at the 25th, 50th, 75th and 90th percentiles. The upper panel shows that for the youngest Muslims (aged 16 to 25), earnings at the median did not change. However, they went down by about 50 percentage points in the 25th percentile and went up by about 22 percentage points at the 90th percentile. The middle panel shows that "Muslims" aged 16 to 29 had their median earnings go up by about 14 percentage points by 2002 and about 10 points by 2004. Results in Table 4 indicate that young men in the broad group of Muslims experienced increase in earnings after 9/11. For "Muslims" aged 16 to 64, there was about a 10 percentage-point decline in median earnings by the year 2002. This decline in median earnings is consistent with their mean earnings declining (by 10 percentage points) and unchanged employment by the end of 2002. By 2004 the negative effect on the median earnings dissipated for the target groups when all ages are considered.

Results for the in-between group and the narrow group (target groups A and B) are shown in appendix-I, in tables I.5 and I.6. Among the narrow group of "Muslims" (group A), young men as well as older men continued to experience a statistically significant relative decrease in earnings at the lower percentile during 2004. This decrease in earnings at the lower percentile was accompanied with unchanged median earnings. This indicates that till 2004, possibly the low-skill or low-educated and therefore low-earning immigrants from Middle Eastern Arab countries, Iran and Afghanistan were facing loss of employment and therefore loss of earnings in the post-9/11 labor market.

V. UK DATA AND RESULTS

From the UK data, sample is restricted to out-of-school men between age 16 and 54.[30] The target groups in the UK sample are concentrated in six out of twelve regions of the U.K. Sample includes only these six geographic regions[31] where about 80 percent of the target-group men are concentrated.

A. Target and Comparison Groups in the UK Data:

For the UK study, this study uses The British Quarterly Labor Force Survey (LFS) data sets from 1999 to June 2007. I construct two target groups form the UK sample: First-generation male immigrants from Muslim-majority countries: Bangladesh, Egypt, Morocco, Pakistan, Iran, Iraq, Lebanon and Other Middle East and Men living in the UK who are Muslims by religion. The main two comparison groups are 1) immigrants from non-Muslim-majority countries and 2) UK-born men.[32] The LFS data sets made Religion and Ethnicity variables available since 2002 and 2003 respectively creating the scope to construct additional target and comparison groups for analyzing the effects of July bombings. These additional comparison groups are: (i) Asian non-Muslim men, (ii) All White non-Muslim men, (iii) British White non-Muslim men and (iv) Non-Muslims who are neither Asian nor White. For age 16 to 25, each quarter has about 40 to 50 observations of immigrant men from Muslim-majority countries. On their comparison group counterpart, each quarter has 1300 to 1400 observations.

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[30] Unlike in the US sample, I drop men between age 55 and 64 from the UK sample for two reasons. *First*, unlike in the US, about 90 percent of the target group members are below 55 in the UK. *Second*, about half of the "Muslims" over the age 54 in the UK are out of labor force in contrast to less than one-third of the comparison-group members. Questionnaires in the US and the UK surveys are similar and the data collection methods are comparable making it possible to use the same method to analyze both data sets.

[31] Greater Manchester, West Yorkshire, West Midlands Metropolitan, Eastern, London and South East.

B. *Summary Statistics from the UK Data:*

Table 4 shows the summary statistics of demographic characteristics and outcome variables for the very young immigrants from Muslim-majority countries and for the comparison groups. The three tables present characteristics of the three age groups. There are some noticeable demographic differences between the target and the comparison groups, often irrespective of age. For age 16 to 25, average length of stay in the UK is shorter for target groups (about 9 years for the young men from Muslim-majority countries) than for comparison group 1 (about 16 years). However, about half of the target-group immigrants, in contrast to about one-tenth of the other immigrants are UK citizens. A significantly bigger percentage of the target group men have spouses. Unlike in the US, "Muslim" immigrants in the UK tend to be concentrated more on the lower education categories compared to other groups of men. Among the younger men, about 23 to 24 percent target-group members have no qualification compared to about 9 percent of the comparison-group men. Out of all men age 16 to 54, about 26 percent of the "Muslims" have no qualification compared to about 8 percent of the comparison groups. Members of the target groups are more concentrated in the Hotel, Restaurants and Distribution industries.

Table 5 shows that for age 16 to 25, employment gap between immigrants from Muslim-majority countries and other immigrants widened by about 8 percentage points during the year after 9/11. The gap in outcomes remained unchanged for men age 16 to

[32] Until Spring 2002, the UK data does not identify men who are Muslim by religious affiliation (i.e., target group B). Therefore, a small fraction of comparison group 2 would include UK-born Muslims.

54.[33] Interestingly enough, the changes in the employment-gaps associated with the terrorist events tend widen both in the UK and in the US data.

Samples from spring 2002 through June 2007 allow us to identify target group B (men who are Muslim by religion). For the youngest group of Muslims, employed-to-population ratio went down by about 14 percentage points relative to non-Muslim immigrants after July 2005. [34] When compared to their UK-born non-Muslim counterpart, the relative decrease in employment for young Muslims age 16-25 was about 8 percentage points. In fact, relative to each non-Asian comparison group there was around 7 to 8 percentage-point decrease in employment for the very young Muslims (age 16 to 25) after July-bombings. However, there was no significant change in the very young Muslims' employment relative to their Asian non-Muslim counterpart. This is indicative of a relative decrease in employment for most Asian young workers in the UK after the July bombings.

C) *Results from the UK data:*

In the UK, employment and earnings of the target groups were always significantly lower. Table 10 demonstrates the Oaxaca decomposition results for employment gaps and earning gaps between target and comparison groups. It shows employment and earnings for immigrants from Muslim countries have been noticeably lower when compared to other immigrant men. There is about 9-percentage-point unexplained gap in employment between other immigrants and the immigrants from Muslim-majority countries. When it comes to weekly real earnings, the unexplained gap is around 27 to 35 percentage points.

[33] The outcomes before and after 9/11 for "Muslims" age 16-54 in the UK are shown in appendix table A3.

Table 6 shows the difference-in-differences effects of 9/11 and the July bombings on the employment, hours and earnings of immigrants born in Muslim-majority countries relative to other foreign-born immigrants (upper panel) and UK-born men (lower panel). When immigrants from Muslim-majority countries are considered, no overall effect of 9/11 on their labor market outcomes is found (Table 6). However, for men with very young age profile, some changes in outcomes associated with 9/11 are noticeable. Employment of the youngest men (age 16-25) from Muslim-majority countries decreased by about 9 percentage points when compared to other immigrants (1st and 4th columns, upper panel). This relative decrease in employment sustained till 2004. However, the mean of weekly earnings of the employed young target-group men went up after 9/11 by about 25 percentage points when compared to other immigrants. One possible explanation could be that after 9/11 young Muslims from the lower tail of the earnings distribution went out of employment pushing the group's post-9/11 mean earnings upward. To check this possibility, the same models were run after dropping from the sample those men who have no qualifications. No significant difference-in-differences effects on employment and earnings are found when sample was restricted (results not shown here). This is an evidence that the event was associated with decrease in employment of mainly those young "Muslims" who have no qualifications (and therefore in the lower tail of earnings distribution).

When used UK-born men are used as comparison group (Table 6, lower panel), no statistically significant relative deterioration in employment or earnings is found for immigrants from Muslim-majority countries after the July bombings. However, it is to be noted that when all the target-group members are immigrants, estimates using UK-born

[34] Shown in the first column of table 7.

men, as comparison group are less reliable due to differences in some unobservable characteristics. Second-generation immigrants from Muslim-majority countries are also UK-born. In comparison group 2, Both White Muslims and 2nd generation immigrants from Muslim-majority countries are included causing potential contamination. News reports published after 9/11 suggest that White Muslims also were subject to animosity after the terrorist events.[35] Besides, there are fewer explanatory variables in the regressions that use the UK-born men as comparison groups. To avoid collinearity, citizenship dummy and the length of stay variables are excluded when comparison group 2 is used.

As the UK data sets identify individual's religious affiliation since spring 2002, Muslim men are used as an additional target group to examine the effect of July bombings. Table 7 shows the changes in Muslim men's outcomes compared to non-Muslims after the July bombings. The difference-in-differences estimates in the upper panel are from regressions using non-Muslim immigrants as comparison group while those in the lower panel uses UK-born non-Muslim men. Among men age 16 to 25, Muslim's employment decreased by about 15 percentage points relative to non-Muslims' after July 2005. Their relative weekly-hours declined by about 5 hours and there was no change in weekly earnings. The relative decline in hours is consistent with the decrease in employment ratio.

Robustness of Results

To check the validity of the results, I run difference-in-differences models with

[35] "Rise in Muslim Discrimination", BBC news, 16 December, 2004. http://news.bbc.co.uk/2/hi/uk_news/4102389.stm

a pseudo 9/11 date using the US data. The monthly data from January1998 through August 2001 are taken and September 1999 is used as the month after which the "Post 9/11" dummy is assigned a value of one. The models are run for target groups A, B and C and comparison group 1. The difference-in-differences results are shown in the table 9. The effects on employment are often close to zero and are always statistically insignificant. For the very young men in the narrow group of Muslims (group A) employment increased after September 1999 by about 5 to 6 percentage points, which is contrary to what I find during the post-September 2001 months. No relative changes are found in hours worked or earnings for any of the target groups.

Analyses of data on both the US and the UK show relative declines of employment of very young immigrants from Muslim-majority countries. In the British sample, the effects of the July bombings were similar across men who are Muslim by religion and men who are from Muslim-majority countries. This finding is suggestive of the possibility that if discrimination occured, employers/customers did not discriminate accurately in which case the target-groups (1^{st} and 2^{nd} generation immigrants from Muslim-countries) picked in the US data sets are a good proxy for Muslims living in the US. The effect of the July bombings was bigger on the young UK Muslims than on the young immigrants from Muslim-majority countries. This finding from the UK data may allow us to infer that in the case of US, the estimates in this study are lower bounds of the effects of 9//11 on Muslims' employment and earnings. However, one should be cautious to draw any such inference mainly because unlike in the US, most of the immigrants from Muslim majority countries in the UK are actually Muslims by religion.

From the US data, two more comparison groups are constructed: group 2 (US-

born men other than members in target groups) and group 3 (US-born non-Hispanic White Men other than members in target groups). The same regressions are run using the new comparison groups. However, as members in these groups are natives of the US these groups are less comparable to the target groups than comparison group 1.[36] The point estimates of difference-in-differences using the US-born men as comparison groups are similar to those using immigrants from non-Muslim countries. However, they are often not statistically significant. These estimates show that by year 2002, employment dropped by about 20 percentage points (marginally significant at 10% level) for the youngest (age 16-25) immigrants from all special registration countries. For Arab, Iranian, Afghan and Pakistani men, this decrease is about 23 percentage points (significant at 10% level). For the youngest Middle Eastern Arabs, Iranians and Afghans, a 24 percentage-point relative drop in employment was not statistically significant but their work-time decreased by 13 hours (significant at 1% level) by year 2004 which indicates a drop in employment. For age 16 to 64, there was about 10, 15 and 16 percentage-point drops in earnings for target groups A, B and C respectively relative to the US-born men. Comparison group 3 is US-born non-Hispanic Whites excluding those in target group C. Difference-in-differences coefficients using Target groups A and B and Comparison group 3 are also not shown in this paper to save space. For the youngest men (ages 16 to 25), the difference-in-differences effects on earnings are not statistically significant relative to their comparison group 3 counterpart even though the point estimates are similar to what I find using comparison group 2. However, for age 16 to 25, the narrow group of Muslims had their weekly hours decrease by 13 hours per week by

[36] Regression estimates from using US-born men as comparison groups are further discussed in chapter 3 of this dissertation. In regressions that included comparison groups 2 and 3, I drop citizenship status and

2004.

There could be some possible channels explaining why the difference-in-differences effects are not very convincing when one uses the U.S. born men as comparison groups. First they can be different in terms of language proficiency, networking, British versus non-British education and trainings etc. besides citizenship status. Second, it is interesting to note that there has been a significant decrease in the issuance of non-immigrant U.S. visas to the citizens of special registration countries after 2001. This might have affected the employment and earnings of "Muslims" relative to other immigrants but not relative to the natives. It is possible that during the business cycle down-turn, other immigrants were coping better than the natives on the average where immigrants from the Special Registration countries were not.

To increase similarity in observed characteristics between target and comparison groups, propensity score matching is applied to the US sample. The basic idea of matching here is to find a large group of non-Muslims who are similar to the target group men in observed characteristics. Propensity score matching estimates the probability of an individual being in the target group given observed characteristics. If this estimated probability is "unacceptably low" for a member in the comparison group, the observation was excluded from the sample. In this manner, matching the target group members to similar comparison group members, the same difference-in-differences regressions are run for earnings and hours worked again. The results from the matched samples are very similar to the results derived from the unmatched samples in table 3.[37]

The findings in this paper are consisted with the difference-in-differences

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length of stay variables to avoid multicollinearity problem..

[37] Difference-in-differences effects estimated from the matched sample are shown in chapter 3.

estimates found by Kaestner et al. (2007) who took men ages 21 to 54 from the CPS MORG data sets for their analyses.[38]

VI. CONCLUSION:

I have studied the possible impacts of the 9/11 terrorist attacks, the associated anti-terrorism measures, and the London bombings on the labor market outcomes of minority workers who fit the Muslim stereotype in the US and in the UK. Using the natural experiment provided by the terrorist events, I found no adverse effects on the overall employment ratio of Muslims and Muslim-looking men living in the US and Britain. However, I found some adverse relative changes in employment of the younger members in the target groups. Among men between ages 16 and 25, there was a 44 percentage-point relative decrease in employment for male immigrants from Middle East, Iran and Afghanistan in the US by 2002. However, when young South Asian and African Arabs, whose nativity profiles do not fit very well with those of the terrorists, were added to the narrow target group, the effect on employment became smaller. By the end of 2004, a 30 percentage-point relative decrease in employment persisted in the US for the youngest "Muslims" in this narrow group whereas for the broader "Muslim" groups this adverse effect dissipated. However, when it comes to men ages 16-29, the decrease in employment is statistically significant only for the broad target group which experienced a 17 percentage-point relative decrease in employment by year 2002 (changes in employment for the narrower groups in this age-range was not statistically significant). The relative changes in hours worked for the very young "Muslims" after 9/11 consistently show the same pattern as the changes in their employment as hours worked

[38] This matter is further discussed in chapter 3.

is set to zero for persons who are not employed. Among the employed, younger men in the broad target group in the US saw a relative increase in mean earnings by 2002. However, the median earnings did not change much. For the narrow target group, there was no statistically significant change in the mean earnings.

Among "Muslim" men aged 16 to 64 in the US, I found no change in employment or hours worked, but there was a relative decrease in their earnings associated with 9/11, which is consistent with the findings in previous studies. By 2002, real weekly earnings fell by about 20 percentage points for Middle Eastern, Iranian and Afghan men. For the broad group, the association between 9/11 and change in earnings was weaker. By 2004, this association dissipated for the broad target group. However, a 6 to 9 percentage-point relative decline in earnings associated with 9/11 persisted for Middle Eastern Arabs, Iranians and Afghanis. Besides the fact that the narrow group of "Muslims" fits with the terrorist stereotype better, the post-9/11 operations in Afghanistan and ongoing conflict in the Middle East could be the additional reasons why the earnings gap persisted for immigrants from the Middle Eastern Arab countries and Afghanistan but not for immigrants from other Muslim-majority countries.

My findings from the US data are consistent with an emergence of discrimination against 1st and 2nd generation immigrants from some specific countries after the 9/11 terrorist attacks. The legal environment in labor markets became relatively rigid for the first generation immigrants at least for a short period after 9/11. It is difficult to estimate how much of the possible effects on labor market outcomes of the target groups were caused by discrimination and how much by the anti-terrorism legislations. However this study has three findings in this regard. *First*, "Muslims" with age and nativity profiles

closer to the terrorists' experienced larger declines in employment. *Second*, the decline in relative employment and earnings of "Muslims" associated with 9/11 started to dissipate after 2002 when some of the salient anti-terrorism programs and laws were initiated. *Third*, similar patterns of deterioration of employment of young immigrants occurred in the UK after the terrorist events even though the UK did not change the legal environment for its immigrants. These three findings are suggestive of an increase in some discrimination against specific groups of immigrants in the post-9/11 labor markets, given that the regressions have adequately controlled for business-cycle factors that might have affected the two groups differently. Furthermore, the fear of discrimination might also have discouraged some minority workers from labor market participation.

The greater effects in the US labor market compared to the UK indicate that the anti-terrorism legislations in the US possibly contributed to the deterioration of labor-market outcomes of "Muslims." However, effects in these two countries are not comparable for three reasons: first, Muslims' status in the British labor market is different from that in the US. Unlike in the US, there are significant differences in employment and earnings between Muslims and non-Muslims in the UK. This is partly because of the differences in educational attainments and language proficiency. The demographic composition, especially in terms of age distribution, also differs between the US and Britain. Second, unlike in the US, the institutional structure of the UK labor market in many cases discourages employers from terminating job contracts. Third, The magnitude and the types of the two shocks were different in the two countries. The US labor market essentially went through two different shocks simultaneously: the terrorist attacks and the concurrent change in its legal environment. Assuming other things unchanged and the

effects in the UK labor market to be a result of prejudicial discrimination, one could view the differences in effects across these two countries as a result of statistical discrimination. Even though this study finds only the very young Muslims in the UK to be affected in terms of employment after the terrorist attacks, it has potentially important implications as the average age of Muslims in the UK is about 28 years—13 years less than the national average. Over one third of Pakistanis and Bangladeshis in the UK are under 16, the youngest age cohort in the country. Given the very different age profiles of the ethnic minorities and the UK natives, about half of future growth in the working age population between 1999 and 2009 is forecasted to come from these minorities, and it is evident that the youngest age cohort of Muslim workers are far from well-integrated in the UK labor market. [39] The differences in Muslim's labor-market integration in the UK might have been one of the factors causing their slower assimilation into British society. Given the fast growth of the young minority workers in the UK, future terrorist activities would affect these groups more widely. It would be important to study how British Muslims have recently been faring in the UK job markets beneath the sporadically occurring terrorist events such as the Pan Atlantic Aircraft plot in London (August 2006) and the Glasgow Airport Attack (June 2007). Assessment of whether certain immigrant groups have become less employable in the Western labor markets overall is an area of further study. Field studies can be carried out to investigate whether Muslim-sounding applicants are as employable as other minority groups. The association between the post-9/11 local politics and the local labor-market outcomes for these immigrants remains a future area of study beyond the field of economics. Muslims are somewhat concentrated

[39] EUMAP – EU Monitoring and Advocacy Program – Aspirations and Reality: British Muslims and the Labour Market.

in specific occupations both in the US and in the UK. The post-9/11 security measures in the US targeted some occupations and industries more than others. A logical extension of this study would be to investigate the impact of 9/11 by occupation and industry types and by localities. Availability of data, however, remains a challenge in this area.

The findings in this study on the effects of the two recent terrorist events on the labor market outcomes of certain minority groups may contribute to advancement of our knowledge about how social animosity translates into labor market discrimination and in which segments of the workforce more significant discrimination occurs. In particular, this study finds that the magnitude of labor market discrimination arising from 9/11 varied across age groups as well as ethnicity groups. These newer findings in this particular area of research open up the door for future studies on identifying possible channels through which discrimination occurs, thereby generating policy implications as well as new thoughts on existing theories.

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Table 1: Descriptive Statistics for 1st and 2nd Generation Immigrant Men Age 16 to 25 living in the US
Target Groups: Immigrants from Muslim-Majority Countries. Comparison Group 1: Other Immigrants

Variable	Target Group A (Mid Eastern Arabs, Iranians, Afghan)	Target Grp. B (All Arabs, Iranians, Afghan, South Asians)	Target Grp. A (Men from all Special Registration Countries)	Comparison Group 1 (Immigrants from Non-Muslim-majority Countries)
Employment				
Jan. 99 to Sept. 01	69.1	62.2**	63.2**	75.86
Observations	*68*	*127*	*163*	*2,784*
Oct. 01 to Dec. 02	51.3**	49.1**	56.0**	74.7
Observations	*37*	*55*	*75*	*1,253*
Oct. 01 to Dec. 04	64.6**	62.5**	62.4**	74.02
Observations	*113*	*160*	*197*	*3,168*
Hours Worked per Week				
Jan. 99 to Sept. 01	28.8	25.6*	26.3+	29.36647
Observations	*67*	*124*	*160*	*2726*
Oct. 01 to Dec. 02	20.4*	19.0**	21.5**	28.72358
Observations	*36*	*54*	*73*	*1230*
Oct. 01 to Dec. 04	24.9*	20.9**	23.6**	28.30831
Observations	*111*	*157*	*194*	*3117*
Real Weekly Earnings				
Jan. 99 to Sept. 01	244.8	246.9*	241.0	247.3703
Observations	*52*	*81*	*100*	*2029*
Oct. 01 to Dec. 02	222.1	251.1**	245.2503	251.6574
Observations	*21*	*31*	*40*	*895*
Oct. 01 to Dec. 04	214.6	230.8**	268.7**	240.6799
Observations	*71*	*103*	*124*	*2244*
Age	21.941	21.943	22.088	21.879
Spouse Present = 1	8.333**	8.755*	8.413*	13.364
Citizen = 1	64.583**	59.677	55.449	58.294
Education Categories				
Below High school = 1	17.361*	17.05*	15.87*	27.915
High school Diploma = 1	38.194	36.405	36.137	39.586
Some College = 1	20.834	22.12+	22.563*	18.516

Bachelors' Degree = 1	12.847	15.207*	16.252*	10.657
Masters' or Above = 1	10.764*	9.217*	9.178*	3.326
Generation in USA				
1st Generation = 1	52.778	57.834	61.951+	53.093*
2nd Generation =1	47.222	42.166	38.049+	46.907*
3rd Generation =1				
Length of Stay in USA				
0 to 5 years =1	17.709	21.199	23.71+	17.573*
5 to 10 years = 1	15.625	17.973	21.224	16.64*
10+ years = 1	66.667	60.83	55.067**	65.788*
Major Occupation Groups				
Managers and Administrators	4.238	4.928	6.265	3.985
Professional	10.169	11.884	12.048	9.556
Associate Prof. & technical	3.39	3.478	3.132	2.04
Clerical and Secretarial	12.288	12.754	11.807	9.771**
Craft and related	17.373	15.942	17.109	21.272+
Personal and Protective	4.661	5.217	4.578+	4.414
Sales	25*	22.898	21.205+	10.94
Plant and Machine operatives	20.3*	20.29	21.2**	30.434**
Other	2.5*	2.609	2.651	7.588
Major Industry Groups				
Agriculture & Fishing	0.847	0.58	0.723	1.718
Energy & Water	0	0	0.241	0.453
Manufacturing	8.1+	7.826	7.711**	12.276*
Construction	5.1*	4.927	4.819*	12.419*
Distribution, Hotels & Restaurants	46.6*	44.348	43.855*	32.844*
Transport & Communication	5.509	7.247	7.711	5.345**
Banking, Finance & Insurance etc	13.56	16.522	16.627	15.45
Public admin, Education & Health	8.475	7.826	7.229	8.053
Other Services	11.864	10.724	11.084	11.441
Total Observations	**280**	**423**	**511**	**9527**

All variables except Real weekly earning, Hours worked per week and Age are categorical. Means are shown for variables for each target and comparison group. Differences between target and comparison groups are given in last six columns.Whenever difference between a target group's outcome is statistical significant, the target group's outcome is marked with asterisk(s): ** means significant at 1% level, * means significant at 5% level, + means significant at 10% level.

Table 2: Difference-in-differences Effects of 9/11 on Labor Market Outcomes of Immigrants form Muslim-Majority Countries Relative to Other Immigrants Living in the US

		Target A (Mid Eastern, Iranians, Afghan)			**Target B (In-Between Group)** (Group A, Pakistanis, African Arabs)			**Target C, (Broad Group)** (All Special Registration countries)		
		Age 16-25	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**
Years 1999 to 2002	**Employed=1**	-0. 448	-0. 200	-0. 030	-0. 379*	-0. 165	-0.01	-0. 292+	-0. 176+	-0.004
		(0. 242)	(0.153)	(0.044)	(0. 163)	(0.102)	(0.038)	(0. 142)	(0. 091)	(0.034)
	Observations	*4142*	*7795*	*39374*	*4219*	*7907*	*40091*	*4321*	*8024*	*40535*
	Weekly Hours	-17.032	-7.912	0.097	-19.216+	-6.913	-0.468	-10.778*	-5.112	-1.474
		(10.997)	(7.548)	(2.051)	(10.316)	(7.639)	(2.233)	(4.949)	(3.525)	(1.648)
	Observations	*4073*	*7575*	*38300*	*4152*	*7748*	*38990*	*4198*	*7850*	*39421*
	Log weekly earnings	-0.176	-0.104	-0.196**	0.052	0.107	-0.142*	0.144	0.235+	-0.096*
		(0.372)	(0.245)	(0.057)	(0.243)	(0.153)	(0.067)	(0.178)	(0.131)	(0.042)
	Observations	*2997*	*5826*	*27468*	*3036*	*5933*	*27927*	*3064*	*6003*	*28250*
Years 1999 to 2004	**Employed = 1**	-0. 306+	0. 044	-0. 013	-0. 149	0. 064	-0.027	-0. 167	-0.090	-0. 020
		(0. 161)	(0. 087)	(0. 034)	(0.112)	(0.068)	(0.028)	(0. 101)	(0. 060)	(0.025)
	Observations	*6136*	*11443*	*58250*	*6241*	*11592*	*59243*	*6314*	*11752*	*40709*
	Weekly Hours	-15.865**	-3.575	-1.07	-16.383*	-5.124	-1.783+	-7.659*	-2.537	-1.315
		(5.699)	(4.412)	(1.085)	(6.161)	(5.082)	(0.905)	(2.874)	(2.749)	(0.947)
	Observations	*6037*	*11128*	*56714*	*6148*	*11355*	*57672*	*6216*	*11501*	*58296*
	Log weekly earnings	0.024	0.069	-0.060+	0.231	0.166	-0.090+	0.257+	0.214**	-0.022
		(0.122)	(0.125)	(0.034)	(0.186)	(0.111)	(0.052)	(0.142)	(0.074)	(0.024)
	Observations	*4396*	*8468*	*40359*	*4457*	*8615*	*40996*	*4497*	*8713*	*41468*

For Earnings and Hours worked models, Robust Standard errors clustered by Group-State (36 clusters) are shown in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. For Ratio-employed, effects are difference-in-differences of probabilities predicted by Probit model. Difference-in-differences effect was predicted for each individual separately. Standard errors shown in parentheses were calculated using delta method. Explanatory Variables were i.Muslim, i.After i.race, i.State, experience, experience-squared, i.education, i.citizenship i.stay, i.generation, cubic time trend. Explanatory variables were interacted with Muslim dummy (except race, citizenship, experience, cubic time trend and log of state per-capita income).

Table-3: Difference-in-differences effects on the Weekly Earnings of Immigrants from all Special Registration Countries Compared to Other Immigrants Effects at shown at the 25th, 50th, 75th and the 90th Quatiles

Quantiles:	**0.25**	**0.5**	**0.75**	**0.9**	**0.25**	**0.5**	**0.75**	**0.9**
	Years 1999 to 2002				**Years 1999 to 2004**			
Age 16-25								
Muslim* After 9/11	-0.501+	-0.003	0.038	0.218+	-0.011	-0.078	0.071	0.175+
	(0.261)	(0.173)	(0.120)	(0.114)	(0.183)	(0.127)	(0.088)	(0.094)
Observations	*3521*	*3521*	*3521*	*3521*	*5185*	*5185*	*5185*	*5185*
Age 16-29								
Muslim* After 9/11	-0.293	0.142+	0.349**	0.034	-0.211	0.096+	0.316**	0.147
	(0.196)	(0.079)	(0.111)	(0.136)	(0.146)	(0.055)	(0.078)	(0.101)
Observations	*6687*	*6687*	*6687*	*6687*	*9737*	*9737*	*9737*	*9737*
Age 16-64								
Muslim* After 9/11	-0.107	-0.097*	-0.022	0.033	-0.054	-0.017	-0.015	0.013
	(0.073)	(0.048)	(0.056)	(0.060)	(0.061)	(0.042)	(0.042)	(0.048)
Observations	*30651*	*30651*	*30651*	*30651*	*45149*	*45149*	*45149*	*45149*

Standard errors are shown in parentheses. Statistical Significance: + means significant at 10%; * means significant at 5%; ** means significant at 1%. Upper panel shows that at the 25th percentile, relative earnings of Muslims ages 16 to 25 decreased by 50 percentage points after 9/11 by year 2002. However 9/11 was associated with about 20 percentage points increase in these youngest Muslims' relative earnings at the 90th percentile by year 2004. For Unemployed and Out-of-Labor force individuals, log-earning was assigned a value of zero. The effects of Divisions, Unemployment Rates, State per-capita incomes, Occupations and Educations were allowed to vary by the target group. Target Group C consists of 1st and 2nd generation immigrants from all but two Special Registration countries. Comparison Group 1 consists of 1st and 2nd generation immigrants excluding those from countries in target group C, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa.

Table 4: Descriptive Statistics for Men, Age 16 to 25 Living in the UK

Variables	**"Muslims"**	**Other Immigrants**	**Difference**	**UK-Born**	**Difference**
Employment	62.04	72.997	-10.957*	80.342	-18.302*
Observations	*1386*	*4433*		*57560*	
Hours Worked	21.855	28.917	-7.062*	31.164	-9.309*
Observations	*1254*	*3989*		*51694*	
Weekly Earnings	223.497	325.17	-101.673*	283.549	-60.052*
Observations	*196*	*755*		*11157*	
age	22.333	22.311	0.046	21.262	1.071*
citizenship	51.77	39.08	12.69*	1	50.359*
spouse	30.86	11.332	19.848*	4.323	26.537*
Length of stay	10.011	7.602	2.305*	21.262	-11.251*
Educational Qualification					
No Qualification	26.01	10.418	15.417*	10.881	15.129*
Foreign Education	23.806	36.212	-12.159*	2.278	21.528*
O-Level or Below	22.998	16.564	6.228*	41.174	-18.176*
Missing Value	2.351	1.851	0.525	1.271	1.080*
A level or Diploma Equivalent	13.299	19.717	-6.428*	30.234	-16.935*
Bachelor's or Higher	11.535	15.239	-3.583*	14.162	-2.627*
Observations					
Industry Categories					
Agriculture & fishing	0	0.914	-0.914*	1.483	-1.483*
Energy & water	0.847	0.221	0.135	0.847	-0.522+
Manufacturing	22.969	10.239	13.248*	16.809	6.160*
Construction	1.951	9.483	-8.060*	13.803	-11.852*
Distribution, hotels & restaurants	38.245	31.191	8.074*	26.79	11.455*
Transport & communication	13.76	7.75	5.654*	6.979	6.781*
Banking, finance & insurance etc	13.218	22.117	-9.187*	19.027	-5.809*
Public admin, education & health	4.767	9.83	-5.204*	7.92	-3.153*
Other services	6.313	8.223	-3.715*	6.313	-1.546+
Workplace outside UK	0	0.032	-0.032	0.029	-0.029
Occupation Categories					
managers and senior officials	7.13	8.595	-2.826*	7.13	-1.538+
Professional occupations	6.754	8.627	-3.699*	6.754	-1.491+
Associate professional and technical	7.456	15.074	-8.103*	13.005	-5.549*
Administrative and secretarial	6.798	8.82	-1.488	11.365	-4.567*
Skilled trades occupations	8.882	12.636	-4.103*	22.497	-13.615*
Personal service occupations	4.825	7.377	-2.208**	3.953	0.872
Sales and customer service occupation	15.022	9.429	6.316*	10.639	4.383*
Process, plant and machine operatives	15.131	7.409	7.976*	8.876	6.255*
Elementary occupations / Other	31.031	22.033	8.135*	15.781	15.250*
Observations in Occupations	908	3,603			

Source: *British Labour Force Survey Quarterly Files Winter 1998 to Summer 2006*

See Appendix IV for definitions of variables and Groups. Differences in means are shown with statistical significances where * means significant at 1% level, ** means significant at 5% level, + means significant at 10% level. Length of stay in UK is (about 9-years) for the youngest "Muslims" is similar to that for other immigrants. About half of the Muslim immigrants, in contrast to about forty percent of the non-Muslim immigrants, are UK citizens. Significant differences in marital status and education between "Muslims" and non-Muslims can be noticed.

Table 5: Mean Outcomes before and after the two terrorist events (i.e. 9/11 and the July bombings) for Target and Comparison group Men Age 16 to 25 in the UK

Outcome Variables	Immigrants from Muslim-Countries (Target Group A)	Other Immigrants (Comparison Group 1)	Diffeerence-in-Differences Between A and 1	UK-born (Comparison Group 2)	Diffeerence-in-Differences Between A and 2
Employment					
Jan.99 to Aug.01	71.08	73.51		82.24	
Observations	*491*	*1344*		*22208*	
Oct.01*to*Dec.02	63.92	75.87	-9.52*	81.34	-5.965
Observations	*291*	*692*		*9412*	
Oct.01 to Dec.04	62.96	75.00	-9.61**	80.05	-5.52
Observations	*656*	*1712*		*23556*	
Jan.04 to Jun.05	62.63	73.78		79.78	
Observations	*289*	*906*		*9800*	
Aug.05 to Sept.06	60.79	78.82	-6.88+	77.23	-5.19
Observations	*329*	*1601*		*7230*	
Hours Worked					
Jan.99 to Aug.01	23.82	28.05		31.858	
Observations	*451*	*1350*		*20407*	
Oct.01 to Dec.02	21.18	28.39	-2.98	30.82	-1.602
Observations	*252*	*660*		*8636*	
Oct.01 to Dec.04	21.16	28.05	-2.66	30.245	-1.047
Observations	*588*	*1666*		*21508*	
Jan.04 to Jun.05	22.41	29.66		31.037	
Observations	*203*	*695*		*8648*	
Aug.05 to Sept.06	25.21	32.34	0.12	32.3	1.537
Observations	*97*	*607*		*5879*	
Weekly Earnings					
Jan.99 to Aug.01	185.02	322.76		269.64	
Observations	*77*	*277*		*4741*	
Oct.01 to Dec.02	243.07	334.42	46.39	296.44	31.25
Observations	*39*	*124*		*1852*	
Oct.01 to Dec.04	246.312	328.809	55.243	294.41	36.522
Observations	*85*	*310*		*4392*	
Jan.04 to Jun.05	266.28	302.69		302.49	
Observations	*26*	*122*		*1723*	
Aug.05 to Sept.06	252.77	324.33	-35.15	292.107	4.503
Observations	*46*	*238*		*1216*	

See Appendix IV for definitions of variables and Groups. Differences in means are shown with statistical significances: * means significant at 1% level, ** means significant at 5% level, + means significant at 10% level. Employment gap for the very young Muslims compared to other immigrants increased after 9/11 and then after July 2005. The pre- and post July bombings outcomes for Muslim men age 16 to 25 are shown in appendix table A3.

Table 6: Difference-in-differences Effects of 9/11 and July bombings on Labor Market Outcomes of Male Immigrants from Muslim-Majority Countries in the UK
OLS Models were used for all outcomes. Comparison Groups: Other Immigrants (Upper Panel) and UK-born Men (Lower Panel)

		Dec. 1999 to Dec. 2002 Interaction: Muslim*After 9/11			Dec. 1999 to Dec. 2004 Interaction: Muslim*After 9/11			Jan 2004 to Sept. 2006 Interaction: Muslim*After July-2005		
		Age 16-25	*Age 16-29*	*Age 16-54*	*Age 16-25*	*Age 16-29*	*Age 16-54*	*Age 16-25*	*Age 16-29*	*Age 16-54*
Comparison Group: Other Immigrants	**Employed=1**	-0.093+	-0.024	0.002	-0.100*	-0.060+	-0.008	-0.060	-0.049	-0.026
		(0.054)	(0.038)	(0.020)	(0.046)	(0.033)	(0.017)	(0.054)	(0.050)	(0.024)
	Observations	2947	5952	25264	4424	9035	38021	1929	4047	16726
	Weekly Hours Worked	-3.502	0.214*	-0.19	-4.085*	-2.446	-0.426	-1.262	0.719	0.227
		(2.351)	(0.105)	(0.984)	-2.011	-1.497	(0.840)	(3.122)	(2.290)	(1.193)
	Observations	2736	5535	23125	4103	8385	34704	1621	3445	14300
	Log Weekly Earnings	0.256	0.138	0.016	0.220+	0.165+	0.046	-0.056	0.017	0.068
		(0.170)	(0.110)	(0.055)	(0.129)	(0.092)	(0.046)	(0.202)	(0.152)	(0.088)
	Observations	518	1100	4508	750	1627	6695	285	675	2843
Group: UK-born Men	**Employed = 1**	-0.046	-0.011	0.009	-0.035	-0.02	0.009	-0.068	0.027	0.004
		(0.049)	(0.036)	(0.019)	(0.041)	(0.031)	(0.016)	-0.072	-0.047	-0.023
	Observations	32230	52773	200511	46623	74990	287200	17301	26994	105721
	Weekly Hours Worked	-1.609	-0.206	0.245	-0.6	-0.256	0.357	1.283	2.456	1.274
		(2.061)	(1.546)	(0.918)	(1.721)	(1.350)	(0.787)	-2.953	-2.068	-1.12
	Observations	29610	48399	181915	42711	68634	260206	14738	23240	91752
	Log Weekly Earnings	0.249	0.158	0.016	0.256**	0.148+	0.013	0.17	0.055	-0.003
		(0.159)	(0.106)	(0.054)	(0.113)	(0.084)	(0.045)	-0.18	-0.145	-0.085
	Observations	6704	11598	45394	9290	15895	63765	2984	5060	21730

Numbers show the coefficients of interaction between Muslim dummy and Post-9/11 (post-July 2005 for the last three columns). All results shown were given by OLS regressions. Robust Standard Errors clustered by groups and years are shown in parentheses. Robust Standard Errors clustered by persons are shown in parentheses. Coefficients are shown with statistical significances where * means significant at 1% level, ** means significant at 5% level, and + means significant at 10% level. For all models, Explanatory Variables were Muslim dummy, After-911 (After-July-bombings for the Last three columns) dummy, Region dummies, Age, Age-squared, education dummies. i.citizenship and Length of stay in the UK. Explanatory variables were interacted with Muslim dummy.

Table 7: Difference-in-differences Effects of July Bombings on Labor Market Outcomes of Muslim Men
UK sample Between 1st Quarter of 2004 and 2nd Quarter of 2007

		Age 16-25		Age 16-29		Age 16-54	
		Basic Model	Full Model	Basic Model	Full Model	Basic Model	Full Model
Comparison Group: Non-Muslim Immigrants	Employed=1	-0.137**	-0.103*	-0.042	-0.024	-0.028+	-0.026
		(0.041)	(0.047)	(0.028)	(0.033)	(0.016)	(0.018)
	Observations	4396	4396	8477	8477	29826	29826
	Weekly Hours Worded	-6.627**	-4.469*	-2.712*	-1.525	-1.866*	-1.724+
		(1.757)	(2.031)	(1.301)	(1.523)	(0.772)	(0.892)
	Observations	4124	4124	7875	7875	27341	27341
	Log Weekly Earnings	-0.190+	-0.325*	0.06	-0.023	0.059	0.032
		(0.111)	(0.137)	(0.088)	(0.107)	(0.061)	(0.068)
	Observations	642	642	1424	1424	5062	5062
Comparison Group 2: All UK-born Men	Employed=1	-0.052	-0.039	0.018	0.022	-0.002	0.005
		(0.033)	(0.025)	(0.025)	(0.029)	(0.014)	(0.017)
	Observations	30018	30018	46531	46531	183913	183913
	Weekly Hours Worked	-2.383+	-2.413	0.66	0.674	-0.348	-0.023
		(1.341)	(1.522)	(1.072)	(1.252)	(0.680)	(0.787)
	Observations	27589	27589	42662	42662	166392	166392
	Log Weekly Earnings	-0.001	-0.084	0.137+	0.139	0.042	0.074
		(0.085)	(0.104)	(0.073)	(0.090)	(0.055)	(0.065)
	Observations	5227	5227	8822	8822	38035	38035

Numbers show the coefficients of interaction between Muslim dummy and "post-July 2005" dummy. All results shown were given by OLS regressions. All variables except log weekly earning, Hours worked per week, Age, Length-of-stay and Local Employment Rate are categorical. Log-earnings models included only employed men. However, in the Hours-Worded models, hours was set equal to zero if not employed. Standard Errors clustered by "persons" are shown in parentheses. Coefficients are shown with statistical significances where ** means significant at 1% level, * means significant at 5% level, and + means significant at 10% level.

Table 8: Descriptive Statistics; For Men Age 16 to 64 living in the US

	Group Means				Differences Between Means		
Variable	**Target Grp. A**	**Target Grp. B**	**Target Grp. C**	**Comparison Grp. 1**	**C - 1**	**B - 1**	**A - 1**
Employed = 1							
Jan. 99 to Sept. 01	83.583	83.208	83.627	83.849	-0.266	-0.641	-0.222
Observations	*1535*	*2263*	*2,724*	*47,254*			
Oct. 01 to Dec. 02	81.302	82.034	82.82	82.795	-1.493	-0.761	0.025
Observations	*599*	*885*	*1071*	*17,344*			
Oct. 01 to Dec. 04	81.234	82.021	82.655	82.745	-1.511	-0.724	-0.09
Observations	*1540*	*2197*	*2629*	*43,679*			
Hours Worked per Week							
Jan. 99 to Sept. 01	37.316	36.908	36.718	35.728	1.588*	1.180*	0.990**
Oct. 01 to Dec. 02	35.5	35.959	36.143	34.743	0.757	1.216+	1.400**
Oct. 01 to Dec. 04	35.198	35.859	35.956	34.718	0.48	1.141*	1.238*
Real Weekly Earnings							
Jan. 99 to Sept. 01	470.847	456.178	446.224	425.573	45.274*	30.605*	20.651*
Observations	*1404*	*1404*	*1738*	*33224*			
Oct. 01 to Dec. 02	474.488	452.295	455.1	428.217	46.271*	24.078**	26.883**
Observations	*366*	*559*	*698*	*12072*			
Oct. 01 to Dec. 04	466.167	451.802	447.52	425.989	40.178*	25.813*	21.531*
Observations	*913*	*1357*	*1674*	*30246*			
Age	40.292	39.914	39.59	41.402	-1.110*	-1.488*	-1.812*
Spouse Present = 1	62.845	61.997	61.179	61.678	1.167	0.319	-0.499
Citizen = 1	67.425	63.205	59.724	66.525	0.9	-3.320*	-6.801*
Education Categories							
Below High school = 1	8.282	7.61	6.918	15.784	-7.502*	-8.174*	-8.866*
High school Diploma = 1	23.19	21.979	21.947	29.913	-6.723*	-7.934*	-7.966*
Some College = 1	15.199	14.995	15.476	18.572	-3.373*	-3.577*	-3.096*
Bachelors' Degree = 1	23.255	25.157	25.453	17.513	5.742*	7.644*	7.940*
Masters' or Above = 1	30.075	30.26	30.207	18.219	11.856*	12.041*	11.988*
Generation in USA							
1st Generation = 1	83.761	85.609	86.146	59.042	24.719*	26.567*	27.104*
2nd Generation =1	16.239	14.391	13.854	40.958	-24.719*	-26.567*	-27.104*
3rd Generation =1							
Length of Stay in USA							
0 to 5 years =1	10.88	13.026	14.19	9.271	1.609*	3.755*	4.919*
5 to 10 years = 1	13.414	16.249	18.106	11.905	1.509**	4.344*	6.201*
10+ years = 1	75.706	70.725	67.704	78.824	-3.118*	-8.099*	-11.120*
Table 1 Continued:							
Major Occupation Groups							
Managers and Administrators	15.32	14.433	13.955	13.083	2.237*	1.350**	0.872+

Professional	21.572	20.582	21.068	17.055	4.517*	3.527*	4.013*
Associate Prof. & technical	7.093	8.157	7.614	3.875	3.218*	4.282*	3.739*
Clerical and Secretarial	4.278	4.694	4.756	6.043	-1.765*	-1.349*	-1.287*
Craft and related	10.713	10.994	11.598	15.358	-4.645*	-4.364*	-3.760*
Personal and Protective	1.974	2.158	2.419	3.582	-1.608*	-1.424*	-1.163*
Sales	21.426	20.557	20.067	9.811	11.615*	10.746*	10.256*
Plant and Machine operatives	14.699	15.613	15.916	24.939	-10.240*	-9.326*	-9.023*
Other	2.925	2.811	2.607	6.253	-3.328*	-3.442*	-3.646*
Major Industry Groups							
Agriculture & Fishing	0.366	0.351	0.396	1.508	-1.142*	-1.157*	-1.112*
Energy & Water	0.658	0.653	0.751	1.242	-0.584*	-0.589*	-0.491*
Manufacturing	12.139	11.672	11.681	16.765	-4.626*	-5.093*	-5.084*
Construction	5.557	4.719	4.568	10.974	-5.417*	-6.255*	-6.406*
Distribution, Hotels & Restaurants	33.711	33.634	33.854	21.009	12.702*	12.625*	12.845*
Transport & Communication	6.472	7.907	8.365	7.663	-1.191**	0.244	0.702+
Banking, Finance & Insurance etc	15.942	15.889	15.52	16.727	-0.785	-0.838	-1.207**
Public admin, Education & Health	15.247	16.29	15.895	13.941	1.306+	2.349*	1.954*
Other Services	9.908	8.885	8.969	10.17	-0.262	-1.285*	-1.201*
Total Observations	**2955**	**4285**	**5149**	**88338**			

Source: *CPS-MORG Files 1998 to 2004*

All variables except Real weekly earning, Hours worked per week and Age are categorical.

Means are shown for variables for each target and comparison group. Differences between target and comparison groups are given in last six columns.

Statistical significance of differences is denoted: ** means significant at 1% level, * means significant at 5% level, + means significant at 10% level.

Table 9: Difference-in-Differences Estimates from Using the Months Between September-1999 and August 2001 as a Pseudo Post-9/11 period in the US
Effects for Target Groups A, B and C compared to Other Immigrants

		Target A, Comparison 1			Target B, Comparison 1			Target C, Comparison 1		
		Age 16-25	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**
Jan. 1998 to Aug. 2001	Employment	-0.074	0.01	-0.024	-0.051	0.042	-0.011	0.046	0.064	-0.014
		(0.081)	(0.042)	(0.025)	(0.082)	(0.033)	(0.027)	(0.094)	(0.040)	(0.027)
	Observations	3872	7279	36660	3836	7190	36282	3775	7056	35675
	Log weekly earnings	-0.097	-0.113	0.045	0.031	-0.049	0.037	-0.096	-0.115	0.052
		(0.080)	(0.079)	(0.029)	(0.088)	(0.055)	(0.030)	(0.073)	(0.093)	(0.038)
	Observations	2783	2783	25639	2760	5419	25360	2729	5337	24963
	Weekly Hours Worked	-3.242	1.131	-1.102	-1.747	2.908	-1.053	0.329	1.492	-1.716
		(3.557)	(2.095)	(1.498)	(3.698)	(2.261)	(1.658)	(4.081)	(2.598)	(1.606)
	Observations	3793	7104	35593	3757	7017	35226	3698	6889	34652

Numbers show the difference-in-differences effects from the models with a pseudo 9/11 date. I took the monthly data from January1998 through August 2001 and used September 1999 as the month after which the "Post 9/11" dummy was assigned a value of one. Models were run for target groups A, B and C and comparison group 1. Robust Standard errors clustered by Group-State (36 clusters) are in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. Effects on Earnings and Hours worked were given by OLS regressions and effects on Employment were from probit models. None of the estimates are statistically significant.

Target Group A1: 1st and 2nd generation immigrants from Afghanistan, Bangladesh, Egypt, Indonesia, Middle eastern Arab countries, Iran, Libya, Morocco, North Africa and Pakistan. Target Group B: 1st and 2nd generation immigrants from Afghanistan, Middle Eastern Arab countries, Iran, Pakistan, Egypt and Morocco. Target Group A: 1st and 2nd generation immigrants from Afghanistan, Middle Eastern Arab countries and Iran.

Comparison Group 1 consists of 1st and 2nd generation immigrants excluding those from countries in target group C, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa.

Table 10: Employment and Earning Gaps Between Immigrants from Muslim-majority Countries and Other Immigrants Living in the UK
Results given by Oaxaca Decomposition of Mean Outcome-Gap

	Gap in Employment Ratio			Gap in Log Weekly Earnings		
Effect	**Age 16-25**	**Age 16-29**	**Age 16-54**	**Age 16-25**	**Age 16-29**	**Age 16-54**
ΔY: Total Gap	0.113	0.133	0.146	0.368	0.515	0.555
	(-0.01)	(0.004)	(0.00)	(0.00)	(-0.04)	(-0.02)
Explained Gap	0.02	0.042	0.049	0.093	0.186	0.198
	(-0.01)	(0.005)	(0.00)	(-0.01)	(-0.03)	(-0.01)
Residual Gap	0.092	0.0913	0.097	0.275	0.329	0.357
	(-0.01)	(0.009)	(0.00)	(0.00)	(-0.03)	(-0.02)

NOTE: The Employment gap models included all men where as the gap in log weekly earning included only employed men. Sample includes only 1st generation immigrants from (1) other countries and (2) Muslim-majority countries (Bangladesh Morocco Egypt Pakistan Iran Other-Middle-East Iraq Lebanon). Time period is from winter 1999 to Fall 2006. Explanatory Variables were Potential experience and it's square, years of education, Length of stay in the UK, citizenship dummy and marital status dummy, regional unemployment rates, Ratios of the two groups' population across regions, and a cubic trend variable created over quarters.

Appendix I: Time-lines of Legal Changes in the US after 9/11

Time period covered in this study is quarter-1 of 1998 to quarter-4 of 2004.

The US Patriot Act: It was passed by the House on October 12, 2001, and by the Senate on October 11, 2001.The USA Act was quickly combined with the Financial Anti-Terrorism Act to become the USA PATRIOT Act on October 26, 2001.

The Homeland Security Act: Homeland Security Act was passed into law on November 25, 2002. It established the Department of Homeland Security. The Senate passed the bill on November 19. On november13 - Executive order was signed allowing military tribunals against any foreigners suspected of having connections to terrorist acts or planned acts on the United States.

The Special Registration Program: On November 6, 2002. Federal Register Notice was given. "Call-In" Requirements for Special Registration for Males form specific countries. Any affected individual who fails to follow these requirements may lose his immigration legal status.

The Special Registration Program revoked: Effective December 2, 2003, the requirement of annual follow-up reporting was eliminated. Also eliminated was the requirement of follow-up reporting 30-40 days after entry into the United States. Other aspects of Special Registration, such as departure reporting, and port of entry registration are still in existence.

Appendix II: Definitions

Variables Analysed

Employment: Assigned the value 1 if a person was employed in the reference week and 0 if unemployed or not-in-labor force. For a group, employment refers to the ratio of number of employed men to the total number in the group. In the regressions, it is a categorical variable.

Earnings: Gross real weekly earnings if employed (adjusted for inflation) in the reference week/month. In the regression models, log of earning was used. In the quantile regressions, all observations in relevant groups were used. In this case, value of log earnings was plugged to zero for those who were unemployed or out-of-labor force.

Hours Worked: Number of hours worked in the reference week. Hours worked was set to zero for individuals who were not employed.

Groups in the US Data

"Muslims": Immigrants from muslim-majority countries.
Target group C (the Broad Group): 1st and 2nd generation immigrants from most Countries under Special Registration Program. (Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries Iran, Libya, Morocco, North Africa and Pakistan.).
Target group B (the In-between Group): 1st and 2nd generation immigrants from Afghanistan, Middle Eastern Arab countries, Iran, Pakistan, Egypt and Morocco
Target group A (the Narrow Group): 1st and 2nd generation immigrants from Middle Eastern Arab countries, Iran and Afghanistan
Comparison Group 1: 1st and 2nd generation immigrants excluding Target group C, Mexico, Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa".
Comparison Group 2: All US-born men excluding Target group C.
Comparison Group 3: All US born non-Hispanic Whites excluding target group C.

Groups in the UK data

Target Group C: 1st-generation immigrant men from Muslim-majority countries (Bangladesh Morocco Egypt Pakistan Iran Other-Middle-East Iraq Lebanon).
Target Group B: Men who are Muslim by religion (identifiable only since 2003)
Comparison Group 1: Male immigrants from non-Muslim-majority countries.
Comparison Group 2: Immigrants from non-Muslim-majority countries.

Appendix III: Additional Tables

Table A1: Descriptive Statistics for Comparison Groups 2 and 3 in the USA.

	Age 16-64		**Age 16-25**	
Variable	**Comp. 2**	**Comp. 3**	**Comp. 2**	**Comp. 3**
Employed = 1				
Jan. 99 to Sept. 01	0.841	0.862	0.782	0.826
Oct. 01 to Dec. 02	0.826	0.846	0.758	0.801
Oct. 01 to Dec. 04	0.819	0.840	0.744	0.790
Hours Worked per Week				
Jan. 99 to Sept. 01	36.308	37.556	30.687	32.686
Oct. 01 to Dec. 02	35.244	36.430	29.488	31.396
Oct. 01 to Dec. 04	34.887	36.121	28.547	30.592
Real Weekly Earnings				
Jan. 99 to Sept. 01	485.119	509.590	254.424	262.036
Oct. 01 to Dec. 02	497.643	521.170	262.089	269.142
Oct. 01 to Dec. 04	495.849	519.940	254.562	261.869
Observations	328813	269533	38678	28585
Age	41.227	41.750	21.602	21.664
Spouse Present = 1	0.590	0.621	0.124	0.127
Citizen = 1	1.000	1.000	1.000	1.000
Education Categories				
Below High school = 1	0.120	0.101	0.243	0.217
High school Diploma = 1	0.339	0.328	0.420	0.413
Some College = 1	0.220	0.218	0.199	0.208
Bachelors' Degree = 1	0.163	0.177	0.114	0.134
Masters' or Above = 1	0.159	0.176	0.024	0.028
Generation in USA				
1st Generation = 1	0.000	0.000	0.000	0.000
2nd Generation =1	0.073	0.070	0.079	0.053
3rd Generation =1	0.927	0.930	0.921	0.947
Length of Stay in USA				
0 to 5 years =1	0.001	0.000	0.003	0.000
5 to 10 years = 1	0.001	0.000	0.003	0.001
10+ years = 1	0.998	1.000	0.995	0.999

Major Occupation Groups				
Managers and Administrators	0.150	0.163	0.044	0.048
Professional	0.169	0.179	0.096	0.104
Associate Prof. & technical	0.032	0.032	0.020	0.019
Clerical and Secretarial	0.063	0.056	0.094	0.082
Craft and related	0.138	0.135	0.206	0.211
Personal and Protective	0.044	0.039	0.050	0.045
Sales	0.111	0.117	0.120	0.121
Plant and Machine operatives	0.240	0.228	0.299	0.298
Other	0.053	0.050	0.071	0.072
Major Industry Groups				
Agriculture & Fishing	0.015	0.016	0.018	0.020
Energy & Water	0.020	0.021	0.008	0.008
Manufacturing	0.168	0.173	0.115	0.119
Construction	0.119	0.123	0.134	0.146
Distribution, Hotels & Restaurants	0.181	0.179	0.325	0.324
Transport & Communication	0.082	0.076	0.057	0.050
Banking, Finance & Insurance etc	0.165	0.167	0.143	0.138
Public admin, Education & Health	0.154	0.148	0.087	0.082
Other Services	0.097	0.097	0.114	0.114
Observations	328813	269533	38678	28585

All variables except Real weekly earning, Hours worked per week and Age are categorical. Means are shown for variables for each target and comparison group. Comparison group 2 refers to all US-born men excluding the 2nd generation immigrants from target group A1, India, Mexico, Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa". Comparison group 3consists of all US born non-Hispanic White men who are not in target group C.

Table A2: Descriptive Statistics of Outcome- and Demographic Variables for Men, Age 16 to 54 in the UK

Outcome Variables	**Immigrants from Muslim-countries**	**Other Immigrant**	**Difference**
Employment	69.41	83.8963	-14.486*
Observations	*11290*	*38513*	
Hours Worked	26.444	36.038	-9.594*
Observations	*10115*	*34483*	
Weekly Earnings	369.08	586.89	-217.81*
Observations	*1456*	*7237*	
age	36.871	37.187	-0.292*
citizenship	63.72	51.80	11.92*
spouse	75.582	54.254	21.423*
Length of stay	18.056	17.313	0.737*
Educational Qualification			
No Qualification	30.086	10.224	19.839*
Foreign Education	29.502	32.344	-2.804*
O-Level or Below	10.75	9.627	1.086*
Missing Value	1.329	0.975	0.348*
A level or Diploma Equivalent	12.007	22.549	-10.540*
Bachelor's or Higher	16.327	24.282	-7.929*
Observations			
Industry Categories			
Agriculture & fishing	0.065	0.704	-0.639*
Energy & water	0.234	0.616	-0.382*
Manufacturing	18.275	12.914	5.354*
Construction	2.594	9.156	-6.573*
Distribution, hotels & restaurants	34.89	19.139	15.774*
Transport & communication	17.73	9.744	7.979*
Banking, finance & insurance etc	13.164	25.031	-11.852*
Public admin, education & health	9.43	16.104	-6.678*
Other services	3.515	6.404	-2.898*
Workplace outside UK	0.103	0.189	-0.085
Occupation Categories			
managers and senior officials	18.696	22.506	-3.790*
Professional occupations	12.271	19.24	-6.956*
Associate professional and technical	6.478	14.466	-7.981*
Administrative and secretarial	4.644	5.206	-0.557**
Skilled trades occupations	12.693	13.48	-0.813+
Personal service occupations	4.776	4.182	0.573**
Sales and customer service occupation	5.99	3.301	2.682*
Process, plant and machine operatives	21.758	7.297	14.457*
Elementary occupations / Other	12.693	10.323	2.384*
Observations in Occupations	*8,633*	*36,002*	

Source: *British Labour Force Survey Quarterly Files Winter 1998 to Summer 2006*

See Appendix IV for definitions of variables and Groups. Differences in means are shown with statistical significances: * means significant at 1% level, ** means significant at 5% level, + means significant at 10% level. Out of the men age 16 to 54, about 26 percent of the Muslims have no qualification compared to 8 percent of the comparison group. Muslims are more concentrated in the Distribution, Hotel and Restaurants sector (about 35 percent) compared to the comparison groups (about 15 to 19 percent).

Table A3: Mean Outcomes before and after the two terrorist events (i.e. 9/11 and the July bombings) for Target and Comparison group's Men. Age 16 to 54

Employment	"Muslims"	Other Immigrants	Difference	Diffeerence-in-differences	UK-born	Difference	Diffeerence-in-differences
Jan.99 to Aug.01	70.176	83.1	-12.92**		88.89	-18.71**	
Observations	*3789*	*12915*			*137862*		
Oct.01 to Dec.02	69.063	83.37	-14.31**	-1.383	88.9	-19.84**	-1.123
Observations	*1836*	*6520*			*57741*		
Oct.01 to Dec.04	69.914	84.281	-14.37**	-1.443	88.509	-18.60**	0.119
Observations	*4793*	*16217*			*141810*		
Jan.04 to Jun.05	72.582	85.29452	-12.71**		88.45	-15.87**	
Observations	*2068*	*7317*			*60529*		
Aug.05 to Sept.06	71.75	84.991	-13.24**	-0.52848	87.84	-16.09**	-0.222
	1473	5690			41995		
Hours Worked							
Jan.99 to Aug.01	26.834	35.55	-8.72**		37.85	-11.02**	
Observations	*3480*	*11778*			*124970*		
Oct.01 to Dec.02	25.209	35.25	-10.04**	-1.325	37.24	-12.03**	-1.015
Observations	*1692*	*5986*			*52344*		
Oct.01 to Dec.04	25.846	35.58	-9.73**	-1.018	37.03	-11.18**	-0.168
Observations	*4426*	*14736*			*128184*		
Jan.04 to Jun.05	27.666	36.78	-9.11**		37.52	-9.85**	
Observations	*1818*	*6460*			*53609*		
Aug.05 to Sept.06	30.32	38.41	-8.09**	1.024	38.55	-8.23**	1.624
Observations	*1153*	*4754*			*35449*		
Weekly Earnings							
Jan.99 to Aug.01	356.219	570.201	-213.98**		496.2	-139.98**	
Observations	*513*	*2531*			*31811*		
Oct.01 to Dec.02	398.8	626.47	-227.67**	-13.688	527	-128.20*	11.781
Observations	*255*	*1194*			*12892*		
Oct.01 to Dec.04	376.75	604.716	-227.97**	-13.984	535.66	-158.91+	-18.929
Observations	*617*	*3013*			*30927*		
Jan.04 to Jun.05	367.3	592.69	-225.39**		555.55	-188.25	
Observations	*257*	*1310*			*12786*		
Aug.05 to Sept.06	399.39	579.72	-180.33**	45.06	561.91	-162.52	25.73
Observations	*197*	*1062*			*8519*		

Differences in means are shown with statistical significances: ** means significant at 1% level, * means significant at 5% level, + means significant at 10% level. For men age 16 to 54, gaps in outcome variables did not change significantly after 9/11.

Chapter 3

Did Employment of Young "Muslim" Men Deteriorate In the post 9-11 Labor Markets in the US and the UK? - Verification of Findings and Research Design

by

Md. Faisal Rabby

Introduction

The terrorist events in the recent years offer us some natural experiments on labor market discrimination and several studies have investigated the effects of the terrorist events on the labor market outcomes of certain minority groups that are either Muslims by religious affiliation or fit the Muslim stereotype ("Muslim" hereafter). In this thesis, I find evidence that 9/11 was associated with deteriorations in earnings of working-age "Muslim" men in the US compared to other immigrants and natives. Furthermore, employment of very young "Muslims" deteriorated in the US and in the UK after 9/11 and then again in the UK after the bombings in London in July 2005 (July bombings hereafter). This finding is consistent with the theories of discrimination and also with the previous empirical research on the effects of 9/11. A key hypothesis of dissertation is that the demographic groups that are closer to the terrorists in terms nativity and age profile, should experience more discrimination after a terrorist event and I have found evidence from the US and the UK data to support this hypothesis; particularly, groups that are closer to the terrorists in nativity, religion and age profile experienced greater relative deterioration in economic wellbeing after the terrorist events.

I hypothesized bigger impact of terrorist events on the labor market outcomes of young men because of two reasons: *First,* in terms of age profile, younger workers are closer to the terrorists and should become the primary targets of prejudicial and/or statistical discrimination. As new job market entrants they usually have weaker ties to recruiters and fewer credentials to prove their reliability in terms of interpersonal skills, teamwork, customer-dealings etc. *Second,* Employer's cost of discrimination should be lower for younger "Muslims" than for older ones as entry level jobs usually required less

specialization and therefore one group of workers may easily be able to substitute another. As fresh entrants in the job markets, younger "Muslims" might have been more vulnerable to the adverse affects of the anti-terrorism laws and programs that ensued from 9/11 and targeted mainly the non-citizen men from the Special Registration countries.[1] Furthermore, the July bombings raised strong concerns on home-grown terrorism in the UK and made younger Muslims the primary targets of suspicion and fear.

The findings in this study on the deterioration in the employment of very young "Muslim" men after the two terrorist events can be questioned on the following grounds: *First*, in the post-9/11 years, the relative decreases in average employment of some groups of young "Muslims" were accompanied by relative increase in their average earnings. S*econd*, for some of the groups of young "Muslims", the number of observations may seem small. *Third*, the validity of comparison groups can always be questioned. *Fourth*, the post-911 drop in employment of "Muslim" men might have been driven by a significant net emigration of non-citizen working Muslims who had to leave the US due to the anti-terrorism programs that included deporting certain types non-citizens. The first concern has already been addressed in the previous chapter by the results from the quantile regressions that were indicative of a post-9/11 loss of "Muslim" men's employment from the lower-tail of their earnings distribution. In this chapter I address the remaining three questions and other issues related to the robustness of the findings of this thesis.

So far in this thesis, I have discussed the changes in outcomes of several target groups consisting of either Muslim men or immigrant men from Muslim-majority

[1] About 50% of the younger men and 40% of all men from the Muslim-majority countries in the US are non-citizens

countries. As the target groups in the US, I have used (a) Immigrant men from all special registration countries (except North Korea, Somalia and Eritrea), (b) Immigrant men from African and Middle Eastern Arab countries, Iran, Afghanistan and Pakistan and finally a much narrower subgroup: (c) Immigrant men from Middle Eastern Arab countries, Iran and Afghanistan. In the case of the UK, two target groups have been constructed: (a) Male immigrants from Muslim-majority countries and (b) Men who are Muslims by religious affiliation. Each difference-in-differences analysis in this study is carried out for young age-groups (age 16 to 25 and age 16 to 29) as well for the whole sample. As most of the target groups are immigrants or of immigrant descents, my preferred comparison group has been immigrants from non-Muslim majority countries. This is due to the fact that in terms of socio-cultural aspects, soft-skills, language proficiency etc, which affect worker's employability and wages, other immigrants are a better match than natives.

I explore the validity of the findings in the following sections: 1) applying some pseudo intervention dates in difference-in-differences analysis. 2) Visually checking the trends in employment ratios of the target and comparison groups. 3) Checking if increases in net emigration played any significant role in driving the results; 4) exploring results from using additional comparison groups. 5) Replicating the findings in previous studies. 6) Applying propensity score matching on data before running the difference-in-differences analysis. 7) Bootstrapping the standard errors of the difference-in-differences effects.

Findings from using Different Intervention Dates:

One important determinant of the robustness of the difference-in-differences results is the validity of the comparison group. The trends in the labor market outcomes should be similar for the target and comparison groups (except for the post-terrorist event period). In other words, business cycles should affect them similarly under normal conditions throughout the time. To check this underlying assumption, I run difference-in-differences models with two pseudo intervention dates in the US: one that is preceded and superseded only by some pre-9/11 months and the other date that is spanned only by post-9/11 months.[2] I do similar tests on the UK data too. The monthly data from January1998 through August 2001 are taken and September 1999 is used as the month after which the "Post 9/11" dummy is assigned a value of one. The models are run for target groups A, B and C and comparison group 1. The difference-in-differences results are shown in the table 1. The effects on employment are often close to zero and are always statistically insignificant. The second set of months is October 2002 through December 2004 with September 2003 as a pseudo intervention date. Table 2 shows the estimates of the corresponding difference-in-differences in outcomes. In this case there was an increase in the relative employment of younger men in from Middle East, Iran and Afghanistan. However, it is not counter-intuitive as the previous chapter shows that the shock of 9/11 on these young men was dissipating between 2003 and 2004. In other words, this second set of months is not independent of the shock of 9/11.

Table 3 and table 4 reveal that the relative decline in the employment of young "Muslims" started to occur sometime after September 2001 and before March 2002.

[2] Notice that the 2nd set of months should start sufficiently long after 9/11, i.e. after the effect of the event

Table 3 contains the difference-in-differences in the employment of "Muslim" men aged 16 to 25 for a range of intervention dates from the 1st quarter of 2000 to the 2nd quarter of 2003. Table 4 shows the corresponding results for men aged 16 to 29. All the difference-in-differences effects shown in these two tables are regression adjusted and cover data from 1999 through 2004. Choosing this wide range of dates helps to find out the narrow span of time when the relative change in employment started to occur. Both of the tables show that the difference-in-differences effects are statistically significant only for the dates between the 2nd and the 4th quarters of 2001.

Table 5 shows the difference-in-differences effects on the labor market outcomes of young Muslims in the UK using June 2004 as the intervention date. The range of time considered here is January 2003 through June 2005. The upper panel shows the estimates of changes for Muslims compared to non-Muslim immigrants and the lower panel uses a comparison group comprising non-Muslim minority men who are neither white nor black. All the coefficients are small and none are statistically significant.

Table 6 shows that difference-in-differences estimates applying a wide range of intervention dates after and before 9/11 in the UK data give fluctuating results indicating a lack of robustness of the estimated effect of 9/11 on the employment of young men from Muslim-majority countries.

Table 7 and table 8 show some convincing evidence of robustness of the results for young men in the UK who are Muslim by religious affiliation. Using a range of dates between 2003 and 2007, I find that the most statistically significant relative decrease in employment of the young Muslims occurred after June 2005. Table 7 shows about eleven percentage-point drop (significant at 5% level) in the employment of young Muslims in

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dissipates

the post-March 2005 and the post-June 2005 data. Table 8 shows difference-in-differences estimated from three windows of time. Each window contains 24 consecutive months starting from July and ending in June and the 12th month is used as the intervention date for estimating difference-in-differences in the employment of young Muslims. In this way of selecting the time-spans and intervention dates, I potentially keep the seasonal effects similar across the pre- and the post-event months. One would also expect the business cycle movement to be moderate in a 24-month window. The relative decrease in Muslims' employment is big (11 percentage points) and statistically significant only for the July of 2005.

From the above-mentioned tables that use ranges of intervention-dates, one can also interpret that the relative changes in the outcomes associated with 9/11 and the July bombings were short-lived. This is consistent with my interpretation of the results from the US data in chapter 2 where I find the difference-in-differences effects to be smaller by the end of 2004 compared to those in 2002. Appendix tables A2 through A4 show that the effects of 9/11 on the labor market outcomes of "Muslims" in the US dissipated over time. Each of these three tables shows difference-in-differences effects in one-year, 2-year and 3-year time after 9/11. In every case, the effects were the biggest in for 2002 and smallest by the end of 2004.[3]

Trends in Employment of Men aged 16 to 25 in the US and in the UK:

The following graphs indicate that the association between decrease in employments of target groups and terrorist events become more noticeable when "Muslims" can be

[3] The estimates shown in tables A2 and A3 given by OLS regressions do not match those shown in table 2

identified by religion instead of nativity. In figures 1 (trends in the US) and 2 (trends in the UK) use target groups identified by nativity profiles. Figure 3 (Trends in the UK) on the other hand, shows trend for groups identified by the members' religious affiliations.

Figure 1 shows decreases in employment of the young immigrant men from Muslim-majority countries fell in year 2000 and then in 2002. However, unlike the former dip, the latter was accompanied by no decrease in the comparison group's employment.

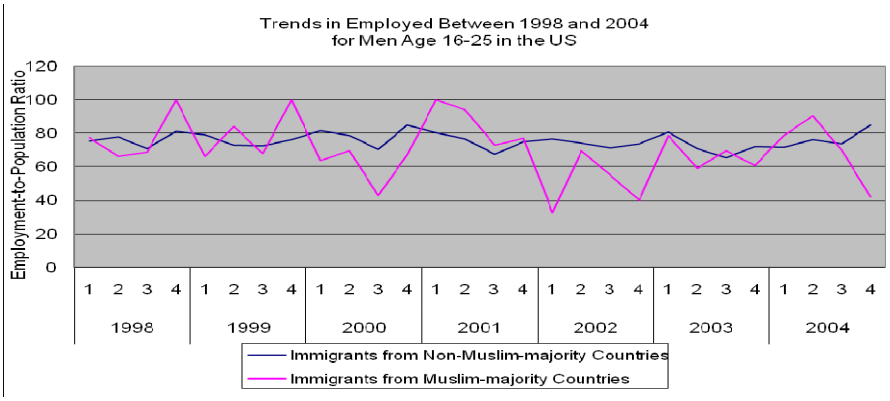

Figure 1: *Trends in Employment Ratio for Target Group C and Other Immigrants Age 16 to 25 in the US.*

Figure 2 shows that in the UK, the association between terrorist events and employment of the immigrants from Muslim-majority countries are not clear. However, it is to be noted that several terrorist events and conflicts occurred in Europe after 9/11. Downward movements can be noticed in the former group's employment after the following dates: 4th quarter of 2001 (after 9/11), 1st quarter of 2003 (after Madrid Train Bombings) and 2nd quarter of 2005 (after July Bombings). Figure 3 shows a clearer relative decline in the employment of the young target group members. The target group

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of chapter 2 given by probit due to the fact that probit required some observations to be dropped whenever perfect prediction occurred. Nonetheless, the results are qualitatively not different.

men in figure 3 are Muslims by religious affiliation.

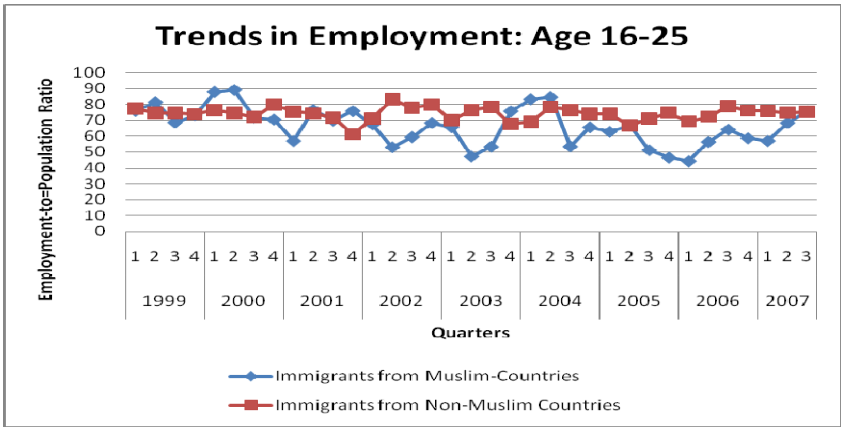

Figure 2: *Trends in employment ratio of immigrant men from Muslim-majority countries and other immigrant men Age 16 to 25 in the UK. Association between terrorist events and employment of the target group are not clear. However, downward movements can be noticed in the former group's employment after the following dates: 4th quarter of 2001 (after 9/11), 1st quarter of 2003 (after Madrid Train Bombings) and 2nd quarter of 2005 (after July Bombings).*

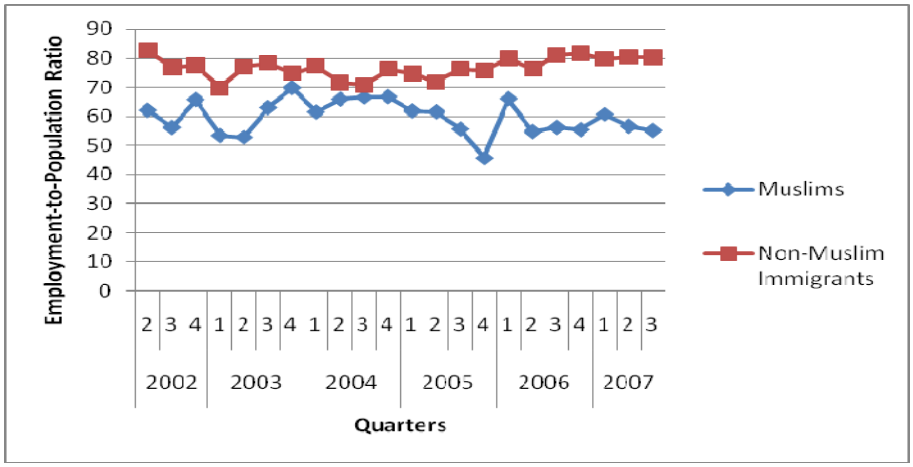

Figure 3: *Trends in employment ratio of Muslims and other groups aged 16 to 25 in the UK. Downward movements can be noticed in Muslim's employment after the 2nd quarter of 2005 (July Bombings).*

Did increase in Net Emigration of "Muslims" from the US Cause their Labor Market Outcomes to Deteriorate?

There is some evidence of increased net emigration of the target-group as well as comparison group members in the US after 9/11. Figure 4 shows the total populations of

the two immigrant groups estimated from the CPS-MORG files using weights. One can see that the number of immigrants from both the Special Registration countries and other countries stayed more or less stable over this period. In fact, both groups had slight decreases in population between 2003 and 2004. For the Special Registration countries, this decrease was about 65000 and for the comparison-group countries, about 986,000. Even though the numbers of emigration are different between the two groups, the proportions are very close. These decreases are not significant and occurred only in year 2004. Furthermore, the decreases in population in the two groups are proportional. Therefore, net emigration may not be a possible force driving the labor market outcomes of "Muslims" unless two things occurred: that it was mainly the non-citizens who had to emigrate and that a significant number of the non-citizen outgoing "Muslims" had been employed in the US. The following paragraphs address these two possibilities.

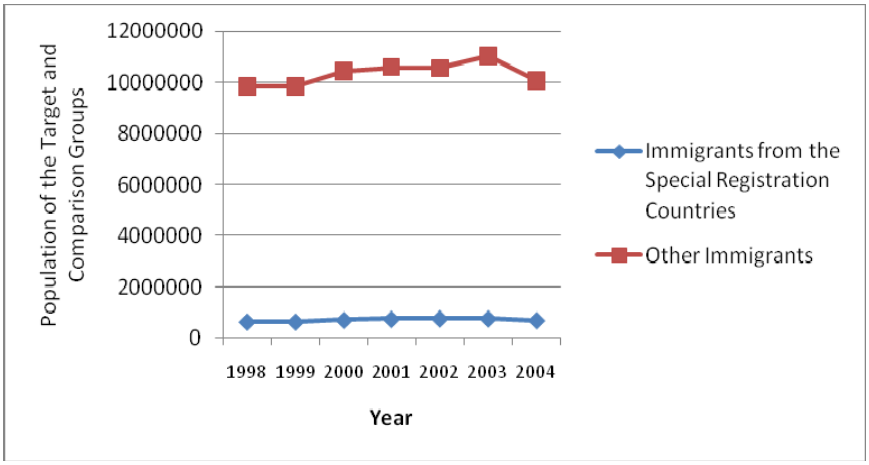

Figure 4: *Trends in Population of the Target and comparison Groups*

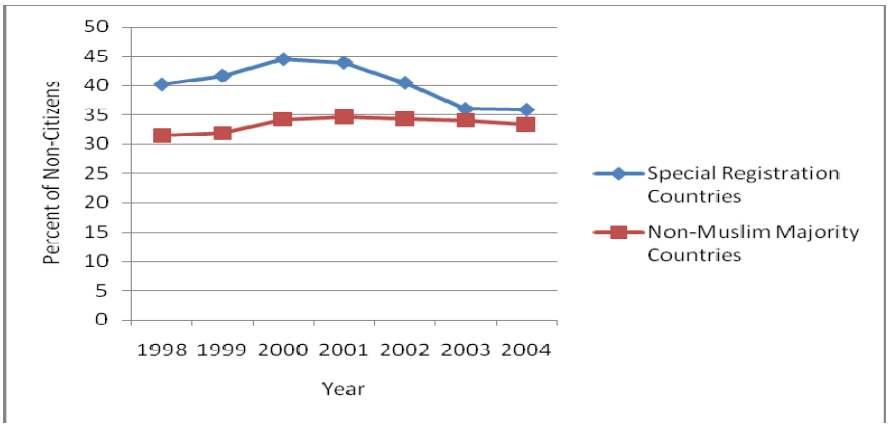

Figure 5: Trends in proportion of non-citizen members in the target and comparison groups in the US. The proportion of non-citizens in the total population of "Muslims" decreased slightly after 2001 suggesting possible decrease in net immigration after 9/11 from these countries. Total number of unweighted observations of non-citizen "Muslims" in the CPS MORG data were 348 in 2001 and 264 in 2004. The number of citizen "Muslims" moderately increased between these two years.

Figure 5 (above) shows that the ratio of noncitizens-to-citizens decreased steadily for the target group men after 2001. The decrease in the proportion of non-citizens is consistent with deportations and a significant fall in the non-immigrant US-visa issuance after year 2001, particularly in the Special Registration countries. This change in the composition of target-group in terms of citizenship could have had some contribution to the decrease. To check whether emigration by non-citizens had any effect, I re-estimated the difference-in-differences model restricting the sample to US-citizens. I find (results not shown here) that the difference-in-differences estimates increase only slightly after restricting the sample to the US-citizens in target group C and comparison group 1. If net emigration occurred mainly for employed "Muslims", my estimates are upward-biased. However, the opposite scenario (i.e. increased net emigration for "Muslims without jobs" after 9/11) seems more possible in which case my estimates would be downward biased.

Findings from Using US-Native Men as Comparison Groups:

As mentioned earlier, the native-born men are not as good as "non-

Muslim" immigrants because the target groups are less similar to the natives in terms of soft-skills, language proficiency, citizenship status, length stay in the country etc. Analyses of the US data show relative declines of employment and hours-worked of young 1st- and 2nd generation immigrants from Muslim-majority countries compared to US-born men. From the US data, two more comparison groups are constructed: group 2 (US-born men other than members in target groups) and group 3 (US-born non-Hispanic White Men other than members in target groups). The same regressions are run using the new comparison groups. However, as members in these groups are natives of the US these groups are less comparable to the target groups than comparison group 1.[4] The point estimates of difference-in-differences using the US-born men as comparison groups are similar to those using immigrants from non-Muslim countries. However, they are often not statistically significant. These estimates show that by year 2002, employment dropped by about 20 percentage points (marginally significant at 10% level) for the youngest (age 16-25) immigrants from all special registration countries. For Arab, Iranian, Afghan and Pakistani men, this decrease is about 23 percentage points (significant at 10% level). For the youngest Middle Eastern Arabs, Iranians and Afghans, a 24 percentage-point relative drop in employment was not statistically significant but their work-time decreased by 13 hours (significant at 1% level) by year 2004 which indicates a drop in employment. For age 16 to 64, there was about 10, 15 and 16 percentage-point drops in earnings for target groups A, B and C respectively relative to the US-born men. Comparison group 3 is US-born non-Hispanic Whites excluding those in target group A. Difference-in-differences coefficients using Target groups A and B and

[4] Regression estimates from using US-born men as comparison groups are available from the author on request. In regressions that included comparison groups 2 and 3, I drop citizenship status and length of stay

Comparison group 3 are also not shown in this paper to save space. For the youngest men (ages 16 to 25), the difference-in-differences effects on earnings are not statistically significant relative to their comparison group 3 counterpart even though the point estimates are similar to what I find using comparison group 2. However, for age 16 to 25, the narrow group of Muslims had their weekly hours decrease by 13 hours per week by 2004. In the UK, there was no statistically significant fall in Muslim men's employment or earnings after any terrorist event when compared to the UK-born men even though the former group's outcomes deteriorated relative to non-Muslim immigrants and also relative to other non-Muslim minority ethnic groups.

Findings from Using Propensity Score Matching

To increase similarity in observed characteristics between target and comparison groups, propensity score matching is applied to the US sample. The basic idea of matching here is to find a large group of non-Muslims who are similar to the target group men in observed characteristics. Propensity score matching estimates the probability of an individual being in the target group given observed characteristics. If this estimated probability is "unacceptably low" for a member in the comparison group, the observation was excluded from the sample. In this manner, matching the target group members to similar comparison group members, the same difference-in-differences regressions are run for earnings and hours worked again. The results found from the matched samples are very similar to the results derived from the unmatched samples.[5]

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variables to avoid multicollinearity problem.

[5] Difference-in-differences effects estimated from the matched sample are shown in Appendix table A3.

Bootstrapped Standard Errors

For the employment models, standard errors were also estimated using bootstrap method with 1000 replications. The bootstrapped standard errors of the estimates of difference-in-differences effect on employment of young Muslims are shown in table 6. The standard errors are virtually the same as the standard errors given by OLS without bootstrapping.[6] These estimates differ from the probit estimates shown in table 2 of chapter 2. The difference-in-differences effects differ in the OLS regression form those in the probit due to differences in the number of observations.[7] The coefficients become smaller and do not universally increase as we move from the broad group to the narrow group of Muslims. However, they still support the hypothesis that the effect of 9/11 lasted longer for the very young "Muslims" from Middle East, Afghanistan and Iran. As the lower panel shows, for the youngest Muslims from all special registration countries, the relative decrease in employment was 16 percentage points whereas it was about 27 percentage points for the youngest Middle Eastern, Afghan and Iranian men.

Replication of Difference-in-differences effects on Earnings of Arabs and Muslims found in Previous Research:

In table 12, we replicate the log-weekly earning results (DD Target-comp.1) in table 2 of the Kaestner et al. (2007) paper where they take one target group and two comparison groups.[8] Table shows coefficients of "Muslim * Post-9/11" interaction from different

[6] Estimates from OLS without bootstrapping are available from the author on request.
[7] Probit drops observations when perfect prediction occurs.
[8] Target Group: 1st and 2nd generation immigrants from Afghanistan, Algeria, Bahrain, Bangladesh, Egypt, Indonesia, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen, Turkey and Malaysia. Comparison group I consists

model specifications. The top, middle and the bottom panel shows estimated effects for employment-ratio, hours-worked, and log-real-weekly-earning respectively. Each panel has the difference-in-differences effects estimated by Kaestner et al. followed by my estimates. Target group comprises 1st and 2nd generation immigrant men from most Muslim-majority countries. Comparison group I consists of 1st and 2nd generation immigrant men from all other countries (except Mexico, Central America, The Caribbean and India). Comparison group II includes all American born men excluding those in the target group. Men of ages 21 to 54 were taken in the samples.

Model 1 (first column) in each panel shows the unadjusted estimate of the effect of 9/11. Model 2 controls for state fixed effects, month of the year, and a cubic trend to adjust for economy-wide seasonal and cyclical effects. Besides, estimates for log real weekly earnings (bottom panel) also control for the monthly state unemployment rate. Model 3 controls for demographic characteristics (age, education, race, marital status, number of years lived in the U.S., citizenship status, and whether foreign-born) in addition to the state, month, and cubic trend of model 2. Also, the estimates of model 3 with comparison group I include country of birth dummy variables. Model-4 for log real wage and log real weekly earnings includes controls for industry and occupation in addition to all of the controls in model 3. Model 4 cannot be run for the hours worked and employment-ratio as no industry or occupation categories are reported for respondents who were unemployed or out of labor force. Model 5 drops the interaction of “Muslim” and “local-unemployment-rate” for log-earning and hours worked regressions. On the other hand it introduces “local-unemployment-rate” in the employment-ratio regressions.

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of 1st and 2nd generation immigrant men from all other countries (except Mexico, Central America, The Caribbean and India). Comparison group II includes all American born men excluding those in the target

My estimates of the effects of 9/11 on employment, hours-worked and earnings of "Muslims" are very close to those found by Kaestner et al. for every model. Both studies find that the effect of 9/11 on "Muslim" men's employment-ratio and hours-worked have been close to zero and statistically insignificant when older men are included. In the two upper panels of table 12, inclusion or exclusion of different controls do not affect the coefficient of the interaction between the "Muslim" and the "Post-911" dummies.

In the bottom panel (models for log-weekly-earning), my estimate in the unadjusted model is close to zero which is consistent with what Kaestner et al. find in their unadjusted models. However in models 2, 3 and 4, my estimates are about 4 percentage points smaller. Model 2 shows that inclusion of state and month dummies, cubic trend and local unemployment rate makes the 9/11 effect jump from zero to -19 percentage points. Model 3 reveals that inclusion of demographic variables does not have much impact on the coefficient of the interaction between Muslim and Post9/11 dummies. Model 4 shows that the difference-in-differences coefficient is moderately sensitive to the inclusion of occupation and industry dummies. This complete model implies that September 11th lowered the real weekly earnings of the target group by about 11 to 13 percentage points. However, one can see from model 5 that exclusion of the interaction between Muslim and State-unemployment-rate makes the 9/11 effect disappear. The coefficient of "Muslim*State-unemployment-rate" interaction is positive (0.08) and it has a positive covariance with the Muslim*Post9/11 interaction. Unemployment rates overall went up after 9/11. This leads me to infer that a potential omitted variable bias occurs when we leave out this interaction term.

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group. Men of ages 21 to 54 were taken in the samples.

Remarks

I have applied several checks for validity of the findings from the previous chapter of this dissertation. Specifically, I have checked whether 9/11 and the July bombings were associated with relative deteriorations of employment of very young “Muslim” workers in the US and in the UK. From applying pseudo intervention dates in the data, I have found evidence indicating that the main comparison groups chosen in the previous chapter are valid. However, using other comparison groups has not always generated consistent results. For the US, small sample size of young “Muslim” workers may make my inferences questionable. However, bootstrapping the standard errors of the difference-in-differences effects does not affect statistical significance of the effects. In short, the tests of robustness of the previously found results support the basic hypothesis of this dissertation, that men who are closer in nativity and age profile have been more susceptible to labor market discrimination after the two recent terrorist attacks.

Table 1: Difference-in-Differences in Labor Market Outcomes after September 1999 in the US
Target Groups: Immigrants from Muslim-majority Countries; Comparison Group: Other Immigrants
Period Covered: January 1999 through August 2001

		Target A, Comparison 1			Target B, Comparison 1			Target C, Comparison 1		
		Age 16-25	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**
Jan. 1998 to Aug. 2001	**Employment**	-0.074	0.01	-0.024	-0.051	0.042	-0.011	0.046	0.064	-0.014
	from probit model	(0.081)	(0.042)	(0.025)	(0.082)	(0.033)	(0.027)	(0.094)	(0.040)	(0.027)
	Observations	3872	7279	36660	3836	7190	36282	3775	7056	35675
	Log weekly earnings	-0.097	-0.113	0.045	0.031	-0.049	0.037	-0.096	-0.115	0.052
		(0.080)	(0.079)	(0.029)	(0.088)	(0.055)	(0.030)	(0.073)	(0.093)	(0.038)
	Observations	2783	2783	25639	2760	5419	25360	2729	5337	24963
	Weekly Hours Worked	-3.242	1.131	-1.102	-1.747	2.908	-1.053	0.329	1.492	-1.716
		(3.557)	(2.095)	(1.498)	(3.698)	(2.261)	(1.658)	(4.081)	(2.598)	(1.606)
	Observations	3793	7104	35593	3757	7017	35226	3698	6889	34652

Numbers show the difference-in-differences effects from the models with a pseudo 9/11 date. Models use data from January1998 through August 2001 and use September 1999 as the month after which the "Post 9/11" dummy was assigned a value of one. The models are run for target groups A, B and C and comparison group 1. Robust Standard errors are shown in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. Effects on Earnings and Hours worked are given by OLS regressions and effects on Employment are from probit models. None of the estimates are statistically significant.

Table 2: Difference-in-Differences in Labor Market Outcomes after September-2003 in the US
Target Groups: Immigrants from Muslim-majority Countries; Comparison Group: Other Immigrants
Period Covered: September 2002 through December 2004

		Target C, Comparison 1			**Target B, Comparison 1**			**Target A, Comparison 1**		
		Age 16-25	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**
Sept. 2002 Dec. 2004	**Employment**	0.172+	0.216**	0.019	0.083	0.111+	0.009	0.082	0.084	-0.003
	from probit model	(0.096)	(0.074)	(0.029)	(0.084)	(0.067)	(0.025)	(0.082)	(0.060)	(0.023)
	Observations	*2227*	*4073*	*21360*	*2265*	*4139*	*21674*	*2291*	*4195*	*21911*
	Weekly Hours Worked	9.597*	11.126**	-0.33	4.395	4.8	-0.257	3.977	3.555	-0.772
		(4.541)	(3.607)	(1.407)	(3.595)	(3.058)	(1.250)	(3.353)	(2.760)	(1.166)
	Observations	*2197*	*4004*	*20835*	*2234*	*4068*	*21141*	*2260*	*4122*	*21369*
	Log weekly earnings	-0.007	0.224	0.101	-0.113	0.032	0.055	-0.105	-0.018	-0.001
		(0.233)	(0.190)	(0.074)	(0.157)	(0.133)	(0.060)	(0.137)	(0.107)	(0.055)
	Observations	*1558*	*2965*	*14567*	*1583*	*3012*	*14771*	*1597*	*3047*	*14948*

Numbers show the difference-in-differences effects from using September 2002 as a pseudo 9/11 point. Regressions use monthly data from September 2002 through December 2004 and use September 2003 as the month after which the "Post 9/11" dummy is assigned a value of one. Robust Standard errors clustered by repeated observations are shown in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. Employment coefficients for younger men in the narrow groups are statistically significant. It is consistent with what I find from using the true 9/11 date in the model: employment deteriorated for the younger "Muslims" in the year 2002 but adding more years of data showed the negative association dissipating.

Table 3: Relative Change in Employment of "Muslim" men Age 16 to 25 in the US after Various Dates
(Regression Adjusted Difference-in-differences effects and Standard Errors are shown)

	Mid-Eastern & Afghan men		Mid-Eastern, Afghan & African men		Men from All SR Countries	
Dates	**D-D Effect**	***SE***	**D-D Effect**	***SE***	**D-D Effect**	***SE***
Jun-00	-0.002	*(0.10)*	-0.001	*(0.08)*	-0.025	*(0.07)*
Sep-00	0.034	*(0.10)*	0.029	*(0.08)*	-0.013	*(0.07)*
Dec-00	0.11	*(0.10)*	0.037	*(0.09)*	0	*(0.08)*
Mar-01	0.041	*(0.10)*	0.083	*(0.09)*	0.03	*(0.08)*
Jun-01	-0.13	*(0.11)*	-0.048	*(0.09)*	-0.109	*(0.08)*
Sep-01	-0.267**	*(0.12)*	-0.13	*(0.10)*	-0.160+	*(0.09)*
Dec-01	-0.263*	*(0.10)*	-0.156+	*(0.08)*	-0.197**	*(0.08)*
Mar-02	-0.134	*(0.11)*	-0.05	*(0.08)*	-0.104	*(0.07)*
Jun-02	-0.137	*(0.10)*	-0.045	*(0.07)*	-0.116+	*(0.06)*
Sep-02	-0.122	*(0.09)*	-0.021	*(0.07)*	-0.069	*(0.06)*
Dec-02	0	*(0.09)*	0.052	*(0.07)*	-0.001	*(0.06)*
Mar-03	-0.037	*(0.09)*	0.034	*(0.07)*	0.001	*(0.06)*
Jun-03	-0.021	*(0.08)*	0.046	*(0.06)*	-0.012	*(0.06)*

Each regression uses 6149 observations. Robust Standard errors clustered by repeated observations are shown in parentheses. Statistical Significance is shown by asterisks. + means significant at 10%; * means significant at 5% and ** means significant at 1%. Explanatory Variables were experience, experience-squared, state-unemployment rates, cubic time trend, state-level ratio of Muslim to non-Muslim populations and dummies for Muslim, After-9/11, races, States, education, citizenship status, length of stay and generation in the US. Explanatory variables were interacted with Muslim dummy. Special Registration countries include Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries, Iran, Libya, Morocco, North Africa and Pakistan. Comparison Group consists of 1st and 2nd generation immigrants excluding those from the Special Registration countries, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa.

Table 4: Relative Change in Employment of "Muslim" men Age 16 to 29 in the US after Various Dates
(Regression Adjusted D-D effects and Standard Errors)

Dummy Dates	Mid-Eastern & Afghan men		Mid-Eastern, Afghan, African & Pakistani men		Men from All SR Countries	
	D-D Effect	*SE*	D-D Effect	*SE*	D-D Effect	*SE*
Jun-00	0.04	(0.07)	0.001	(0.05)	-0.026	(0.04)
Sep-00	0.068	(0.07)	0.028	(0.05)	-0.02	(0.05)
Dec-00	0.098	(0.08)	0.015	(0.06)	-0.028	(0.05)
Mar-01	0.069	(0.08)	0.024	(0.06)	-0.044	(0.05)
Jun-01	0.006	(0.09)	-0.038	(0.06)	-0.106+	(0.06)
Sep-01	-0.046	(0.10)	-0.062	(0.07)	-0.096	(0.06)
Dec-01	-0.052	(0.09)	-0.084	(0.06)	-0.081	(0.06)
Mar-02	-0.046	(0.08)	-0.059	(0.06)	-0.06	(0.05)
Jun-02	-0.016	(0.07)	-0.027	(0.05)	-0.043	(0.05)
Sep-02	-0.027	(0.07)	-0.016	(0.05)	-0.018	(0.04)
Dec-02	0.039	(0.07)	0.017	(0.05)	0.003	(0.04)
Mar-03	0.036	(0.06)	0.022	(0.05)	0.005	(0.04)
Jun-03	0.064	(0.06)	0.046	(0.05)	0.004	(0.04)

Each regression uses 11752 observations. Robust Standard errors clustered by repeated observations are shown in parentheses. Statistical Significance is shown by asterisks. + means significant at 10%; * means significant at 5% and ** means significant at 1%. Explanatory Variables were experience, experience-squared, state-unemployment rates, cubic time trend, state-level ratio of Muslim to non-Muslim populations and dummies for Muslim, After-9/11, races, States, education, citizenship status, length of stay and generation in the US. Explanatory variables were interacted with Muslim dummy. Special Registration countries include Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries, Iran, Libya, Morocco, North Africa and Pakistan. Comparison Group consists of 1st and 2nd generation immigrants excluding those from the Special Registration countries, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa.

Table 5: Difference-in-Differences in Labor Market Outcomes after June 2004 in the UK
Target Groups: Muslim Men; Comparison Groups: Other Immigrants and Minorities
Period Covered from January 2003 through June 2005

		Age 16-25		Age 16-29		Age 16-54	
		Basic Model	Full Model	Basic Model	Full Model	Basic Model	Full Model
Comparison Group: Non-Muslim Immigrant Men	Employed=1	0.026	0.016	0.005	-0.015	0.002	-0.011
		(0.046)	(0.046)	(0.033)	(0.033)	(0.018)	(0.017)
	Observations	*2655*	*2655*	*5157*	*5157*	*18897*	*18897*
	Weekly Hours Worded	0.092	-0.439	-0.476	-1.297	0.063	-0.605
		(2.090)	(2.077)	(1.563)	(1.536)	(0.915)	(0.867)
	Observations	*2494*	*2494*	*4807*	*4807*	*17343*	*17343*
	Log Weekly Earnings	0.043	-0.006	0.105	0.051	0.087	0.034
		(0.126)	(0.136)	(0.100)	(0.096)	(0.066)	(0.063)
	Observations	*394*	*394*	*852*	*852*	*3222*	*3222*
Comparison Group 2: All Minorities Except Black	Employed=1	0.021	0.025	0.007	0.02	0	0.007
		(0.046)	(0.046)	(0.035)	(0.035)	(0.019)	(0.018)
	Observations	*3055*	*3055*	*5027*	*5027*	*16092*	*16092*
	Weekly Hours Worked	0.306	0.827	-0.386	0.536	-0.112	0.28
		(1.950)	(1.921)	(1.603)	(1.560)	(0.956)	(0.898)
	Observations	*2837*	*2837*	*4644*	*4644*	*14817*	*14817*
	Log Weekly Earnings	-0.102	-0.111	-0.054	-0.05	-0.009	-0.01
		(0.127)	(0.137)	(0.105)	(0.105)	(0.068)	(0.064)
	Observations	*392*	*392*	*709*	*709*	*2548*	*2548*

Numbers show the coefficients of interaction between Muslim dummy and "post-June 2004" dummy. All results shown were given by OLS regressions. All variables except log weekly earning, Hours worked per week, Years of Education, Potential Experience, Length-of-stay and Local Unemployment Rate are categorical. Log-earnings models included only employed men. However, in the Hours-Worded models, hours was set equal to zero if not employed. Standard Errors clustered by "persons" are shown in parentheses. Coefficients are shown with statistical significances where ** means significant at 1% level, * means significant at 5% level, and + means significant at 10% level.

Table 6: Difference-in-differences Effects on Employment of men from Muslim-majority Countries Age 16 to 25 in the UK

Dates	**D-D Effect**	***SE***
Sept.1999	-0.146*	(0.07)
Dec.1999	-0.161**	(0.06)
Mar.2000	-0.183**	(0.06)
Jun.2000	-0.190**	(0.06)
Sept.2000	-0.153**	(0.05)
Dec.2000	-0.126*	(0.05)
Mar.2001	-0.102*	(0.05)
Jun.2001	-0.088+	(0.05)
Sept.2001	-0.086+	(0.05)
Dec.2001	-0.102*	(0.05)
Mar.2002	-0.083+	(0.05)
Jun.2002	-0.06	(0.05)
Sept.2002	-0.068	(0.05)
Dec.2002	-0.053	(0.05)
Mar.2003	-0.06	(0.05)

Each regression includes 4282 observations between 1999 and 2004. All results shown were given by OLS regressions. Robust Standard Errors clustered by groups and years are shown in parentheses. Robust Standard Errors clustered by persons are shown in parentheses. Coefficients are shown with statistical significances where ** means significant at 1% level, * means significant at 5% level, and + means significant at 10% level. For all models, Explanatory Variables were "Muslim" dummy, After-Date dummy, Region dummies, Potential Experience and its square, level of education, unemployment rate, ratio of "Muslim" to non-Muslim population in the region, citizenship and Length of stay in the UK. Explanatory variables were interacted with the "Muslim" dummy

Table 7: Difference-in-differences Effects on Employment of Muslim men Age 16 to 25 in the UK

Date	Difference-in-Difference Effect	Standard Error
Jun-04	-0.049	(0.062)
Sep-04	-0.089+	(0.054)
Dec-04	-0.090+	(0.050)
Mar-05	-0.119*	(0.048)
Jun-05	-0.111*	(0.046)
Sep-05	-0.098*	(0.046)
Dec-05	-0.074+	(0.044)
Mar-06	-0.009	(0.044)
Jun-06	-0.01	(0.049)

Each regression uses 4233 observations between Spring 2003 and Autumn 2007. All results shown were given by OLS regressions. Robust Standard Errors clustered by groups and years are shown in parentheses. Robust Standard Errors clustered by persons are shown in parentheses. Coefficients are shown with statistical significances where ** means significant at 1% level, * means significant at 5% level, and + means significant at 10% level. For all models, Explanatory Variables were Muslim dummy, After-Date dummy, Region dummies, Potential Experience and its square, level of education, unemployment rate, ratio of Muslim to non-Muslim population in the region, citizenship and Length of stay in the UK. Explanatory variables were interacted with the Muslim dummy.

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Table 8: Difference-in-differences in Employment between Paired Years
For Muslim men aged 16 to 25

	Between the years before and after June 2004	Between the years before and after June 2005	Between the years before and after June 2006
	after June 2004	after Jul05	after Jul06
Difference-in-differences	-0.045	-0.117*	0.022
Standard Error	*(0.048)*	*(0.055)*	*(0.052)*
Observations	*2128*	*2669*	*2572*

Target Group: Muslim men Age 16 to 25; Comparison Group: Non-Muslim Immigrant men age 16 to 25. All results shown were given by OLS regressions. Robust Standard Errors clustered by groups and years are shown in parentheses. Robust Standard Errors clustered by persons are shown in parentheses. Coefficients are shown with statistical significances where ** means significant at 1% level, * means significant at 5% level, and + means significant at 10% level. For all models, Explanatory Variables were Muslim dummy, After-Date dummy, Region dummies, Potential Experience and its square, level of education, unemployment rate, ratio of Muslim to non-Muslim population in the region, citizenship and Length of stay in the UK. Explanatory variables were interacted with the Muslim dummy.

Table 9: Difference-in-differences Effects of 9/11 on Labor Market Outcomes Across Age-Groups in the USA
Comparison Group 2 and all Target Groups

		Target C (Narrow Group)			Target B (In-Between Group)			Target A (Broad Group)		
	Age-groups:	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**
Years 1999 to 2002	**Employment**	-0.238	-0.07	0.058	-0.23	-0.117	0.011	-0.216	-0.132	0.009
	from probit model	(0.177)	(0.109)	(0.042)	(0.132)	(0.076)	(0.033)	(0.117)	(0.069)	(0.030)
	Observations	*22031*	*37390*	*189887*	*22108*	*37563*	*190612*	*22164*	*37680*	*191057*
	Hours Worked	-13.548	-3.937	0.515	-8.836	-3.078	-0.868	-9.837	-3.784	-1.274
		(9.648)	(6.918)	(2.091)	(8.859)	(6.069)	(2.058)	(8.046)	(4.497)	(1.524)
	Observations	21591	36578	184169	21670	36752	184867	21716	36854	185299
	Log weekly earnings	-0.112	-0.181	-0.168**	0.1	0.104	-0.145**	0.187	0.231+	-0.106**
		(0.362)	(0.208)	(0.071)	(0.244)	(0.159)	(0.066)	(0.177)	(0.131)	(0.046)
	Observations	16493	29101	134740	16532	29209	135205	16560	29279	135529
Years 1999 to 2004	**Employment**	-0.186	-0.001	0.01	-0.067	-0.027	-0.003	-0.098	-0.054	0.003
	from probit model	(0.126)	(0.077)	(0.031)	(0.092)	(0.057)	(0.025)	(0.082)	(0.052)	(0.023)
	Observations	*32848*	*54990*	*282374*	*32955*	*55223*	*283383*	*33027*	*55383*	*284031*
	Hours Worked	-13.053**	-2.13	-0.645	-4.755	-0.947	-0.678	-5.649	-1.798	-0.583
		(5.771)	(4.502)	(1.210)	(4.858)	(4.174)	(0.849)	(4.064)	(3.340)	(1.113)
	Observations	32214	53803	273979	32325	54031	274953	32393	54177	275579
	Log weekly earnings	-0.041	0.043	-0.063+	0.145	0.144	-0.090+	0.226	0.196*	-0.02
		(0.126)	(0.119)	(0.035)	(0.200)	(0.099)	(0.053)	(0.134)	(0.069)	(0.028)
	Observations	24118	42055	197601	24179	42203	198250	24219	42301	198724

For Earnings and Hours worked models, Robust Standard errors clustered by repeated observations are in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. Effects on Earnings and Hours worked were given by OLS regressions. For Ratio-employed, difference-in-differences was predicted for each individual separately. Standard errors shown in parentheses were calculated using delta method. For the Ratio-employed models, Explanatory Variables were i.Muslim, i.After i.race, i.State, experience, experience-squared, i.education, i.citizenship i.stay, i.generation, cubic time trend. Explanatory variables were interacted with Muslim dummy (except race, citizenship, experience, cubic time trend and log of state per-capita income). For log-earning and hours worked models, industry and occupation dummies were added. Target Group C has 1st and 2nd generation immigrant men from all but two Special Registration countries. Target Group B has such men from Afghanistan, Middle Eastern Arab countries, Iran, Pakistan, Egypt and Morocco. Target Group A has such men from Afghanistan, Middle Eastern Arab countries and Iran. Comparison group 2 consists of all US-born men excluding the those from target group A, India, Mexico, Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa".

Table 10: Difference-in-differences Effects of 9/11 on Labor Market Outcomes Across Age-Groups in the USA
Comparison Group 3 and all Target Groups

		Target C, Comparison 3			**Target B, Comparison 3**			**Target A, Comparison 3**		
		Age 16-25	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**	**Age 16-25**	**Age 16-29**	**Age 16-64**
Years 1999 to 2002	**Employment**	-0.225	-0.069	-0.046	-0.219	-0.091	0.011	-0.173	-0.10	0.008
	from probit model	(0.222)	(0.130)	(0.042)	(0.16)	(0.092)	(0.034)	(0.138)	(0.082)	(0.031)
	Observations	*16335*	*28280*	*156212*	*16412*	*28453*	*156937*	*16468*	*28570*	*157382*
	Hours Worked per Week									
		-13.888	-3.976	0.51	-8.779	-2.419	-0.675	-9.271	-3.076	-1.079
		(9.427)	(6.984)	(2.081)	(8.753)	(6.051)	(2.006)	(7.880)	(4.466)	(1.496)
	Observations	*15980*	*27613*	*151336*	*16059*	*27787*	*152034*	*16105*	*27889*	*152466*
	Log weekly earnings	-0.022	-0.193	-0.158**	0.123	0.076	-0.130+	0.191	0.221	-0.089**
		(0.409)	(0.206)	(0.068)	(0.228)	(0.164)	(0.066)	(0.182)	(0.146)	(0.042)
	Observations	*12879*	*22805*	*111638*	*12918*	*22913*	*112103*	*12946*	*22983*	*112427*
Years 1999 to 2004	**Employment**	-0.184	0.004	0.006	-0.070	0.010	-0.002	0.081	0.10	0.022
	from probit model	(0.137)	(0.076)	(0.033)	(0.097)	(0.060)	(0.026)	(0.085)	(0.052)	(0.024)
	Observations	*24278*	*41436*	*231533*	*24385*	*41669*	*232542*	*24457*	*41829*	*233190*
	Hours Worked per Week									
		-13.158**	-2.271	-0.507	-4.815	-0.763	-0.508	-5.551	-1.573	-0.462
		(5.697)	(4.289)	(1.263)	(4.842)	(4.078)	(0.863)	(4.131)	(3.231)	(1.103)
	Observations	23764	40460	224361	23875	40688	225335	23943	40834	225961
	Log weekly earnings	-0.007	0.033	-0.061+	0.126	0.144	-0.084	0.236+	0.199*	-0.013
		(0.134)	(0.113)	(0.035)	(0.182)	(0.095)	(0.054)	(0.127)	(0.069)	(0.030)
	Observations	*18823*	*32955*	*163297*	*18884*	*33103*	*163946*	*18924*	*33201*	*164420*

For Earnings and Hours worked models, Robust Standard errors clustered by Group-State (36 clusters) are in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. Effects on Earnings and Hours worked were given by OLS regressions. For Ratio-employed, difference-in-differences effects were estimated for each individual separately. Standard errors shown in parentheses were calculated using delta method. For the Ratio-employed models, Explanatory Variables were i.Muslim, i.After i.race, i.State, experience, experience-squared, i.education, i.citizenship i.stay, i.generation, cubic time trend. Explanatory variables were interacted with Muslim dummy (except race, citizenship, experience, cubic time trend and log of state per-capita income). For log-earning and hours worked models, industry and occupation dummies were added. However, dropping them made negligible differences.

Table 11: Difference-in-differences in Employment of Young "Muslims" after 9/11 in the USA: Bootstrapped Standard Errors
Target Groups A, B, C and Comparison Group 1 (Immigrants from other countries). All Estimates are for Men Age 16 to 25

		Target group A		Target Group B		Target Group C	
		Age 16-25	Age 16-29	Age 16-25	Age 16-29	Age 16-25	Age 16-29
1999 to 2002	**Employment**	-0.323	-0.148	-0.344+	-0.151**	-0.284+	-0.168+
		(0.230)	(0.159)	(0.177)	(0.102)	(0.148)	(0.093)
	Observations	*4157*	*7747*	*4238*	*7926*	*4284*	*8031*
1999 to 2004	**Employment**	-0.267+	-0.045	-0.13	-0.062	-0.160	-0.096
		(0.150)	(0.107)	(0.104)	(0.086)	(0.098)	(0.066)
	Observations	*6149*	*11366*	*6263*	*11601*	*6331*	*11752*

For each target-group, Standard errors of the coefficients were computed using non-parametric bootstrap method (with replacement) with 1000 repetition. Standard errors are shown in parentheses. Statistical Significance: + significant at 10%; * significant at 5%; ** significant at 1%. Target Group A is the narrow subset of Muslims: 1st and 2nd generation immigrants from Afghanistan, Middle Eastern Arab countries and Iran. Target Group C consists of men from all but two Special Registration countries: Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries, Iran, Libya, Morocco, North Africa and Pakistan.Target Group B is a subset of group C. It drops Bangladesh, Indonesia, Libya and North-Africa from group C. Comparison Group 1 consists of 1st and 2nd generation immigrants excluding those from countries in target group C, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa. These estimates differ from the probit estimates shown in table 2 of chapter 2. However, they still support the hypothesis that the effect of 9/11 lasted longer for the younger "Muslims" from Middle East, Afghanistan and Iran.

Table 12: Difference-in-difference estimates of employment, Hours worked and Log-earnings models. Replications of the results found by Kaestner et al. from the US data

Employment Ratio models					
Target-Comp.	Model 1	Model 2	Model 3	Model 4 (Not applicable)	Model 5: (Urate included)
Estimates in Kaestner et al.	-0.01	-0.01	-0.01		
	(0.010)	(0.010)	(0.020)		
Our estimates	*0.011*	*0.006*	*0.002*		*-0.003*
	(0.010)	*(0.014)*	*(0.017)*		*(0.032)*
my observations	*46603*	*36404*	*36383*		*36383*
Target-Comp.					
Estimates in Kaestner et al.	0	0	0		
	(0.010)	(0.010)	(0.020)		
Our estimates	*0.012*	*0.008*	*0.002*		*-0.009*
	(0.009)	*(0.011)*	*(0.014)*		*(0.030)*
Our observations	*315346*	*169210*	*169210*		*169210*
Hours Worked models					
	Model 1	Model 2	Model 3	Model 4 (Not applicable)	Model 5: (Muslim*urate Dropped)
Target-Comp.I					
Estimates in Kaestner et al.	0.3	0.17	-0.1		
	(0.700)	(0.730)	(0.790)		
Our estimates	*0.879*	*-2.153*	*-1.438*		*0.058*
	(0.652)	*(1.707)*	*(1.761)*		*(0.825)*
observations	*45270*	*35392*	*35392*		*35392*
Target-Comp.II					
Estimates in Kaestner et al.	0.02	0.04	-0.29		
	(0.600)	(0.700)	(0.770)		
Our estimates	*0.52*	*-2.399*	*-2.525*		*-0.261*
	(0.613)	*(1.638)*	*(1.626)*		*(0.809)*
Our observations	*305603*	*164185*	*164185*		*164185*
Log weekly earning models					
	Model 1	Model 2	Model 3	Model 4	Model 5 (Muslim*Urate dropped)
Target-Comp.I					
Estimates in Kaestner et al.	0	-0.22+	-0.22**	-0.16**	
	(0.050)	(0.120)	(0.080)	(0.050)	
Our estimates	*0.016*	*-0.191**	*-0.178***	*-0.128***	*-0.003*
	(0.039)	*(0.078)*	*(0.056)*	*(0.041)*	*(0.019)*
Our observations	*34192*	*26599*	*26599*	*26599*	*26599*
Target-Comp.II					
Estimates in Kaestner et al.	-0.01	-0.23+	-0.22*	-0.15**	
	(0.050)	(0.120)	(0.080)	(0.050)	
Our estimates	*-0.004*	*-0.175+*	*-0.178**	*-0.112***	*0.003*
	(0.039)	*(0.087)*	*(0.061)*	*(0.040)*	*(0.022)*
Our y observations	*235320*	*126821*	*126821*	*126821*	*126821*

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Appendix

Table A1: Difference-in-differences Effects of 9/11 on Labor Market Outcomes across Age-Groups; 1999 to 2002
Comparison Group 1 and all Target Groups
Sample includes the Common Support Group after Propensity Score Matching

		Target A, Comparison 1			**Target B, Comparison 1**			**Target C, Comparison 1**		
	Age groups :	***16-25***	***16-29***	***16-64***	***16-25***	***16-29***	***16-64***	***16-25***	***16-29***	***16-64***
Years 1999 to 2002	**Log weekly earnings**	-0.169	-0.06	-0.191**	0.06	0.156	-0.138+	0.136	0.229+	-0.088+
		-0.38	-0.251	-0.058	-0.25	-0.158	-0.075	-0.184	-0.136	-0.047
	Observations	2721	5330	26667	2758	5744	27102	2848	5811	27415
	Weekly Hours	1.062	-0.505	-0.643	2.374	4.022	-0.017	0.132	3.961	-0.783
		-5.45	-3.943	-1.558	-5.491	-3.01	-1.36	-4.636	-2.743	-1.348
	Observations	2730	5358	26667	2767	5772	27102	2857	5839	27415
Years 1999 to 2004	**Log weekly earnings**	0.016	0.135	-0.047	0.254	0.221*	-0.090+	0.275+	0.251**	-0.011
		-0.138	-0.112	-0.032	-0.172	-0.096	-0.052	-0.143	-0.068	-0.022
	Observations	4190	8216	39207	4248	8356	40996	4375	8449	40270
	Weekly Hours	0.115	-1.668	0.664	1.908	1.955	1.06	-0.104	2.494	0.666
		-4.62	-3.103	-1.357	-3.45	-2.51	-1.084	-3.081	-2.035	-1.032
	Observations	4207	8256	39207	4265	8396	39815	4392	8489	40270

Propensity Score Matching was done to construct a non-Muslim comparison group that would be close to the target groups in terms of observed characteristics. This matching basically uses probit model to predict the probability of a persons being in the target group given observed characteristics. Robust Standard errors clustered by repeated observations are shown in parentheses. Statistical Significance are shown by asterisks. + means significant at 10%; * means significant at 5% and ** means significant at 1%. Individuals who are in a near neighborhood of target group members are then kept in the sample.

Table A2: Difference-in-differences Effect of 9/11 Over Time on Earnings of "Muslim" men Aged 16 to 64 in the US

	Mid-Eastern & Afghan men			Mid-Eastern, Afghan, African & Pakistani men			Men from All SR Countries		
	By 2002	By 2003	By 2004	By 2002	By 2003	By 2004	By 2002	By 2003	By 2004
D-D Effect	-0.174+	-0.173**	-0.103	-0.134+	-0.117+	-0.07	-0.089	-0.062	-0.047
S.E.	*(0.101)*	*(0.088)*	*(0.074)*	*(0.078)*	*(0.071)*	*(0.060)*	*(0.074)*	*(0.068)*	*(0.056)*
Observations	*27468*	*34257*	*40359*	*27927*	*34814*	*40996*	*28250*	*35213*	*41468*

Robust Standard errors clustered by repeated observations are shown in parentheses. Statistical Significance are shown by asterisks. + means significant at 10%; * means significant at 5% and ** means significant at 1%. Explanatory Variables were experience, experience-squared, state-unemployment rates, cubic time trend, state-level ratio of Muslim to non-Muslim populations and dummies for Muslim, After-9/11, races, States, education, citizenship status, length of stay and generation in the US. Explanatory variables were interacted with Muslim dummy. Special Registration countries include Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries, Iran, Libya, Morocco, North Africa and Pakistan. Comparison Group consists of 1st and 2nd generation immigrants excluding those from the Special Registration countries, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa.

Table A3: Difference-in-differences Effect of 9/11 Over Time on Employment of "Muslim" men Aged 16 to 25 in the US

	Mid-Eastern & Afghan men			Mid-Eastern, Afghan, African & Pakistani men			Men from All SR Countries		
	By 2002	By 2003	By 2004	By 2002	By 2003	By 2004	By 2002	By 2003	By 2004
D-D Effect	-0.323+	-0.25	-0.267**	-0.344**	-0.258**	-0.13	-0.284**	-0.221+	-0.160+
S.E.	(0.19)	(0.16)	(0.12)	(0.15)	(0.13)	(0.10)	(0.14)	(0.12)	(0.09)
Observations	4157	5203	6149	4238	5305	6263	4284	5365	6331

Table A4: Difference-in-differences Effect of 9/11 Over Time on Employment of "Muslim" men Aged 16 to 29 in the US

	Mid-Eastern & Afghan men			Mid-Eastern, Afghan, African & Pakistani men			Men from All SR Countries		
	By 2002	By 2003	By 2004	By 2002	By 2003	By 2004	By 2002	By 2003	By 2004
D-D Effect	-0.148	-0.074	-0.046	-0.151	-0.134	-0.062	-0.168**	-0.150+	-0.096
S.E.	(0.14)	(0.11)	(0.10)	(0.09)	(0.08)	(0.07)	(0.09)	(0.08)	(0.06)
Observations	7747	9638	11366	7926	9852	11601	8031	9981	11752

Robust Standard errors clustered by repeated observations are shown in parentheses. Statistical Significance are shown by asterisks. + means significant at 10%; * means significant at 5% and ** means significant at 1%. Explanatory Variables were experience, experience-squared, state-unemployment rates, cubic time trend, state-level ratio of Muslim to non-Muslim populations and dummies for Muslim, After-9/11, races, States, education, citizenship status, length of stay and generation in the US. Explanatory variables were interacted with Muslim dummy. Special Registration countries include Afghanistan, Bangladesh, Egypt, Indonesia, Middle Eastern Arab countries, Iran, Libya, Morocco, North Africa and Pakistan. Comparison Group consists of 1st and 2nd generation immigrants excluding those from the Special Registration countries, Mexico Central America, the Caribbean, Turkey, Malaysia, India, Ghana, Kenya, Nigeria and "Other-Africa.