Did the Great Recession Downsize Immigrants and Native-born Americans Differently? Unemployment Differentials by Nativity, Race, and Gender in the U.S. from 2007 to 2013

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INTRODUCTION

The Great Recession is usually understood to refer to the period from the end of 2007 to 2010. It began with the mortgage lending market and the financial crisis associated with the bursting of the housing bubble. This quickly led to additional financial turmoil in the U.S. which then spread to other parts of the world.

The Great Recession was the worst recession in America since the Great Depression. Following the crisis, unemployment rose to levels not seen since the 1930's. According to the Bureau of Labor Statistics, the unemployment rate jumped to 9.3% in 2009 and 9.8% in 2010. By traditional U.S. standards, the unemployment rate still remains high at 6.2% in 2014. Attitudes about having confidence in the economy appear not to have fully recovered either.

The Great recession has been over now for about 5 years. Social scientists are just now beginning to better understand the significance of this major event in American economic history. In this regard, a basic concern is the demographic differentials in the unemployment that was generated. Who got downsized in the Great Recession? The American labor force is characterized by tremendous diversity by race/ethnicity, gender, and nativity status. These unemployment differentials are intrinsically meaningful to know. In this study, we seek to investigate this issue.

The Significance of Unemployment for Native-Born Persons and Immigrants

Unemployment is a central concern to many significant outcomes relating to economic, psychological, and social well-being. For example, unemployment has detrimental consequences for one's personal finances, mental health, marital stability, and criminal activity (Dooley et al 1996; Vinokur et al 1996; Price et al 2002). Unemployment, like other economic indicators, is known to vary by race and ethnicity, and is thus immediately implicated in broad

societal patterns of socioeconomic inequalities. Unemployment is a critically important outcome for almost all groups in American society, and is thus a significant trend that social scientists need to monitor and understand. Ascertaining differentials in unemployment between native born and foreign born persons with different demographics (i.e., gender and race/ethnicity) is not only important from the point of view of descriptive social demography, but it is also quite relevant information to the highly contested issue of immigration.

Neoclassical migration theory (Todaro 1969; Todaro and Maruszko 1987) proposes that immigrants are motivated by social and economic factors that are either a push (i.e., negative aspects of one's place of origins) or a pull (i.e., positive aspects of a destination). For example, immigrants are often attracted to the relatively greater economic opportunities in the destination country compared to their sending countries. Thus, one of the most important reasons for immigrants to go abroad is to improve their economic conditions. Economic opportunities are likely a major motivating aspect for many of the 42 million immigrants that currently reside in the U.S. In addition, many immigrants send remittances back home in order to help out their families and relatives financially in their home country (Dustmann and Mestres 2010).

For foreign-born persons (henceforth also referred to as "immigrants"), employment in the labor market is known for being "one of the powerful immigrant-integrating institutions" (Terrazas 2011). Employment plays an important role in immigrants' economic assimilation. However, an additional complexity in the delineation of the effects of unemployment relates to inter-group relations. In regard to foreign-born persons, a prominent theme has been whether "immigrants take Americans' jobs." This issue is often a politicized issue among researchers, politicians, and the general public alike.

For example, on Nov 10th, 2010, the *New York Times* ran an article titled "Immigrant Job Gains, Native Born Job Losses" stating that "In the year after the official end of the most recent recession, native-born workers lost 1.2 million jobs while foreign-born workers gained 656,000 jobs…." This article didn't explicitly accuse immigrants of directly taking native-born Americans' job opportunities, but some readers undoubtedly understood that sort of interpretation. Such articles and political discourse may indeed implicitly promote negative attitudes toward immigration and intensify political debates on how tightly to control it especially since the Great Recession has had a lasting economic impact on virtually everyone in the U.S.

Because immigrants typically provide cheap (or at least cheaper) labor, they are furthermore cited as being one of the significant factors contributing to the widening inequalities among highly educated and less educated native-born Americans (Greenwood and McDowell 1986; Gilbert 2002). However, some prior research casts doubt on this claim and argues that immigrants do not compete for the same kind of jobs with native-born Americans (Friedberg and Hunt 1995; Linton 2006). In addition, a large amount of research and data has affirmed that immigrants significantly contribute to the U.S. economy (Chellaraj et al 2005; Dyssegaard 2009). According to the Fiscal Policy Institute, the contributions immigrants make to the U.S. directly correlate to their share of the population and more specifically to their share of the labor force. Even though previous research has shown that immigrants are beneficial to the economy overall, they often play the role of being a scapegoat for America's difficulty in creating new jobs. Our study comparing unemployment between native-born Americans and immigrants during the Great Recession does not directly investigate the foregoing complex issues, but our findings will hopefully provide a more scientific foundation for these debates.

Other Related Prior Research

Employment, along with income and labor force participation, is one of the three important indicators of economic outcomes. Economic outcomes for immigrants are one of the most significant factors when examining immigration integration and assimilation. Previous research shows that immigrants had relatively lower unemployment rates, lower wages, and higher labor participation rates compared to native-born Americans (Kochhar et al 2010). Immigrants are typically less aware of using laws to protect their rights in the labor market (Sa, 2008). The mechanism behind this is that immigrants do not have as much social support and networks when living in a foreign country. They have to have jobs in order to secure their lives or sometimes simply to remain in the country. They are often willing to work for lower wages and more hours than native-born persons. Thus immigrants usually have high labor participation rates, low unemployment rates, and low wages.

Some research on comparing economic outcomes between immigrants and native-born individuals during the recent recession has been done, but many of these studies were conducted in Europe. Cerveny and Ours (2013) suggest that the Great Recession did not have a different impact on the unemployment of non-western immigrants and natives in Dutch by comparing relative and absolute terms of unemployment rate. Another study by Dustmann et al (2010) finds that there is only a small difference between natives and immigrants in the wage response to economic shocks in OECD countries.

Only a limited number of studies on this topic have been done in the U.S. Arai and Vilhelmon (2004) claim that the main differences in economic outcomes between natives and immigrants in the U.S. are in wages, while in Europe are in employment rates. Immigrants constitute about 13% of the total U.S. population but about 16% of the labor force. The high

unemployment rate was a serious issue during the Great Recession, and has continued to be a significant problem even after the official end of the crisis. The Pew Research Center reported that about 1 out of every 3 adult workers has been unemployed for some period of time during the Great Recession. A study by Katz (2010) shows that male, younger individuals, less educated workers, and racial/ethnic minority persons experienced higher unemployment during the Great Recession. Some researchers have even called the recent recession "mancession" because male workers were particularly in the risk of losing jobs and had significantly higher unemployment rates during the recession.

Immigrants had higher unemployment rate than native-born Americans in the most recent recession. However, Pew Research Center (2010) claims that after the recent recession, immigrants have gained jobs while native born have continued to lose jobs. These studies do not investigate immigrants' unemployment by different racial/ethnic group or by gender. Moreover, simply looking at unemployment rate cannot tell the whole story of how much the demographic features of immigrants shape their employment opportunities.

Broader Theoretical Background

The sociological theories that frame this study include the assimilation theory and minority disadvantage theory. Classical assimilation theory holds the idea that after generations staying in the host country, immigrants increasingly integrate into the mainstream society. They eventually assimilate and achieve economic parity with the majority population. The first generation immigrants, however, do not have the equal life chances as those native-born individuals in the host country due to various differences such as the lack of social networks, the unfamiliarity with the local social norms or culture, nonfluency in the local language, etc. In terms of economic opportunities, first generation immigrants have lower pay for the same jobs

than native-born persons (Hirsch and Jahn 2012). First generation immigrants are less likely to get managerial positions or other decent job opportunities.

Critical race theory contends that racial/ethnic minorities face discrimination and oppression in every aspect of life (Feagin, 2006). Those barriers, which are created by the social systems, norms, and laws that only benefit the majority, block the minorities to climb the social ladders. This systematic discrimination is the key to the difference of socioeconomic status among distinctive racial and ethnic groups (Feagin, 2006). In the U.S., non-Hispanic Whites, as the majority group, have the economic privilege and political power to create the social system that oppress other minority groups and at the same time benefit Non-Hispanic Whites. Minority immigrants in the U.S. are disadvantaged of being "people of color' and being immigrants.

According to these two theoretical perspectives, immigrants would face more disadvantages in terms of employment than native-born persons in the U.S. during and after the recession, especially minority immigrants (Hispanics, Blacks, and Asians). Critical race theory would indicate that during economic hardships, immigrants, especially minority immigrants would not have the same opportunities as those native-born persons. When job opportunities are limited, the chances would first give to native-born persons. The Great Recession provides us with a unique opportunity to study how immigrants are treated in labor markets during economic hardship and how this may vary by race and gender.

RESEARCH METHODS

Data

This paper uses data from the Current Population Survey (CPS) extracted from the Integrated Public Use Micro Series (IPUMS) to compare unemployment among immigrants and native-born Americans with different demographic features from 2007 to 2013. The CPS is a monthly U.S. household survey conducted jointly by the U.S. Census Bureau and the Bureau of Labor Statistics. This survey was initially designed to evaluate unemployment and is thus a proper dataset with which to compare unemployment between native-born Americans and immigrants during and after the Great Recession. Data were obtained for the years 2007 to 2013. Pew Research Center (2010) once combined 3 months data from CPS to quarterly data in order to get larger dataset when investigating unemployment. Following this method, we aggregate each year's monthly data into an annual figure in our study.

One concern about this data is that it does not provide a measure for English fluency which is an important variable that has been used in several studies on immigration (Kossoudji, 1988; Evans, 1989; Carliner, 2000). English frequency can significantly affect immigrants' job prospects. Despite this limitation, the CPS is a suitable dataset to study unemployment between immigrants and native-born Americans due to its large sample size, national representativeness, annual availability, and highly accurate measurement of unemployment and other socioeconomic variables.

Measures

Unemployment is the dependent variable in this study. CPS defines unemployment as "All people who were not employed during the reference week but were available for work (excluding temporary illness) and had made specific efforts to find employment some time

during the 4-week period ending with the reference week are classified as unemployed. Individuals who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed. People waiting to start a new job must have actively looked for a job within the last 4 weeks in order to be counted as unemployed." Unemployment was coded as a dummy variable. 1 indicates that respondents were unemployed and 0 indicates that respondents were employed.

Immigrant status is the key independent variable. The variable refers to whether the individual is native born (i.e., a native-born American) or foreign born (i.e., an immigrant). Native-born Americans are defined as individuals who were born in the U.S. (including those who were born in Puerto Rico) and who were born abroad of American parents. Immigrants are defined as people who were residing in the U.S. when answering the survey but were born outside the U.S. and whose parents are not U.S. citizens. CPS does not provide any information on the respondents' legal status. Those who identified themselves as immigrants could be visa holders, U.S. permanent residents, U.S. naturalized citizens, and undocumented immigrants.

Race and ethnicity is another important measure in this study. This variable was defined in terms of several categories including non-Hispanic whites (NH-Whites), non-Hispanic Blacks (Blacks), Hispanics, Asians, and others. I also divided these racial and ethnic groups into immigrant and native-born categories in order to examine unemployment between immigrants and native-born Americans of the same racial/ethnic categories.

Several socio-demographic variables that have impact on unemployment are also included in the analysis. *Age* is a continuous variable in years. The sample is restricted to individuals aged 16 to 64 at the time of the survey. *Marital status* is divided into married versus unmarried. Unmarried individuals are all respondents who are not currently married which refers to those

who are single, divorced, and widowed. *Sex* is coded as a dummy variable. *Education Level* is measured in terms of several categories regarding the highest level completed including: no degree, high school graduates, some college, bachelor's degree holders, master's degree holders, doctoral degree holders, and professional degree holders. Each of these categories was made into a dichotomous variable. *Residential Region* is divided into 9 categories based on the standard classification used by the U.S. Census Bureau: New England, Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific. Each of these categories was coded as a dummy variable. Class of work is also included. It is divided into no experience, self-employed, work for private sectors, federal government, state government, and local government. These groups were indicated by dummy variables.

Statistical Methods

All the statistical analyses were obtained using STATA. Missing data are deleted using listwise deletion. We present unemployment rates by immigrants and native-born persons, as well as those people from different demographic groups, including race/ethnicity and sex, from my dataset from 2007-2013. Unemployment rates are measured by the percentage of those in the labor force who have either lost their jobs or have unsuccessfully sought jobs in the last week when answering the surveys and were still actively seeking work (i.e., unemployment rate = number of unemployed/total labor force).

We use logistic regression to investigate the unemployment likelihoods between immigrants and native-born Americans, in addition to different racial/ethnic groups and gender groups. We employ logistic regression in order to assess the extent to which the group

differentials are statistically explained by other demographic characteristics. These covariates were mentioned above and include age, education, marital status, region, and class of work.[1]

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 shows the descriptive statistics for our dataset. We computed descriptive statistics for each year of our data from 2007 to 2013. In order to conserve space, however, we only show the results for one year (i.e., results for the other years are available upon request). It should be reiterated that our data only contain respondents who were in the U.S. labor force when answering these surveys.

[Table 1 about here]

In general, the descriptive statistics for the demographic characteristics do not vary much over the years. Hispanics in these samples were relatively young, with the average ages around 36 while NH-Whites were comparatively older with the average ages around 41. The majority of Hispanics and Asians identified themselves as immigrants from 2007 to 2013. About 53% to 59% of Hispanics and over 70% of Asians in this dataset were foreign born reflecting the relative recency of Hispanic and Asian immigration to the U.S.

The sex ratios of Hispanics and Blacks tend to be more imbalanced than others. Hispanics males were more than females in the dataset while Black females outnumbered males. Most Blacks were not in marriage relationships (i.e., over 60%). Asians achieved highest educational levels among all racial/ethnic groups. By contrast, Hispanics were the most disadvantaged in terms of educational degrees. Over the years, almost half of Asians in our

[1] In preliminary analysis, we also analyzed additional model specifications. We do not, however, report the results for those other models as they do not vary much from those discussed below.

dataset resided in the Pacific. Hispanics were more concentrated in the Southern areas. About 40% of Blacks in our sample lived in South Atlantic. Most of the individuals from all racial/ethnic background worked for wages in the private sector, including non-profit and for-profit. However, NH-Whites and Asians show higher percentages of being self-employed compared to other racial/ethnic groups.

Unemployment Rates

Figures 1 to 6 show the unemployment rates from 2007 to 2013 for each of the different demographic groups. Figure1 plots the unemployment rates by nativity. Unemployment rates for both native-born persons and immigrants experienced growth after 2007 and jumped to the highest levels in 2009 and 2010. However, immigrants had a slightly lower unemployment rate in 2007, at the beginning of the recession, than native-born Americans. During the recession years, immigrants display higher unemployment rates than native-born Americans. Unemployment rates have decreased after the recession but immigrants still show higher unemployment rates than their native-born counterparts. By 2013, unemployment rates for native-born and foreign-born persons dropped to almost the same level, 6.93% versus 6.99%.

[Figure 1 about here]

Figure 2 presents unemployment rates by racial/ethnic groups broken down by nativity from 2007 to 2013. All groups experienced higher levels of unemployment during the Great Recession. However, Blacks had the highest unemployment rates among all of these groups across the years. Asian immigrants show relatively low unemployment rates. Immigrant and native-born NH-Whites had overlapping unemployment rates through the years, except for 2010, when immigrant NH-Whites had a lower unemployment rate than native-born ones.

[Figure 2 about here]

Figure 3 shows the unemployment rates by gender and nativity from 2007 to 2013. In 2007, native-born males, native-born females, immigrant males, and immigrant females had similar unemployment rates (i.e., 4.6%, 4.3%, 4.2%, and 4.7%, respectively). However, in 2009 and 2010, immigrant males' unemployment rates soared to a higher level than other groups. After the recession, unemployment rates of immigrant males decreased faster than other groups. Unemployment rates of immigrant males became lower than those of native-born males and immigrant females. Native-born females had relatively lower unemployment rates compared to other groups over this period.

[Figure 3 about here]

Figures 4a through 4d present unemployment rates by gender, race, and nativity from 2007-2013. Figures 4a, 4b, 4c, and 4d show unemployment rates of demographic groups for NH-Whites, Blacks, Hispanics, and Asians, respectively. Both native-born and immigrant NH-White males had slightly higher unemployment rates than their female counterparts, but during the recession, unemployment rates of native-born and immigrant NH-White males hurdled to much higher level than those of native-born and immigrant white females. Native-born NH-White males had the highest unemployment rates in 2009 and 2010 among all NH-White groups.

By contrast, native-born NH-White females had the lowest unemployment rates across the years, except for 2010, when immigrant NH-White females had the lowest unemployment rate. After the recession, the years of 2012 and 2013, immigrant NH-White females had the highest unemployment rates compared to other Non-Hispanic white groups. Native-born Black males show highest unemployment rates across the years, followed by native-born Black females. Immigrant Black females had the lowest unemployment rate compare to other groups of Blacks during and after the recession. Both native-born and immigrant Black males'

unemployment rates during the Great Recession grew faster than native-born and immigrant Black females.

Native-born Hispanic males had the highest unemployment rates through these years. Native-born and immigrant female Hispanics overlapped on unemployment rates over the years. Immigrant male Hispanics had the lowest unemployment rates compared to other Hispanic groups. However, in 2009, immigrant male Hispanics' unemployment rate was slightly higher than female immigrant and native-born Hispanics. The unemployment rate of immigrant Hispanic males increased fast during the recession, however, after the recession, it decreased in a faster rate than those of other groups.

Male and female Asian immigrants overlapped in their unemployment rates. Native-born female Asians had slightly lower unemployment rate than female and male immigrant Asians in 2010. However, after the recession, in 2011 and 2012, native-born female Asians' unemployment rates became higher than male and female immigrant Asians' unemployment rates. Native-born Asian males had the highest unemployment rate among all Asian groups across the years.

[Figure 4 about here]

Results for Logistic Regressions

Table 2 presents the results for the logistic regression model of unemployment. After controlling for the demographic characteristics, immigrants had lower likelihoods of being unemployed than native-born persons through the years. Surprisingly, the higher unemployment possibility for immigrants during the recession disappeared after controlling for the demographic variables. The demographic features of immigrants statistically explain their higher unemployment during the recession. Blacks and Hispanics still show significantly higher

likelihoods of being unemployed than NH-Whites across the years. After controlling for demographic variables, Asians only show significant results in 2009 when they are 13.79% more likely than NH-Whites to be unemployed.

[Table 2 about here]

Tables 3a to 3d display the odds ratios of unemployment by nativity of different racial/ethnic groups, including NH-Whites, Blacks, Hispanics, and Asians. The results indicate that NH-White immigrants had statistically higher likelihoods of being unemployed than non-Hispanic white native-born persons across the years, except for 2010, when the odds ratio was not statistically significant. However, Blacks and Hispanics show the opposite outcomes. Immigrant Blacks and immigrant Hispanics had lower likelihoods of being unemployed than native-born Blacks and native-born Hispanics respectively across the years after controlling for the demographic variables. Asians do not exhibit statistically different odds ratios of unemployment for immigrants or native-born persons after introducing the demographic control variables.

After controlling for the demographic control variables, NH-White females were less likely to be unemployed than their male counterparts across the years, except in 2009 when the odds ratio was not statistically significant. Black females consistently present lower likelihoods of being unemployed than Black males across the years. Hispanic females had lower likelihoods of being unemployed than Hispanic males in 2009 and 2010 during the recession. In 2007 and after the recession, Hispanic females show higher likelihoods of being unemployed than Hispanic males. However, in 2008 to 2010, and 2013, Asian females present lower likelihoods of being unemployed than Asian males.

[Tables 3a to 3d about here]

Tables 4a and 4b present odds ratios of unemployment of different racial/ethnic groups by nativity. Among native-born persons, Blacks and Hispanics show significantly higher likelihoods of being unemployed when compared to NH-Whites. In 2007, 2008, and 2010, Asians had significantly lower likelihoods of being unemployed compared to NH-Whites, after controlling for the demographic characteristics. Native-born females had significantly lower likelihoods of being unemployed than native-born males across the years. Among immigrants, Blacks had higher likelihoods of being unemployed than NH-White immigrants across the years. Hispanics had higher likelihoods of being unemployed than NH-Whites, expect in the year 2008 when the odds ratio was not significant. Immigrant females had higher likelihoods of being unemployed than immigrant males in 2007, 2008, 2012, and 2013. They had lower likelihoods of being unemployed than males during the recession in 2009 and 2010.

[Table 4a and 4b about here]

Tables 5a to 5d display odds ratios of unemployment by different racial/ethnic groups of immigrant males, immigrant females, native-born males, and native-born females. Blacks of immigrant males and females, as well as native-born males and females, had higher likelihoods of being unemployed across the years compared to their NH-White counterparts after controlling for the demographic features. After controlling for the demographic variables, Asian immigrant males and females had lower likelihoods of being unemployed than NH-White counterparts during and after the recession. Among immigrant males, Hispanic men had higher likelihoods of being unemployed than non-Hispanic whites in 2009 after controls. Hispanic immigrant females, native-born males and females had higher likelihoods of being unemployed than their NH-White counterparts across the years.

[Tables 5a to 5d about here**]**

SUMMARY OF EMPIRICAL RESULTS

Our results indicate that unemployment likelihoods during the Great Recession vary by demographic characteristics. Without the demographic control variables, immigrants had lower likelihood of being unemployed than native-born persons in 2007 when the Great Recession just began but there was a slight delay in the rise in unemployment. By 2010, immigrants came to have higher likelihood of being unemployed than native-born persons. In 2013, after the recession had ended, immigrants were again showing a lower likelihood of being unemployed. Net of the demographic control variables, the logistic regression results suggest that the Great Recession hurt immigrants more by narrowing down their job opportunities more so than for native-born persons during that period. After controlling for the demographic variables, however, immigrants again came to have a lower likelihood of being unemployed compared to native-born persons over the years. This trend suggests that immigrants' longer-term labor market opportunities did not change significantly by the Great Recession when compared to native-born persons. Immigrants appear to adjust to the economic opportunities that may be available to them.

However, when comparing unemployment likelihoods of immigrants and native-born persons by racial/ethnic groups, the patterns are somewhat modified. Not surprisingly, unemployment likelihoods vary by racial/ethnic group. Without demographic controls, immigrant NH-Whites only exhibit significant results for the years 2010, 2012, and 2013. Immigrant NH-Whites had lower likelihood of being unemployed (compared to native-born NH-Whites) in the recession but had higher likelihoods of being unemployed than their native-born counterparts after the recession. After controlling for the demographic variables, the odds ratios

became significant across the years expect 2010. Immigrant NH-Whites had higher likelihoods of being unemployed than native-born NH-whites across the years, expect for 2010.

Before and after controlling for the demographic variables, immigrant Blacks and Hispanics display higher likelihoods of being unemployed than their native-born counterparts across the years. Asians had different stories. Before the control variables, immigrant Asians display significantly lower likelihoods of being unemployed compared to native-born Asians across the years. After the controls, however, some of the significant differences disappeared. The significant odds ratios indicate that immigrant Asians still had lower unemployment likelihoods than native-born Asians in the years of 2008, 2009, 2010, and 2013.

Our results also show that racial/ethnic groups within different nativity groups had different outcomes in terms of employment. Among native-born individuals, Blacks, Hispanics, and Asians had higher unemployment likelihoods than NH-Whites across the years without controls. After controlling for other demographic variables, Blacks and Hispanics still had higher likelihood of being unemployed than NH-Whites, but the values of odds ratios became smaller (i.e., they were partially explained). In addition, Asians became less likely of being unemployed than NH-Whites in 2007, 2008, and 2010. Other years' odds ratios were not significant. Among immigrants, Blacks and Hispanics show higher unemployment likelihoods than NH-Whites across the years while Asians show the opposite results. With versus without controlling for the other demographic variable does not make a big difference in terms of racial/ethnic differentials indicating that race/ethnicity by itself is not the decisive factor.

Before controlling for the demographic variables, native-born male Asians had higher likelihoods of unemployment than their NH-White counterparts in 2008, 2009, and 2011 to 2013. After controlling, however, those significant effects disappeared. On the other hand, with and

without controlling, native-born male Blacks and Hispanics show higher likelihoods of being unemployed than native-born male NH-Whites across the years. This pattern is also evident for native-born female Blacks and Hispanics. But net of controls, native-born female Asians show significantly higher likelihoods of being unemployed than their NH-White counterparts from 2009 to 2012. After controlling for the demographic characteristics, the significant effects disappeared. Native-born female Asians display lower likelihoods of being unemployed than their NH-White counterparts in 2007, 2008, 2010, and 2013.

Among immigrant males, Blacks and Hispanics had higher likelihoods of being unemployed than NH-Whites across the years before controlling for the demographic variables. Asians show the opposite results. They had lower likelihoods of being unemployed than NH-whites. However, after controls, some of the significant effects disappeared. Hispanics' unemployment odds ratio was only significant in 2009. Among immigrant females, Blacks and Hispanics had higher likelihoods of being unemployed than NH-whites with and without controls across the years. Before controlling for the demographic variables, immigrant female Asians had higher likelihood of being unemployed than their NH-white counterparts in 2010, but had lower likelihoods of being unemployed in the rest of the years, except for 2007 and 2011 when the results are not significant. However, after the controls, the odds ratio in 2010 became insignificant.

DISCUSSION AND CONCLUSION

We began this paper by discussing how immigrants have always been targeted as job-takers in the U.S. Our analyses suggest that unemployment rates for immigrants jumped higher than native-born persons during the Great Recession. However, after controlling for the

demographic variables, this effect disappeared. We do not see much variance in odds ratios of unemployment across the years, during and after the recession.

Immigrants with different racial and ethnic features also show different patterns. Black and Hispanic immigrants had lower likelihood of being unemployed than their native-born counterparts while non-Hispanic white immigrants had higher likelihood of being unemployed than their native-born counterparts. This trend did not change during the recession.

Within nativity groups, racial and ethnic characteristics indeed play a role in unemployment. Blacks and Hispanics had higher likelihoods of being unemployed than NH-Whites of immigrant and native-born across the years, even after controlling for socio-demographic characteristics. This finding corresponds with the prediction of the critical race theory perspective. However, Asians had lower likelihood of being unemployed than NH-Whites across years after controlling for the demographic variables. Without the control variables, Asian immigrant males and native-born males had higher likelihoods of being unemployed than their counterpart NH-White males. This effect disappeared after introducing the demographic control variables, Asian immigrant males and native-born males elucidate lower likelihood of being unemployed than their Non-Hispanic white male counterparts.

Our study confirms previous research which finds that men had higher unemployment rates during the Great Recession. Our analysis reveals the additional result that men appear to be more likely to be unemployed (i.e., compared to women) not only during the Great Recession, but even after it. This latter finding may reflect enduring structural changes in the distribution of jobs (e.g., less employment in manufacturing or construction) which tend to hire more men.

We do not find much change in the unemployment likelihoods for immigrants during and after the Great Recession. One explanation is that immigrants, especially those who were not

residents or citizens of the U.S., have to have a job to secure their visa to stay in the U.S. In addition, visa holders do not always as much accessibility to social welfare benefits and unemployment insurance. Thus those who were in the U.S. when answering the surveys had to have jobs in order to remain here. Those who lost their jobs during the Great Recession may have already left the country. For example, Mexicans would move back to Mexico from the U.S. during the Great Recession. In addition, immigrants are more willing to take a lower paid job. It is possible that if immigrants were laid off during the recession, they might take a lower-paid job that other native-born workers did not want. In this case, we will have to compare immigrants' salary to native-born workers'.

Our study sheds some lights on social inequality and immigration in regard to unemployment in the U.S. labor market. For future research, we plan to investigate salary comparisons between immigrants and native-born persons during the recession in the U.S. labor market. Unemployment levels may possibly affect wage levels more among immigrants than among native workers.

Table 1. Demographic characteristics of the sample from year 2009

	NH-Whites	Blacks	Hispanics	Asians	Others
Age (years)	41.29	39.64	36.66	40.03	37.71
Nativity (%)					
Native-Born	95.55	87.41	43.01	26.81	94.66
Immigrants	4.45	12.59	56.99	73.19	5.34
Total	100.00	100.00	100.00	100.00	100.00
Sex (%)					
Male	52.32	45.02	55.88	51.65	50.20
Females	47.68	54.98	44.12	48.35	49.80
Total	100.00	100.00	100.00	100.00	100.00
Marital Status (%)					
Married	59.92	39.16	52.97	65.09	44.27
Not Married	40.08	60.84	47.03	34.91	55.73
Total	100.00	100.00	100.00	100.00	100.00
Education Level (%)					
No Degree	6.56	10.53	32.07	7.74	11.21
High School	47.62	57.39	47.57	33.28	56.32
Some College	11.20	9.57	6.73	8.08	10.95
Bachelor's	22.95	15.20	9.76	31.00	14.75
Master's	8.43	5.79	2.75	13.00	4.84
Professional	1.89	0.90	0.67	3.14	1.10
Doctoral	1.35	0.62	0.45	3.76	0.84
Total	100.00	100.00	100.00	100.00	100.00
Region (%)					
New England	14.03	4.16	4.63	6.62	6.66
Mid-Atlantic	9.12	10.55	9.70	11.30	3.52
East North Central	13.34	11.81	6.04	6.45	6.72
West North Central	15.24	5.38	4.34	5.00	14.47
South Atlantic	15.59	39.58	14.73	12.41	11.77
East South Central	4.72	8.84	1.27	1.14	2.00
West South Central	6.37	10.94	16.95	5.58	10.51
Mountain	10.87	2.91	13.99	6.35	12.69
Pacific	10.73	5.84	28.35	45.14	31.66
Total	100.00	100.00	100.00	100.00	100.00
Class of Worker (%)					
No Experience	1.16	2.09	1.58	0.98	1.63
Self-Employed	11.37	5.42	7.16	9.87	8.00
Work for Private	72.85	73.99	81.68	76.21	70.56
Federal Government	2.60	4.80	1.77	3.73	5.40
State Government	4.79	5.47	2.72	5.66	5.86
Local Government	7.24	8.22	5.10	3.55	8.54
Total	100.00	100.00	100.00	100.00	100.00
N	591,523	74,846	102,429	39,396	18,182

Figure 1 Unemployment Rates by Nativity, 2007-2013

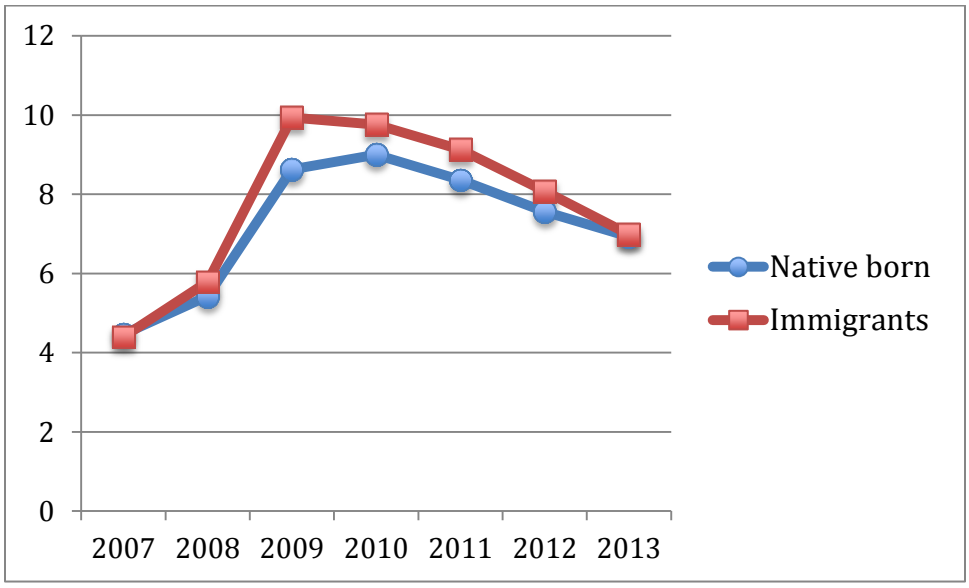


Figure 2. Unemployment Rates by Nativity and Racial/Ethnic Groups, 2007-2013

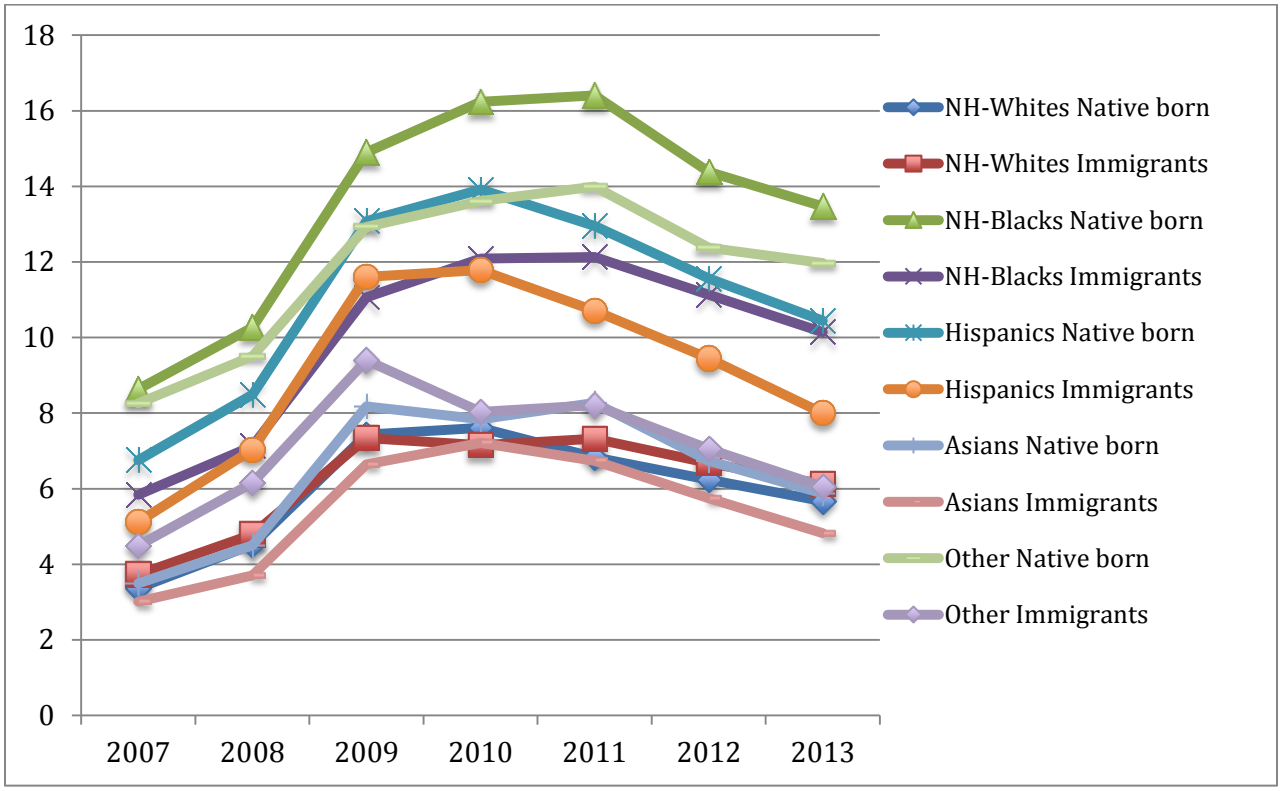


Figure 3. Unemployment Rates by Gender and Nativity, 2007-2013

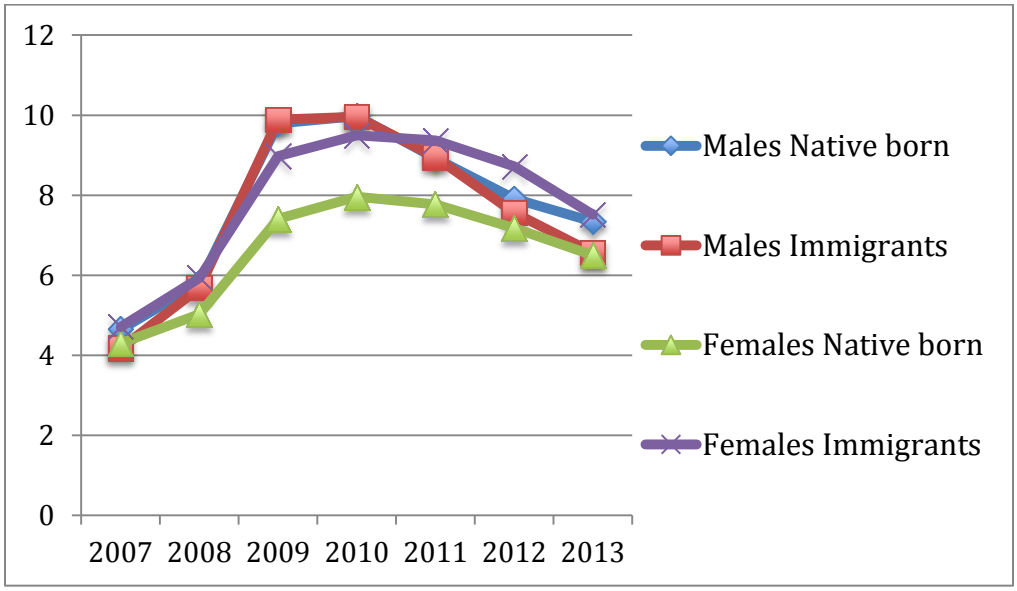
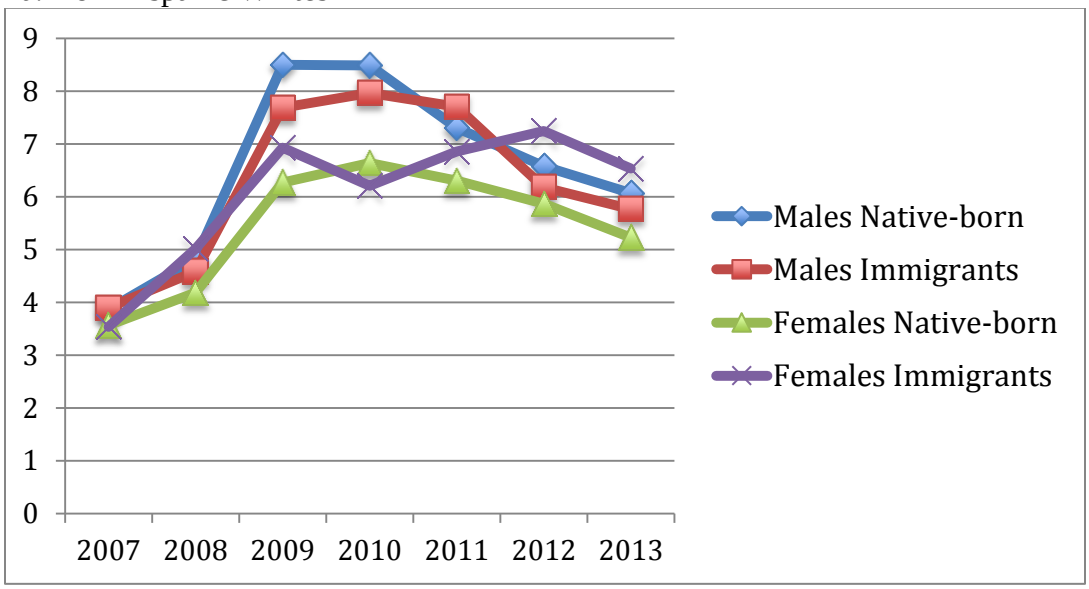
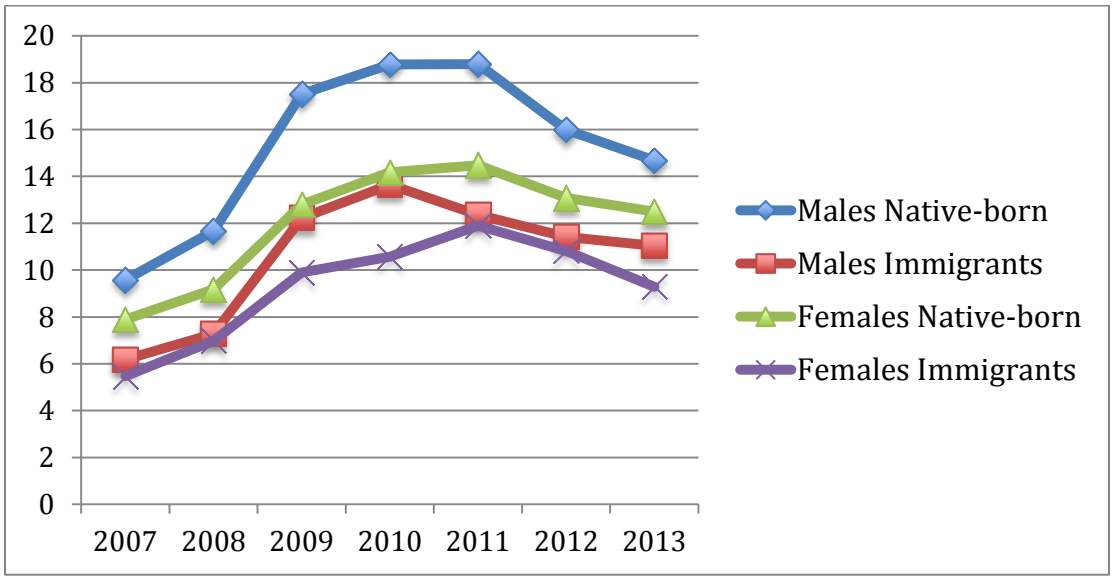


Figure 4. Unemployment by Gender, Race, and Nativity, 2007-2013

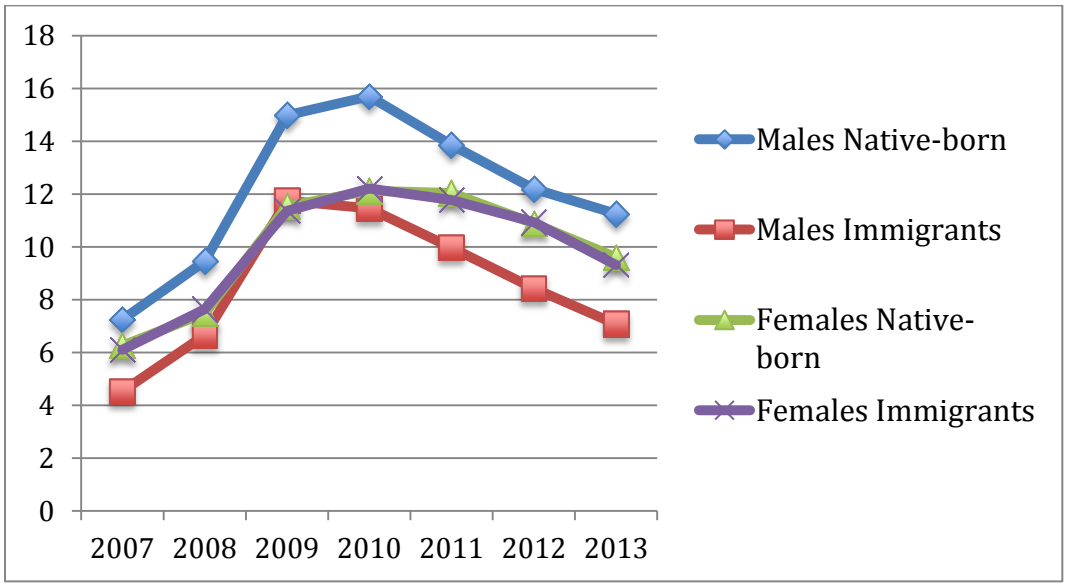
4a. Non-Hispanic Whites



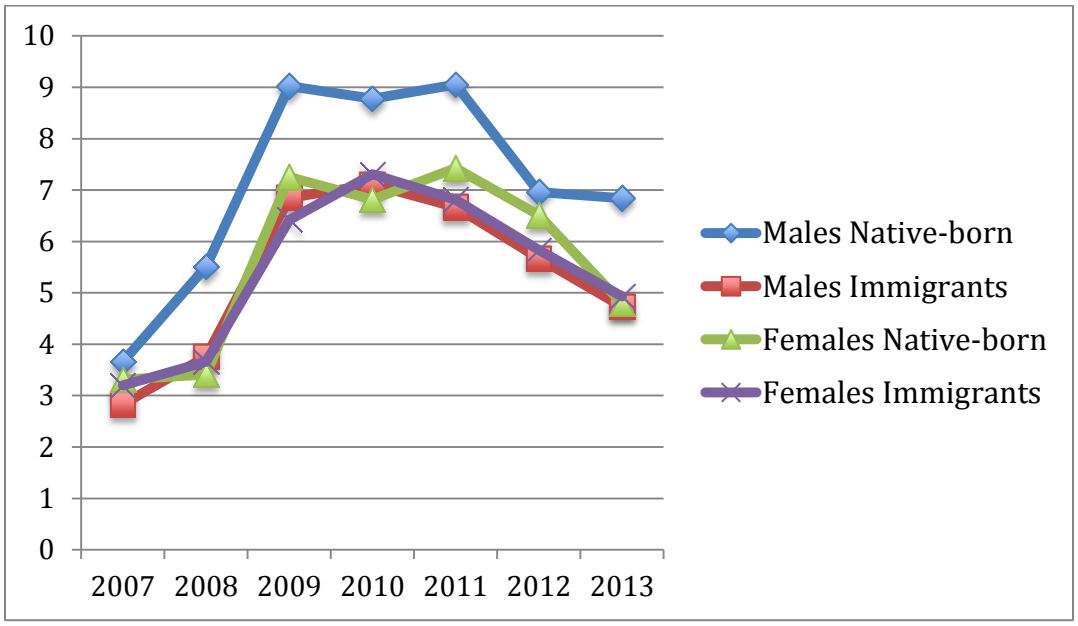
4b. Blacks



4c. Hispanics



4d. Asians


10
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2007
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2009
2010
2011
2012
2013
Males Native-born
Males Immigrants
Females Native-born
Females Immigrants

Table 2. Logistic Regression of Unemployment for Immigrants and Native-born Americans, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Immigrants	0.8444***	0.8759***	0.9079***	0.8407***	0.8711***	0.9159***	0.8742***
Native-Born	REF	REF	REF	REF	REF	REF	REF
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blacks	1.9199***	1.9221***	1.7504***	1.8783***	2.0478***	1.9210***	1.9743***
Hispanics	1.1513***	1.2176***	1.2230***	1.2403***	1.2281***	1.1784***	1.1895***
Asians	0.9667	0.9462	1.1379***	1.0495	1.0802**	0.9905	1.0002
Others	1.6107***	1.6425***	1.4950***	1.4851***	1.7051***	1.5789***	1.8049***
Male	REF	REF	REF	REF	REF	REF	REF
Female	0.9445***	0.8670***	0.7569***	0.8024***	0.8925***	0.9740*	0.9130***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that $p<0.05$
** indicates that $p<0.01$
*** indicates that $p<0.001$

Table 3a. Logistic Regression of Unemployment Between Native-born and Immigrant Non-Hispanic Whites, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Immigrants	1.0911*	1.1451***	1.1551***	1.0295	1.1584***	1.1878***	1.2229***
Native-Born	REF	REF	REF	REF	REF	REF	REF
Male	REF	REF	REF	REF	REF	REF	REF
Female	0.9217***	0.617***	0.7364	0.7742***	0.8788***	0.9545**	0.8803***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that $p<0.05$
** indicates that $p<0.01$
*** indicates that $p<0.001$

Table 3b. Logistic Regression of Unemployment Between Native-born and Immigrant Blacks, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Immigrants	0.8384**	0.8040***	0.8583**	0.7863***	0.8180***	0.8319***	0.8400***
Native-Born	REF	REF	REF	REF	REF	REF	REF
Male	REF	REF	REF	REF	REF	REF	REF
Female	0.8323***	0.7583***	0.6889***	0.7379***	0.7758***	0.8360***	0.8910***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 3c. Logistic Regression of Unemployment Between Native-born and Immigrant Hispanics, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Immigrants	0.7095***	0.7662***	0.8048***	0.7539***	0.7640***	0.8263***	0.7323***
Native-Born	REF	REF	REF	REF	REF	REF	REF
Male	REF	REF	REF	REF	REF	REF	REF
Female	1.1683***	1.0153	0.8840***	0.9487*	1.0722**	1.1718***	1.0659*
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 3d. Logistic Regression of Unemployment Between Native-born and Immigrant Asians, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Immigrants	0.9834	0.9782	0.9485	1.0116	0.9353	0.995	0.9339
Native-Born	REF	REF	REF	REF	REF	REF	REF
Male	REF	REF	REF	REF	REF	REF	REF
Female	1.0267	0.8416*	0.7886***	0.8245***	0.9787	0.9712	0.8561**
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 4a. Logistic Regression of Unemployment by Racial/ethnic Groups among Native-born Persons, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blakcs	1.9132***	1.9279***	1.7465***	1.8664***	2.0396***	1.9247***	1.9783***
Hispanics	1.2376***	1.3007***	1.2939***	1.2928***	1.2989***	1.2295***	1.2611***
Asians	0.8116**	0.8038**	1.0583	0.8701**	0.9954	0.9393	0.9424
Others	1.5915***	1.6506***	1.4831***	1.4947***	1.7290***	1.5992***	1.8270***
Male	REF	REF	REF	REF	REF	REF	REF
Female	0.9039***	0.8271***	0.7275***	0.7734***	0.8615***	0.9294***	0.8664***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 4b. Logistic Regression of Unemployment by Racial/ethnic Groups among Immigrants, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blacks	1.5248***	1.4587***	1.4378***	1.6264***	1.6618***	1.5751***	1.4953***
Hispanics	1.1079*	1.0836	1.1817***	1.2744***	1.1666***	1.1437**	1.0541
Asians	0.7970***	0.7620***	0.9134*	0.9321	0.8393***	0.7913***	0.7545***
Others	1.3747	1.1006	1.3131	1.0015	1.0049	1.0095	1.0026
Male	REF	REF	REF	REF	REF	REF	REF
Female	1.1514***	1.0747*	0.8911***	0.9287**	1.0484	1.2037***	1.1607***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 5a. Logistic Regression of Unemployment by Racial/ethnic Groups among Immigrant Males, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blacks	1.7135***	1.7211***	1.5788***	1.6900***	1.6012***	1.8471***	1.7225***
Hispanics	0.9172	1.0334	1.1246*	1.0449	1.0002	1.103	1.0101
Asians	0.7207***	0.8640*	0.9442	0.8697*	0.7696***	0.9074	0.8527*
Other Race	1.4359	1.5650	1.0219	0.7570	1.1495	1.1585	1.0119
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 5b. Logistic Regression of Unemployment by Racial/ethnic Groups among Immigrant Females, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blacks	1.3497**	1.2371*	1.2893**	1.5953***	1.7601***	1.3167***	1.2925**
Hispanics	1.4410***	1.1657*	1.2950***	1.6976***	1.4372***	1.1955**	1.1184
Asians	0.9247	0.6698***	0.8854*	1.0472	0.9568	0.7016***	0.6691***
Other Race	1.2442	0.6950	1.7601**	1.4011	0.8427	0.8489	0.9613
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 5c. Logistic Regression of Unemployment by Racial/ethnic Groups among Native-Born Males, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blacks	2.0538***	2.0412***	1.7982***	1.9013***	2.2247***	2.0807***	1.9759***
Hispanics	1.2877***	1.3293***	1.2737***	1.3331***	1.3021***	1.2127***	1.2785***
Asians	0.8602	0.8657	1.0373	0.8856	0.9504	0.8965	1.0170
Other Race	1.5914***	1.6240***	1.4695***	1.4432***	1.7903***	1.5150***	1.8716***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

Table 5d. Logistic Regression of Unemployment by Racial/ethnic Groups among Native-Born Females, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
NH-Whites	REF	REF	REF	REF	REF	REF	REF
NH-Blacks	1.7968***	1.8405***	1.7067***	1.8543***	1.8767***	1.8007***	2.0158***
Hispanics	1.1870***	1.2693***	1.3284***	1.2466***	1.2991***	1.2507***	1.2458***
Asians	0.7611**	0.7221**	1.0800	0.8476*	1.0527	0.9922	0.8433*
Other Race	1.5978***	1.6897***	1.5095***	1.5585***	1.6749***	1.7005***	1.8024***
Age	Y	Y	Y	Y	Y	Y	Y
Age2	Y	Y	Y	Y	Y	Y	Y
Education	Y	Y	Y	Y	Y	Y	Y
Marital status	Y	Y	Y	Y	Y	Y	Y
Region	Y	Y	Y	Y	Y	Y	Y
Class of worker	Y	Y	Y	Y	Y	Y	Y

Note: * indicates that p<0.05
** indicates that p<0.01
*** indicates that p<0.001

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