

Unemployed, now what?:

The effect of immigration on Unemployment transitions of native workers in the US

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Abstract

Although, one should expect the unemployed population to be the most likely affected by immigration, most of the studies have concentrated on investigating the effects immigration has on the employed population. Little is known on the effects of immigration on labor market transitions out of unemployment. Using the basic monthly Current Population Survey from 2001 and 2013 we match data for individuals who were interviewed in two consecutive months and identify workers transitions out of unemployment. We employ a multinomial model to examine the effects of immigration on out of unemployed transitions, using immigration levels at the state level. The results suggest that immigration does not affect native probabilities of finding a job. Instead, we find that immigration is associated with smaller probabilities of remaining unemployed, contributing to shorter unemployment duration. Still, the shorter unemployment spells are accompanied by higher probabilities of workers leaving the labor force affecting mostly young and less educated people. We also find that immigration does not seem to be related with the probability of native workers migration.

Keywords: Immigration, unemployment, transitions

1. Introduction

Immigration debate in the United States has a longstanding history (Orrenius and Zavodny, 2012; Passel and Fix 1994). Over the last few decades the share of immigrants in the country has increased rapidly, according to official data, the share of foreign-born individuals in the U.S. increased from 7.9% in 1990 to almost 13.3% in 2014, representing about 41.3 million people. Furthermore, from the total immigrant population, about 11.3 million immigrants in 2014 are estimated to be unauthorized immigrants (Passel and Cohn, 2015). These trends have shaped the immigration policy in the US and motivated a large body of research focused on examining the economic impacts of immigration (Kerr and Kerr 2011).

The majority of the immigration research has been focused on analyzing the effects that immigrants, particularly unauthorized/illegal immigrants, have on the wages and employment opportunities of natives (Okkerse, 2008; Borjas 1999). The main concerns regarding immigration are based on the expectations that the arrival of immigrants would displace natives out of their jobs, while putting downward pressures on wages. These expectations are based on a standard competitive model of supply and demand in a closed economy (see for example Borjas (1999)).

Despite the appeal of the theoretical framework and the anecdotal evidence connecting rising immigration rates with lower wages and higher unemployment, the research finds modest effects of immigration on the labor market opportunities of native workers. The large body of research finds that immigration has a negative and small, albeit statistically significant and consistent, impact on wages (Longhi, Nijkamp and Poot, 2005; Kerr and Kerr 2011), some have found positive impact on productivity and wages (Hotchkiss et al 2015; Peri, 2010, 2012) with only few studies in favor of the larger negative effects of immigration (Borjas, 2003; Altonji and Card 1991).

Regarding job displacement, most of the evidence suggests negative, but mostly small effects of immigration on employment (Longhi, Nijkamp and Poot, 2008). Similarly most of the evidence also indicates that unemployment rates do not seem to be affected by immigration in the aggregate, even among young and minority workers (Lucchino et al, 2012; Islam, 2007; Shan, 2010; Winter-Ebmer and Zweumuller 1999). Nevertheless, some of the literature (Card, 2001; Frey 2006, Borjas (2003); Borjas, Grogger and Hanson, 2006) states that immigration significantly reduces employment and increases natives' out-migration.

While the literature on immigration effects on native workers has been broadly studied, little is known on the effects of immigration on labor market opportunities of the unemployed. Unemployed workers are the group most likely to be affected by the presence of immigrants in their local labor markets, as they are actively competing for jobs. Thus, the unemployed opportunities to find a job, their decision to continue searching for jobs, or decisions to exit the labor force are expected to be influenced by the effect immigration

has on wages and on the availability of jobs in the labor market. Furthermore, even if immigration has no effect on job opportunities and wages in the aggregate, their presence can have an effect on the expectations of wage trends and job opportunities in the labor market (Orrenious and Zavodny 2012; Anderson 2010, Kessler 2001; Mayda 2006; Scheve and Slaughter 2001), which can also affect the transition rates of unemployed workers.

Only a few papers have attempted to analyze the impact of immigration on unemployed workers, in terms of unemployment duration. Using data for Australia, Winter-Ebmer and Zweumuller (1999) finds that immigration has a positive impact on unemployment duration. Fromentin (2012), using aggregated panel data for OECD countries, finds that immigration has increases short term unemployment but reduces long term unemployment. To the best of our knowledge, there is no research for the US that has studied the impact of immigration on the labor market outcomes of unemployed native workers.

We contribute to the literature by examining the effects of immigration on unemployed native workers in the US. Based on an area analysis approach, we exploit the differences in the concentration of immigrants across states and time to identify the impact of immigration on native's employment status changes, including their decisions to stay in the labor force. Using the basic monthly Current Population Survey from 2001 and 2013 we match data for individuals who were interviewed for two consecutive months and identify workers transitions out of unemployment. We employ a multinomial model to estimate the impact immigration has on the probability of an unemployed individual to continue being unemployed, to find a job, to leave the labor force or to decide to migrate.¹

Our estimates suggest immigration has a small but statistically significant impact on native workers transitions. We find that native probabilities of finding a job are not affected by the share of immigrants in their labor market. Instead, we find that high levels of immigration are associated with smaller probabilities of remaining unemployed, contributing to shorter unemployment duration. Yet, the shorter unemployment spells are accompanied by higher probabilities of workers leaving the labor force affecting mostly young and less educated people. We also find that immigration does not seem to be related with the probability of native workers to migrate.

To the extent that immigration rates do not seem to be related with neither lower nor higher job finding probabilities in the sample, this can be interpreted as immigration having no real effect on having a competition effect by reducing employment opportunities for native workers. However, since unemployed native's probability to exit the labor market increases with higher rates of immigration, this might suggest that natives become discouraged and leave the labor market. This can be interpreted as a response to expectations

¹ For this research immigration rate is measured as the share of people 15+ years of age who live in the same state, was born in a foreign country, and is not a naturalized citizen.

associated with immigration, job displacement and lower wages, even if immigration has no direct effect on employment or wages. In other words, as unemployed natives' expectations on wages and job availability decline, they might reassess their situation and decide to leave the labor market instead of continue looking for jobs.

Similar to other findings in the literature, we find the immigration effects to be the highest among the youngest and least educated natives, who are the most likely to expect to be affected by low skilled immigrants. We also find that natives who have a Hispanic heritage or are children of immigrants, thus are less likely to form negative expectation on the impact of immigration compared to other natives, seem not to be affected by immigration rates. Finally, our results also suggest that the observed effects are driven by the presence of likely unauthorized workers (Passel and Cohn 2015), and that the concentration of other types of immigrants has no statistical effect on the labor market transitions of unemployed citizens.

The rest of the paper is structure as follows. Section 2 presents a brief description of the immigration profile in the US. Section 3 and 4 presents a brief description of the data and the methodological approach.

2. Econometric approach

The econometric approach used for the formal analysis immigration on unemployment transitions in this paper is an application of a multinomial model and based on an area analysis approach that uses the differences in immigration rates across states and time to identify the effect of immigration on the labor market (Okkerse, 2008:p. 7). For each observation in our data, conditional of being unemployed at time t ($s_t = U$), we can model the probability of an individual changing their employment status (s_{t+1}) from one month to another using a set of four independent logit models. Each equation characterizes the probability of transition from unemployment ($s_t = U$) to finding a job ($s_{t+1} = E$), remaining unemployed ($s_{t+1} = U$) or leaving the labor force ($s_{t+1} = N$). In addition, based on the arguments from Borjas (2005), we allow for internal migration of natives by including a forth option. Leaving the sample possibly due to migration ($s_{t+1} = M$):

$$p(s_{t+1} = E | s_t = U) = p_e = F(\gamma_e * IR + \alpha_e X) \quad (1a)$$

$$p(s_{t+1} = U | s_t = U) = p_u = F(\gamma_u * IR + \alpha_u X) \quad (1b)$$

$$p(s_{t+1} = N | s_t = U) = p_n = F(\gamma_n * IR + \alpha_n X) \quad (1c)$$

$$p(s_{t+1} = A | s_t = U) = p_a = F(\gamma_a * IR + \alpha_a X) \quad (1d)$$

where IR-Immigration rate represents the percentage of immigrants as a share of the population living in a specific state in a given year and month, and X is a set of controls that affect the employment transitions probabilities of unemployed natives. F is the cumulative density function of a logistic distribution. In this framework, the parameter of interest is γ_i , as it indicates the direction in which IR affects the probabilities of remaining unemployed or changing employment status (p_e, p_u, p_n, p_a). It is not difficult to see that the equation 1b can be intuitively used to analyze the effect that higher immigration rates has on unemployment duration, or more specifically, the effect it has on the risk of a worker to continue being unemployed for 1 additional month.

In order to relax the assumption of independency on the unemployment transition outcomes, instead of modeling unemployment transitions using four separate equations, they can be estimated using a multinomial logit, where the probability of each transition out of unemployment can be written as a function that depends on all other states:

$$p_i = \frac{\exp(\gamma_i * IR + \alpha_i X)}{\sum_{j=e,u,n,a} \exp(\gamma_j * IR + \alpha_j X)} \text{ for } i = e, u, n, a \quad (2)$$

For identification, the multinomial model described in 2 requires that all coefficients of one of the transition status to be constant and equal to zero, although the marginal effects associated with the model are invariant to this choice. Here, the marginal effects associated with the immigration rate can be estimated as:

$$\frac{\partial p_e}{\partial IR} = p_i * (\gamma_i - \sum_{j \neq i} p_j \gamma_j)$$

In this model we identify the effect that immigration has on transitions out of unemployment using the variation of immigration rates across states and time. Since we analyze the unemployment transitions based on current unemployment status, we do not control for self-selection issues related to how individuals became unemployed. In this sense, the results provided here can only be extended to unemployed individuals.

While the model estimated here does not discriminate whether an individual chooses or is pushed to be in one employment status or other, the implication for such movements needs attention. Transitions rates towards employment, for example, can be explained mostly by changes in job market conditions and job creations, and to a lesser extent individual decisions regarding job search. In a similar way, while remaining unemployed can be related to decisions on extending the job search period, it is also very likely to be affected by market conditions such as the unavailability of jobs. On the other hand, transitions out of the labor market or into migration are more directly related to personal decisions, even though they are indirectly affected by the labor market conditions.

2.1. Model specification

As described before, our dependent variable is a categorical variable that indicates the employment state in the following month of an individual who is unemployed at the time of the interview. Based on our specification, from one month to the other, individuals can be in one of three different employment statuses: employed, unemployed or out of the labor force. Because natives can decide to migrate to a different location as one response to the presence of immigrants in the labor (Pedace, 1998; Card and Dinardo 2000; Peri, 2007), we include in the analysis a category for observations without a match in our data. This category would allow us to capture potential out-migration effects of immigration, based on the assumption that the main cause for data not having a match is because they move from their current address.

For the main explanatory variable we control for the State level immigration rate (IR), which is measured as the share of people living in a given state, 15 years of age or older, who were born in a foreign country and declare they are not naturalized citizens. Given the large volatility of the measure, especially in states with low levels of immigration, we adjust the series using a 12 month window of data around the month of interest.² This procedure allows for a more accurate measure of immigration within states, while preserving the long run immigration trend.

As part of the explanatory variables we include sex, age, education, citizenship and race, to account for the differences in labor market opportunities workers with different characteristics exhibit. To capture the non-linearity associated with age and life cycle in the labor force, we control for age categories based on 10 years bracket (15/24;25/34;...;55/64 & 64+), using the youngest workers as the omitted category. For education, we distinguish five education categories including less than high school (omitted category), high school, some college, college and graduate school education. Variables for race (black, Hispanic or other) are also included to account for market discrimination.

We capture individual job search preferences by including indicators for civil status (married or separated), and relationship to the head. If an individual has bigger responsibilities as an income generator in the household, he/she would be more likely consider shorting their job search period (shorter unemployment spell), and be less inclined to leave the labor force. If they have a complementary role in the household, as in the case of children, they might be more inclined to leave the job market sooner. The household size and number of children under 13 years of age are also included in the controls to account for additional dimensions of the job market responsibilities and implicit costs of remaining in the labor force.

² For any given month, the share of immigrants in a state is calculated as the average of this share across five months before and 5 months after the month of interest, including the month of interest. This is similar to applying a local linear regression with a triangular weight on the data.

In order to control for the effect of the business cycles and local labor market health, we control for three aspects. First, we control for the seasonal adjusted state unemployment rate, which is collected obtained from the Local Area Unemployment Statistics (LAUS) program.³ One would expect, other things held constant, that areas with high unemployment rate might also have slower job creation rate, affecting the likelihood of a worker to transition out of unemployment. Second, following the research of Farber and Valletta (2015), we control for the log of the maximum number of weeks of unemployment insurance (UI) available in a state in a point in time. In addition, we also control for whether an individual unemployment spell is shorter than the maximum number of weeks of UI available in their state, which should better capture the effect of longer unemployment benefits. Both variables would control for whether or not a more generous unemployment insurance setting affects the probability of an individual to remain unemployed for an additional month. Lastly, we also include as controls a full set of state, year and month dummies. This would allow us to control for unobserved factors that are fixed within states, seasonal factors (month dummies) and overall business cycles (year), that we are not able to control otherwise.

Following the literature on duration models and survival analysis (Cameron and Trivedi 2005, ch 17), we account for the time dependence between the unemployment duration and transition rates by including dummies that indicate how long an individual has been unemployed in the current spell. We use “less 1 month” as the base category, also identifying those unemployed over 1 month, 2 months, between 3 to 5 months, between 6 to 11 months, 12 to 23 months, and 24 months or more. This allows capturing any non-linear relationship between unemployment duration.

2.2. Immigration, data errors, and survey design

As stipulated before, the rotating panel of the monthly CPS provides a unique design in which individuals are followed for up to 4 consecutive months as long as they remain in the same residency. Each month however, as shown in table 1, approximately 25% percent of the data is left unmatched due to the design of the survey or data errors. If this feature of the data is related to the transition rates out of unemployment and the immigration rate, ignoring it could generate inconsistencies on the estimations of the duration model.

In order to account for the data loss due to data errors and survey design, and reduce the potential effects it could have on the estimations, we decide to treat them as a missing data problem. In this sense, we correct the potential bias by adjusting the sampling weights of the remaining sample using an inverse probability weighting (IPW) approach (Seaman and White, 2011). Intuitively, this approach puts more weight on observations that have a lower probability of being missing, so that the effective sample is representative

³ For more details on the data construction and access can be found at <http://www.bls.gov/laus/home.htm>.

of the full sample. For its implementation, we estimate a multinomial logit where the dependent variable indicates if an observation was linked to a follow up month ($d=1$), if it is not link due to attrition/moving out of the house (2), if it is left out of the sample due to data design ($d=3$), or data errors ($d=4$). As explanatory variables we use a set of individual, household and labor market characteristics including unemployment spell length as independent variables. After the predicted probabilities are estimated, the sample weights for the relevant data are adjusted as follows:⁴

$$w_{adj} = w_{orig} * \frac{1}{p_{d=1} + p_{d=2}}$$

For the rest of the paper, we proceed with the analysis using the sample for which we observe a clear transition out of unemployment into employment, out of the labor force, remaining unemployed or attrition (moving), using the adjusted weights. Since the individuals are potentially observed multiple times in the data, we use the individual panel identifier to cluster the standard errors.

3. Data and Summary Statistics

3.1. Data Description

The study uses data from the monthly Current Population Survey (CPS) from 2001 to 2013, obtained from the Integrated Public Use Microdata Series (IPUMS). The CPS is a monthly household survey conducted jointly by the US Census Bureau and the Bureau of Labor Statistics, and designed to be the primary source of labor force statistics in the US. Data for approximately 140000 individuals living in 70000 households is collected each month. One feature of the CPS data is its rotating panel design. Each household in the data is interviewed for four consecutive months, is left out for 8, and interviewed again for additional 4 months.

Given this rotating panel design, at any given month, approximately 75% of the households are interviewed in the consecutive months. Thanks to this feature, individuals can be followed to analyze their short term transition rates out of unemployment. For the purpose of this paper, we follow the methodology described in Rivera Drew et al (2014) and Madrian and Lefgren (2000), in order to obtain month to month matched data.

As described in Rivera Drew et al (2014), linking information across years is difficult, as the questions themselves might have changed, or the individual might have moved out of the household for some reason, and is no longer followed. In addition, there can be some level of data error that will prevent to accurately match data from one month to another. Since the purpose of this research is to estimate transitions rates out

⁴ In appendix 1 we present the summary statistics for the main sample before and after adjusting the survey weights.

of unemployment, without putting emphasis on the stability of the employment status transition, we only link data for two consecutive months.⁵

We concentrate the analysis on native workers, or those born from American parents, who are 15 years of age or older, and declared to be currently unemployed but are actively seeking a job in the last four weeks. In order to account for data errors, migration, and sample design, observations are classified in 5 groups. As it can be seen in table 1, from a total of 613 thousand individuals, about 149 thousand cannot be matched because the data corresponds to individuals interviewed in the months 4 and 8 of their interview rotation, and a consecutive month data is not available.

From the rest of the data, we are unable to match the data for about 30 thousand observations. According to Rivera Drew et al (2014), households or individuals within households might not be able to be linked from one month to another because: they may refuse to participate in the survey, they might be unavailable, but most often because they may have moved to a different location (migrate). These individuals are included in the analysis to account for the possibility of a worker to decide to move to a different location in search of better job market opportunities. In order to improve the quality of the linked data, bad links are identified based on differences in characteristics such as sex, age, race and relationship to the head (Data errors) and based on the declared number of weeks of continuous unemployment (Unemployment duration error), which accounts for about 10 thousand observations. For the purpose of this research we concentrate only on observations that are fully matched and those not matched due to migration, ignoring those that are left due to design or data errors. This leaves us with 430 thousand observations.

Table 1 Data Description by Employment transition and match category

Data Type	Employment	Unemployment	Transition Not in the Labor Force	Attrition	Out of sample	Total
Matched Data	89,332	220,438	91,799			401,569
Unmatched: Migration				29,363		29,363
Unmatched: Data errors	1,044	1,735	1,047			3,826
Unmatched: Unemployment Error		5,432				5,432
Months 4 & 8					141,979	141,979
Total	90,376	227,605	92,846	29,363	141,979	582,169

Note: Data counts all observations for unemployed natives 15+ years.

3.2. Summary Statistics

⁵ Later in the paper we use information for of individuals interviewed for 3 months to assess the robustness of the results to spurious status changes.

On average, across all years in the data, 52.3% of individuals who are currently unemployed remain unemployed for an additional month, 19.6% end their unemployment spell by becoming employed, 21.3% exit the labor force, and 6.8% migrate. Looking at this transition rates across different levels of immigration rate, however, suggests that there is little evidence that living in areas with higher concentration immigrants affect this transition rates substantially. However, individuals who left the labor force or migrate are more likely to live in areas with higher concentration of immigrants.

In the rest of table 2, the sample means of all the variables included in the duration analysis by transition state are presented, with the exception of the state, year and month dummies. We observe that there are more women among people who exit of the labor force. Similarly, we observe a larger share of younger workers among those who exit the labor market, followed up by those who migrate. We also observe that the oldest (65 and above) are more represented among those who leave the labor force, but less than those who migrate.

Workers with less than high school education are more common among people who left the labor force, while workers with higher education seem to be more inclined to remain unemployed or succeed at finding a job. We should also notice that there are more individuals with high school education among those who migrate and those who remain unemployed. With respect to race, we observe that white unemployed workers have a larger presence among those who find a job, while black workers are over represented among those who leave the labor force or migrate.

In terms of household demographics, single workers represent a larger share of the individuals who leave the labor force or migrate, while individuals who are the heads/spouses of their households have a higher representation among those who remain in the labor force. Children are disproportionately more represented among people who left the labor force. In our data, individuals who left the labor force are also characterized for living in larger households or households with more children under the age of 13. When looking at labor market conditions, it is not surprising that workers who remain unemployed live in states with the highest rates of unemployment and longer available weeks of maximum unemployment, but at the same time those who found become employed are more likely to be a potential beneficiary of the unemployment insurance.

Table 2 Summary statistics selected variables.

Immigration Rate	Transition rate from U in t				Total
	E	U	NLF	M	
0-5%	20.8	51.7	20.9	6.7	100
5-10%	19.0	53.4	20.9	6.7	100
10-15%	19.3	51.0	22.3	7.4	100

15-20%	17.5	54.3	21.8	6.4	100
Total	19.6	52.3	21.3	6.8	100
Sample Means					
Demographics					
Immigration rate	7.686	7.869	8.014	7.997	7.87
Sex					
Men	56.8%	57.4%	49.7%	56.7%	55.6%
Women	43.2%	42.6%	50.3%	43.3%	44.4%
Age					
15-24	33.5%	27.1%	44.8%	38.8%	32.9%
25-34	22.4%	22.4%	17.7%	27.3%	21.7%
35-44	17.8%	18.7%	12.8%	16.1%	17.1%
45-54	15.5%	18.4%	12.0%	11.8%	16.0%
55-64	8.5%	10.9%	8.4%	4.7%	9.4%
65+	2.3%	2.6%	4.3%	1.3%	2.8%
Education					
Less than High School	18.0%	18.7%	31.7%	23.5%	21.7%
High School	35.5%	37.0%	32.8%	38.6%	35.9%
Some College	29.6%	28.2%	25.2%	26.1%	27.7%
College	12.7%	12.1%	7.6%	9.0%	11.0%
Grad School	4.2%	4.0%	2.7%	2.7%	3.7%
Race					
White	69.8%	63.4%	57.9%	56.3%	63.0%
Black	15.7%	21.4%	24.1%	25.5%	21.1%
Other	3.9%	4.2%	4.9%	5.1%	4.3%
Hispanic	10.6%	11.0%	13.1%	13.2%	11.5%
Household Demographics					
Civil Status					
Single	49.5%	48.3%	60.0%	59.3%	51.8%
Married	34.9%	33.2%	25.9%	22.4%	31.2%
Separated/divorce/widow	15.7%	18.5%	14.1%	18.2%	17.0%
Rel to HH					
Head or Spouse	63.1%	65.9%	50.1%	58.7%	61.5%
Children	28.5%	27.0%	41.2%	26.3%	30.3%
Other	8.4%	7.1%	8.7%	15.0%	8.2%
Household Size	3.19	3.08	3.40	3.14	3.17
#Children 0-13	0.58	0.58	0.63	0.63	0.60
Labor Market Conditions					
Unemployment rate	6.78	7.54	7.13	7.10	7.27
% Potential UI beneficiaries	90.5%	83.0%	82.2%	86.7%	84.5%
Log of Max weeks of UI benefits	3.78	3.94	3.85	3.85	3.88
Unemployment Duration					
Less than 1 month	31.8%	13.9%	20.0%	21.3%	19.2%

1-2 months	18.8%	14.3%	16.4%	16.7%	15.8%
2-3 months	12.5%	11.8%	12.2%	13.1%	12.1%
3-5 months	17.4%	21.3%	17.4%	19.6%	19.6%
6-11 months	10.5%	17.3%	14.1%	13.8%	15.1%
12-23 months	6.2%	13.6%	11.9%	10.3%	11.5%
More than 24 months	2.9%	7.8%	8.0%	5.3%	6.7%
Number of Observations	89,332	220,438	91,799	29,363	430,932

Note: Estimates based on CPS data from 2001 to 2013, and adjusted weights to deal with missing data. Sample is composed of unemployed born citizens age 15 or older.

4. Results

Table 3 presents the average marginal effects corresponding to the multinomial logit model on the probability to transition out of unemployment in the baseline specification. In addition to the variables presented in the table 2, the models also control for state of residence, year and month dummies. Based on the base line estimation, on average, living in a state with high concentration of immigrants reduces the probability of a worker to remain unemployed for an additional month. However, the shorter unemployment duration translates in higher probabilities of a worker to leave the labor force. Specifically, our base line estimation suggests that if immigration rate in a state increases in 1 percentage point, say from an average of 7.9 to 8.9%, then the probability of an average worker remaining unemployed declines in 0.34%, while his probability of leaving the labor force increases in 0.3%. While the magnitude of the result is relatively small, it has important implications in terms of the impact of immigration in the labor market dynamics.

First, the estimates suggest there is no evidence that living in an area with a higher concentration of immigrants affect the employment opportunities of native unemployed workers. In other words, any two unemployed natives have the same probability of finding a job, regardless of how many immigrants are living in their state. This, however, does not imply that immigration has no effects on the availability of jobs on job displacement of natives. Second, the estimates also suggest that there is no evidence that living in a state with higher concentration of immigrants changes the probability of an unemployed native to migrate (M), which is consistent with the findings in Peri (2012). This does not necessarily contradict the findings in Borjas (2003), Card and DiNardo (2000) and Frey (1996), because immigration may be increasing out-migration for natives who are “not in the labor force”.

Third, based on the literature on perceptions on immigration, and immigration impacts on the labor market (Hainmuller and Hopkins 2014; Pecoraro and Ruedin 2015; Okkerse 2008; Longhi et al 2005), it is possible that the observed effect of immigration on probability of leaving the labor force is driven by

expectations associated with the impact immigration has on the labor market.⁶ On the one hand, if we start with the assumption that immigration has a large and negative effect on wages, as suggested by Borjas (2003), natives will consider this expected decline in potential earnings and might decide to leave the labor force as the cost of continuing looking for a job is larger than the benefits of continuing searching for a low paid job. On the other hand, even if wages are not strongly affected by immigration, as most of the literature suggests, unemployed workers behavior might still be affected in the same way if they believe immigration affects wages and the availability of jobs. In other words, as the proportion of immigrants increase in the local labor market, unemployed natives would expect wages and jobs available to decline, and would decide to leave the labor force.

Regarding to the rest of the variables, they follow patterns similar to those observed elsewhere in the literature. In summary, women are less likely to find a job (-1.7%), remain unemployed (-3.9%) or migrate (-0.6%), but far more likely to leave the labor force (+6.2%). Across their life cycle, workers are more likely to remain unemployed as they grow older, as well as become less likely to find a job, or migrate. For those 65 years of age and older, retirement age, they are much more likely (+12.6%) to leave the labor force, but are just as likely as the youngest cohort to remain unemployed.

Higher levels of education increases the time worker remain unemployed, possibly by increasing the search time for a good job, as well as increases the chances of finding a job. Higher education is also related to lower probability of leaving the labor force or migrate. In terms of race, compared to white workers, all other races are less likely to find a job, especially for black workers. Only black workers seem to be more likely to remain unemployed for an additional month. Compared to whites, all races are more likely to either leave the labor force or migrate.

Compared to single, being married, thus having more responsibilities within a household is correlated with shorter unemployment spells, higher probability of finding a job and lower chances to migrate. However, those who are currently separated/divorce or widow, are less likely to leave the labor force, although they are also more likely to migrate. In terms of their role in the household, those who are identified as other members show lower probabilities to remain unemployed (-5.9%) but are more likely to leave the labor force or migrate. While children are less likely to find a job and more likely to leave the labor force, they are less inclined to migrate.

Regarding the structure of the household, people living in larger households seem to have shorter unemployment spells because they are more likely to exit the labor force, but also more likely to find a job. However, when considering the number of young children (0-13), more children increase the probability of

⁶ As suggested by Anderson(2010) and Orrienous and Zavodny (2012), right or not, immigration has been historically blamed for societies problem, including high unemployment and deteriorating wages.

remaining unemployed and reduce the probability of finding a being employed the next month. We do find that having more children has a small but positive impact on the probability of an unemployed worker to migrate.

When looking at the indicators of the local labor market conditions, as it is expected, living in a state with higher unemployment rates increases the likelihood of a worker to remain unemployed, and reduces the probability of them to be employed in the next period or leave the labor force. In terms of the unemployment insurance, while we find that the length of weeks of unemployment has no statistical effect on out of unemployment transitions. However, similar to Farber and Valletta (2015), we observe that if an individual can be potentially benefited from the insurance he has a lower probability to exit the labor market. We also observe they are more likely to remain unemployed, possibly investing more time on searching for a better job, and a higher probability to migrate.

Finally, regarding the unemployment duration dependence, it can be observed that the longer workers are unemployed, the lower are the chances to find a job and the higher are the chances of remaining unemployed for an additional month. In addition, it seems that workers who have been unemployed for more than 1 year might become discouraged, and are more likely to leave the labor force. For all duration levels, the results suggest that compared to those recently unemployed, all other individuals are less likely to migrate. In aggregate, these results suggest that the longer natives are unemployed they become less employable and less attach to the labor market (Krueger, Cramer and Cho, 2014).

Table 3 Multinomial transition model: Average Marginal effects

	E	U	NLF	A
	19.6	52.3	21.3	6.8
Immigration Rate	0.0003 (0.0011)	-0.0034** (0.0014)	0.0030*** (0.0011)	0.0002 (0.0007)
Female	-0.0167*** (0.0014)	-0.0391*** (0.0019)	0.0621*** (0.0015)	-0.0063*** (0.0009)
Age group				
25-34	-0.0008 (0.0022)	0.0643*** (0.0030)	-0.0577*** (0.0024)	-0.0059*** (0.0014)
35-44	-0.0072*** (0.0025)	0.0935*** (0.0034)	-0.0595*** (0.0028)	-0.0267*** (0.0016)
45-54	-0.0206*** (0.0028)	0.1112*** (0.0037)	-0.0464*** (0.0031)	-0.0442*** (0.0019)
55-64	-0.0364*** (0.0033)	0.1041*** (0.0043)	0.0037 (0.0035)	-0.0714*** (0.0025)
65-79	-0.0522*** (0.0049)	0.0042 (0.0066)	0.1258*** (0.0046)	-0.0779*** (0.0040)
Education attainment				
High School	0.0399***	0.0294***	-0.0698***	0.0005

	(0.0020)	(0.0026)	(0.0019)	(0.0012)
Some College	0.0542***	0.0204***	-0.0677***	-0.0070***
	(0.0021)	(0.0028)	(0.0021)	(0.0014)
College degree	0.0697***	0.0496***	-0.1101***	-0.0092***
	(0.0027)	(0.0037)	(0.0030)	(0.0019)
Grad School	0.0706***	0.0342***	-0.0985***	-0.0063**
	(0.0039)	(0.0054)	(0.0045)	(0.0029)
Race				
Black	-0.0533***	0.0087***	0.0296***	0.0150***
	(0.0021)	(0.0027)	(0.0021)	(0.0012)
Other	-0.0341***	-0.0015	0.0256***	0.0100***
	(0.0036)	(0.0047)	(0.0036)	(0.0021)
Hispanic	-0.0200***	0.0004	0.0133***	0.0063***
	(0.0025)	(0.0033)	(0.0026)	(0.0016)
Marital Status				
Married	0.0231***	-0.0088***	0.0003	-0.0146***
	(0.0022)	(0.0029)	(0.0024)	(0.0015)
Sep/div/widow	0.0073***	0.0004	-0.0204***	0.0127***
	(0.0024)	(0.0031)	(0.0026)	(0.0015)
Relationship to the Head				
Children	-0.0235***	-0.0091***	0.0622***	-0.0296***
	(0.0024)	(0.0031)	(0.0025)	(0.0015)
Other	-0.0050*	-0.0592***	0.0337***	0.0305***
	(0.0029)	(0.0039)	(0.0031)	(0.0016)
Household Size	0.0081***	-0.0135***	0.0108***	-0.0054***
	(0.0008)	(0.0011)	(0.0008)	(0.0005)
Number Children 0-13	-0.0137***	0.0132***	-0.0017	0.0022***
	(0.0011)	(0.0015)	(0.0012)	(0.0007)
State Unemp Rate	-0.0092***	0.0169***	-0.0066***	-0.0010*
	(0.0009)	(0.0012)	(0.0010)	(0.0006)
wks Unemp<max UI weeks	-0.0161***	0.0241***	-0.0134***	0.0054**
	(0.0035)	(0.0042)	(0.0033)	(0.0021)
Log (weeks UI benefits)	-0.0058	-0.0074	0.0067	0.0065**
	(0.0050)	(0.0065)	(0.0054)	(0.0033)
Unemployment duration				
1 months	-0.0671***	0.0790***	-0.0055**	-0.0064***
	(0.0020)	(0.0028)	(0.0023)	(0.0014)
2 months	-0.0930***	0.1074***	-0.0093***	-0.0050***
	(0.0022)	(0.0030)	(0.0025)	(0.0015)
3-5 months	-0.1176***	0.1501***	-0.0243***	-0.0082***
	(0.0020)	(0.0028)	(0.0023)	(0.0014)
6-11 months	-0.1587***	0.1740***	-0.0071***	-0.0081***
	(0.0027)	(0.0033)	(0.0028)	(0.0017)
12-23 months	-0.1986***	0.1860***	0.0175***	-0.0049**
	(0.0035)	(0.0040)	(0.0032)	(0.0020)
2 or more years	-0.2383***	0.1981***	0.0472***	-0.0070**
	(0.0055)	(0.0063)	(0.0049)	(0.0032)

Observations	430932	430932	430932	430932
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Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors using adjusted weights in parenthesis. Model includes state, year and month marginal effects.

4.1. Heterogeneity of Immigration effects

Most of the literature on the economic impact of immigration suggests that it depends on the degree of substitutability or complementarity between citizen and immigrant workers (Peri, 2007; Ottaviano and Peri 2012; Borjas, Grogger and Hanson 2012). This implies that there could be some heterogeneity on the effects of immigration depending on the characteristics of native workers, as they might be more likely to be affected by the presence of immigrants who are similar to them in terms of their skill characteristics. We explore this possibility by modifying the baseline specification interacting the immigration rate measure with demographic characteristics including sex, age and education. These estimates are presented on table 4.

The first aspect to observe is the potential heterogeneity across gender. The results suggest that there are no heterogeneous effects of immigration across gender. Similar to the baseline results, we observe no evidence that larger immigration rates affect the probability of finding a job or of migrating. We also see that the estimates show small differences regarding the probability of leaving the labor force, with a somewhat smaller probability of women remaining unemployed.

The second aspect of interest is to look across different age groups. Since immigrant, in particular unauthorized/undocumented immigrants, tend to be younger (Passel and Cohn 2015), it is possible younger native workers are the most affected by the presence of immigrants in their labor markets. For example, the work from Smith (2012) and Sum et al (2006) suggest that young workers have been the most affected by the presence of immigration in their local markets. Looking at the estimations, and consistent with the literature, we observe that younger workers are affected the most by the presence of immigrants, as they show the largest marginal effects decreasing the probability of remaining unemployed but increasing the probability of leaving the labor force. Older cohorts show relatively smaller marginal effects in regards to immigration. For the oldest unemployed workers, immigration seems to have a negative, albeit statistically significant at 10%, effect reducing their probability of finding a job.

The closest measure of skill in our data is workers education level. In terms of wages, most of the literature has found that immigration has the largest negative impacts on low skill natives (Altonji and Card 2001; Card 2001). However, there is also evidence suggesting that high skill immigration can reduce wages of highly skill natives (Borjas 2005; Borjas, Grogger and Hanson 2011), although others show that immigration has a rather positive impact on natives labor outcomes (Ottaviano and Peri 2005). Overall, and consistent with the main results, the estimates interacting education level suggests that overall immigration has no impact on the probability of finding a job or migrate, increases the probability of leaving the labor force, and

reduces the probability of remaining unemployed for an additional month. The results also suggest that the marginal effects are smaller for unemployed natives with higher education. For instance, unemployed natives with a college degree are not significantly affected by the immigration rate, and the observed effect on the unemployment probability is significant only at the 10% of confidence.

These observed effects in regards to education and age can be explained to the extent that immigrants, particularly those perceived to be unauthorized immigrants, are characterized for being younger and less educated (Passel and Cohn 2015). In this sense, the estimated effects are explained either because of the additional labor market competition with the highly substitute labor (immigrants), or because younger and less educated natives have the most negative expectations in regards to the impact of immigrants in the labor market.

Table 4 Transition Model: Heterogeneous effects across demographics, Marginal effects

	Interactions			
	Transition to			
	E	U	NLF	A
Sex				
IR x Male	-0.0001 (0.0011)	-0.0029** (0.0014)	0.0029*** (0.0010)	0.0001 (0.0007)
IR x Female	0.0006 (0.0010)	-0.0040*** (0.0014)	0.0031** (0.0013)	0.0003 (0.0007)
Age				
IR x 15-24	0.0002 (0.0011)	-0.0038*** (0.0014)	0.0037*** (0.0012)	-0.0001 (0.0007)
IR x 25-44	0.0006 (0.0011)	-0.0031** (0.0014)	0.0023** (0.0011)	0.0003 (0.0007)
IR x 45-64	-0.0002 (0.0011)	-0.0029** (0.0015)	0.0018 (0.0012)	0.0013 (0.0008)
IR x 65+	-0.0022* (0.0013)	0.0001 (0.0018)	0.0007 (0.0013)	0.0013 (0.0012)
Education				
IR x Less than HS	0.0001 (0.0011)	-0.0034** (0.0014)	0.0031*** (0.0012)	0.0001 (0.0007)
IR x High School	0.0003 (0.0011)	-0.0039*** (0.0014)	0.0035*** (0.0012)	0.0001 (0.0007)
IR x Some College	0.0001 (0.0011)	-0.0031** (0.0015)	0.0025** (0.0012)	0.0006 (0.0007)
IR x College+ degree	0.0009 (0.0011)	-0.0026* (0.0015)	0.0016 (0.0012)	0.0000 (0.0007)
Observations	430932	430932	430932	430932

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors using adjusted weights in parenthesis. Model includes state, year and month marginal effects.

4.2. Robustness to data design

Up to this point we have shown that higher rates of immigration reduce the probability of a worker to remain unemployed, but increase the likelihood of them leaving the labor force (Table 5:M0). Because of the composition of the sample, the survey design and the broad identification of immigration, it is possible that the model is not providing consistent estimates of the impact of immigration on the labor market transition probabilities. In this section, we provide additional estimates that to test the robustness of the findings.

The first aspect to consider is the robustness of the results to the sample selection and survey design. As indicated in the methodological section, we control for the impact of data error and observations that drop due to data design by adjusting the sample weights using an Inverse probability weighting approach. While the strategy is meant to correct the bias due to unobserved outcomes, there is a possibility that we may have introduced other source of biases on the data. On row M1 we present estimates using the original sample weights, and observe that the weight adjustment did not introduced any unforeseen bias to the estimates.

One potential problem in our identification strategy is the presence of outliers. In specific, the state of California, which represents just over 8% of the data in the sample, is characterized for having the largest immigration rates in the country at 18.1%, followed up by Texas at 13%. Even though we control for labor market conditions and state fixed effects, the high immigration rate and sample representation of California in the data can potentially bias the results. As shown on row M2, excluding data from California and Texas has little effect on the estimated, with marginal effects somewhat larger than those of the baseline model (M0).

Another common argument with regards of the sample is the inclusion of young natives (younger than 25) and older cohorts (65+) in the sample of analysis. Although younger have been shown to be the most likely to be affected by the presence of immigrants, people under 25 are more likely to be transitioning between work and school, and therefore might be the best population to accurately estimate our models. Similarly, because older cohorts are more likely to be retired, including them might bias the estimates. According to the estimates on Row M3, the estimates are robust to estimating the model using a sample of unemployed workers between 25-64 years of age.

A source of possible bias on the analysis is the effect that of long term unemployment has on our results. Between 2001 and 2010, the design of the CPS allowed individuals to declare up to 2 years of continuous unemployment. Due to the rise in people declaring to be unemployed for longer periods of time during and after the Great Recession, starting in January of 2011, and available in the public access data after April 2011, individuals are able to indicate unemployment spells of up to 5 years. While our specification accounts for the unemployment duration dependence of unemployed individuals' transitions, the heterogeneity on distribution of the transition rates of people who have been unemployed for more than 2

years can potentially introduce a bias on the estimates, as they would be far more likely to become discouraged or remain unemployed. On row M4 we provide estimates excluding people who have been unemployed for more than two years, and observe the marginal effects are effectively similar to the base line Results.

An important consideration in the terms of data design is the influence of the timing of the survey. As indicated before, the CPS collects information of individuals for up to 4 consecutive months, before and after the 8 month break. In 1994, the CPS went through a redesign that allowed for the use of computer-assisted interviewing and the use of dependent interviewing. This feature enabled the use of data reported in previous rounds to confirmed or updated in subsequent months (US Census Bureau, 2006). If the information collected from individuals in later rounds is systematically different from that in earlier rounds, due to the time sensitive nature of unemployment duration, it might create inconsistent results. On row M5 we explore this potential problem by including interactions between the Immigration rate and the month in sample (MIS) round in the base line specification. Our estimates indicate that overall conclusions from the estimates do not change. However we observe that marginal effects of immigration on transition probabilities decline for observations of individual that come from later interview rounds.

As described in Farber and Valletta (2015), one important factor to consider for the validity of the analysis is the potential presence of spurious transitions out of unemployment, which can lead to over estimations of the probability of unemployment exists, and biases on the on the estimates of our model. Based on Farber and Valletta (2015) and Rothstein (2011) we address this problem by re-categorizing the transition rates of individuals who we observed to have transition out of unemployment in the following month, but are again classified as unemployed two months later. Since we require constrain the data to observations who were potentially interviewed for at least 3 consecutive months, our sample is cut from 430 thousand observations to 358 thousand, and the probability of remaining unemployed increases from 52% to 59%.⁷ While the results are robust to using this alternative dependent variable, we observe that the impact on the probability of individuals to leave the labor force is about 30% smaller than that observed in the base line.

Table 5 Marginal effects of Immigration: Robustness to Sample design

	Transition to			
	E	U	NLF	A
M0: Base Line	0.0003 (0.0011)	-0.0034** (0.0014)	0.0030*** (0.0011)	0.0002 (0.0007)
M1: Uses Original Weights	0.0003 (0.0011)	-0.0035** (0.0014)	0.0030*** (0.0011)	0.0001 (0.0007)
M2: Excludes	0.0008	-0.0040**	0.0035**	-0.0003

⁷ The estimates use the Baseline adjusted weights, which do not adjust for the additional data loss.

California and Texas	(0.0013)	(0.0017)	(0.0014)	(0.0008)
M3: Using Sample 25-64	-0.0005 (0.0012)	-0.0029* (0.0016)	0.0029** (0.0012)	0.0006 (0.0008)
M4: Excludes Long term Unemployment (2+ years)	0.0007 (0.0011)	-0.0039*** (0.0015)	0.0028** (0.0012)	0.0004 (0.0007)
M5: Interacting with MIS				
IR * (mis=1 mis=5)	-0.0002 (0.0010)	-0.0042*** (0.0014)	0.0040*** (0.0012)	0.0004 (0.0007)
IR * (mis=2 mis=6)	0.0007 (0.0011)	-0.0036** (0.0014)	0.0026** (0.0011)	0.0003 (0.0007)
IR * (mis=3 mis=7)	0.0003 (0.0011)	-0.0024* (0.0014)	0.0022** (0.0011)	-0.0001 (0.0007)
M6: Robust to Spurious Transition				
IR	0.0007 (0.0011)	-0.0032** (0.0015)	0.0021* (0.0011)	-0.0004 (0.0007)

Note: * p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors using adjusted weights in parenthesis. Model includes state, year and month marginal effects.

4.3. Perception towards Migration Immigration

One of the potential channels through which immigration affects transition rates out of unemployed is through the role of the expectations in terms of wages and jobs availability on unemployed workers behavior. If unemployed workers expect wages for potential jobs to decline, and further expect the availability of jobs to decrease, they might reassess their situation and leave the labor market (Discouraged worker effect- Ehrenberg and Smith , 2015:ch7). Even if wages and employment availability are not affected by immigration, unemployed workers can still change their behavior if they believe immigration will have such effects (Orrenious and Zavodny 2012; Anderson 2010, Kessler 2001; Mayda 2006; Scheve and Slaughter 2001). In this section we provide additional evidence that suggest that negative expectations on the impact of immigration, in particular unauthorized immigration, are the main drivers of the observed effect.

The first aspect under consideration on Table 6 is to analyze the effect immigration rate has on the transition probabilities of populations less likely to create negative expectations due to immigration. In our data we identify three different samples that fulfill these criteria: naturalized citizens, individuals whose parents were immigrants (First generation citizens) and individuals who identify with a Hispanic heritage. These groups are expected to have a more neutral view of immigrants, thus they might have no expectations regarding lower wages or employment, as they were immigrants at some point, or they have close relative who is an immigrant (Suro 2005; Rouse, Wilkinson and Garand, 2010). Based on our hypothesis, if immigration rate affects the labor force exit rates because of the negative expectations toward immigration, populations without these expectations will be less likely to modify their behavior in function of immigration rates.

On table 6, we present estimates of the model using the sample of Foreign Born Citizens (M8), citizens with a Hispanic Heritage (declared to be Hispanic) (M8), citizens with a foreign born parent (M9) and a combination of all Samples (M10). The results suggest that immigration rates at the state level have no effect on the transition probabilities of these sub populations. This could mean that these individuals are not affected by immigration because their expectations with regard to their labor market opportunities do not change compared to other citizens.

In addition to these models, on Row M11, we estimate the model using a sample that excludes the observations from models M7 to M9. This sample is composed of unemployed individuals who have the fewest ties with immigration, and as such the most likely to have negative expectations regarding their labor market opportunities in the presence of higher immigration. As expected, the estimates are consistent with the hypothesis, and the marginal effects are comparable with those of the baseline.

Another aspect of immigration and perception among unemployed natives can be linked to the type of immigration itself. While there is a relatively general consensus that illegal immigration has a detrimental impact on the economy, in particular for low skill workers, there is less research regarding the impact of authorized immigrants. If legal immigration is perceived as a lesser treat than unauthorized immigration, then we would expect measures capturing legal immigration to have no effect on the transition probabilities. To test this hypothesis, we create three additional measures of immigration, based on their potential legal status in the country. First, we create a share of naturalized immigrants, which is measured as the share of all foreign born individuals 15 years and above, who self-identify as naturalized citizens. Second, based on the work of Passel and Cohn (2015), who provides a description of unauthorized immigrants in the US, we identify the share of likely unauthorized individuals as the proportion of foreign born non-citizens, between 20-45 years of age, with at most high school education and from Hispanic origin. Last, we create an Immigration rate of likely authorized immigrants, which is defined as the difference between the overall immigration (which excludes naturalized citizens) and the share of likely unauthorized immigrants. The biggest challenge of this analysis is that it is hard to correctly identify the presence of illegal immigrants, as they would be the less likely to willing to be capture in survey data such as the CPS. However, to the extent that our measure captures the overall trends of total unauthorized immigration, the identification of the effect would still be valid.

If unemployed natives perceive naturalized citizens and likely authorized immigrants to be as less of a threat for their job market opportunities, in comparison with unauthorized immigrants, we would expect the transition rates to be uncorrelated to these measures of immigration. Instead, we should only see the measure of unauthorized immigration to affect the transition probabilities. On row M12, M13 and M14, we present the marginal effects of three different specifications that include the alternative immigration rates. Row M12 suggests that the share of naturalized citizens has no statistically significant effect on any of the transition

rates. Row M13 also corroborates our hypothesis, as only unauthorized immigration is significantly associated with lower probabilities to remain unemployed, but larger to leave the labor force. Finally on Row M14, we include all three immigration rates and find the same results as in M12 and M13, which indicate that neither the share of naturalized immigrants, nor the share of likely authorized immigrants have any effect on the transition probabilities.

Table 6 Marginal effects of Immigration: Immigration and Perception

	Transition to			
	E	U	NLF	A
M7: Sample of Foreign born Citizens	-0.0046 (0.0039)	0.0007 (0.0054)	0.0030 (0.0043)	0.0009 (0.0023)
M8: Sample of Hispanic Heritage	-0.0026 (0.0029)	0.0011 (0.0040)	0.0006 (0.0033)	0.0008 (0.0021)
M9: Sample of 1 st Generation	-0.0044 (0.0031)	0.00003 (0.0043)	0.0026 (0.0036)	0.0018 (0.0021)
M10: Sample of 1 st Generation and Hispanic Heritage	-0.0007 (0.0021)	-0.0009 (0.0028)	0.0016 (0.0023)	-0.0000 (0.0014)
M11: Sample Excluding Hispanic or 1 st Gen	0.0010 (0.0012)	-0.0041** (0.0017)	0.0033** (0.0013)	-0.0002 (0.0008)
M12: Modifying Immigration Measure				
Share of Naturalized Citizens	0.0013 (0.0015)	0.0012 (0.0020)	-0.0020 (0.0016)	-0.0005 (0.0010)
IR w/o Naturalized Citizens	0.0005 (0.0011)	-0.0030** (0.0015)	0.0025** (0.0012)	0.0000 (0.0007)
M13: Authorized and Unauthorized immigrants				
IR Likely Unauthorized immigrants (Passel and Cohn, 2015)	0.0005 (0.0014)	-0.0045** (0.0019)	0.0033** (0.0015)	0.0007 (0.0009)
IR Likely Authorized immigrants	0.0000 (0.0017)	-0.0020 (0.0022)	0.0027 (0.0018)	-0.0007 (0.0011)
M14: M12 & M13				
Share of Naturalized Citizens	0.0012 (0.0015)	0.0019 (0.0020)	-0.0022 (0.0016)	-0.0008 (0.0010)
IR Likely Authorized immigrants	0.0005 (0.0017)	-0.0013 (0.0023)	0.0018 (0.0019)	-0.0010 (0.0011)
IR Likely Unauthorized immigrants (Passel and Cohn, 2015)	0.0005 (0.0014)	-0.0042** (0.0019)	0.0030** (0.0015)	0.0007 (0.0009)

Note: * p<0.1, ** p<0.05, *** p<0.01. Clustered standard errors using adjusted weights in parenthesis. Model includes state, year and month marginal effects.

5. Conclusion

In this paper we have explored the effects that immigration has on the labor market outcomes of unemployed citizens in the US. We concentrated our interest on unemployed individuals as they potentially are the most likely to be affected by the presence of immigrants when searching for jobs in the labor market.

Based on our estimations, our evidence suggests that immigration has no effect on the availability of jobs for unemployed citizens, and no observable effects on the probability of attrition, which is related to the out migration effect described in the literature. On the other hand, while the marginal effects are small, we do find that citizens living in states with high levels of immigration are less likely to remain unemployed for an additional month, but are more likely to leave the labor force. We suggest that the main driving force of this effect is expectation that immigration lower wages and reduce the number of jobs available in the job market. This creates a discourage worker effect, pushing people who would otherwise have remained unemployed out of the labor force.

In support of our hypothesis, we find three additional pieces of evidence. First, we find that young and low educated unemployed citizens, the most likely to face competition against immigration, are also the most affected by the presence of immigrants in their labor market. Second, individuals who have some type of connection to immigrants, first generation citizens, or individuals with Hispanic heritage, do not seem to be affected by the presence of immigration. And third, only illegal immigration is found to be related to the observed differences in the transition rates out of unemployment and out of the labor force.

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Appendix 1

	Sample	Out of Sample Org. Weights	Total	Sample Adj Weights
Demographics				
Immigration rate	7.87	7.88	7.87	7.87
Sex				
Men	55.4%	56.1%	55.6%	55.6%
Women	44.6%	43.9%	44.4%	44.4%
Age				
15-24	33.1%	32.4%	32.9%	32.9%
25-34	21.7%	21.7%	21.7%	21.7%
35-44	17.0%	17.3%	17.1%	17.1%
45-54	16.0%	16.0%	16.0%	16.0%
55-64	9.4%	9.6%	9.4%	9.4%
65+	2.7%	3.0%	2.8%	2.8%
Education				
Less than High School	21.8%	21.5%	21.7%	21.7%
High School	35.9%	36.0%	35.9%	35.9%
Some College	27.7%	27.7%	27.7%	27.7%
College	11.0%	11.1%	11.0%	11.0%
GradSchool	3.7%	3.7%	3.7%	3.7%
Race				
White	62.9%	63.1%	63.0%	63.0%
Black	21.2%	21.0%	21.1%	21.1%
Other	4.4%	4.3%	4.3%	4.3%
Hispanic	11.5%	11.5%	11.5%	11.5%
Civil Status				
Single	51.9%	51.6%	51.8%	51.8%
Married	31.2%	31.3%	31.2%	31.2%
Separated/divorce/widow	17.0%	17.1%	17.0%	17.0%
Household Demographics				
Rel to HH				
Head or Spouse	61.6%	61.1%	61.5%	61.5%
Children	30.3%	30.2%	30.3%	30.3%
Other	8.1%	8.8%	8.2%	8.2%
Household Size	3.18	3.16	3.17	3.17
#Children 0-13	0.60	0.59	0.60	0.60
Unemployment Duration				
Less than 1 month	19.6%	18.2%	19.2%	19.2%
1-2 months	16.0%	15.0%	15.8%	15.8%
2-3 months	12.3%	11.5%	12.1%	12.1%
3-5 months	19.0%	21.3%	19.6%	19.6%
6-11 months	14.9%	15.6%	15.0%	15.1%
12-23 months	11.4%	12.0%	11.5%	11.5%
More than 24 months	6.8%	6.4%	6.7%	6.7%
Number of Observations	430932	151237	582169	430932