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Prosperity-Pull or Recession-Push?: Mexican Immigrant Self-Employment across the Business Cycle

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Abstract: Immigrant populations may either be pulled into self-employment by the lure of high wages relative to wage and salary work, or they may be pushed into self-employment as a survival mechanism in the face of unemployment. Research that focuses on Mexican immigrant self-employment in the United States tends to stress the prosperity-pull hypothesis and pay little attention to recession-push hypotheses. The focus of this article is to understand the extent that Mexican immigrants enter self-employment as a response to unemployment. Using a unique panel dataset that captures fast-paced labor market changes over the 1994 to 2013 period, I find that Mexican immigrants – and Mexican immigrant men in particular – are more likely to become self-employed in economically bad times than native workers and less likely to become self-employed than native workers in good times. The threshold where Mexican immigrants have a higher rather than lower probability to become self-employed is at eight percent unemployment. These results filter throughout various subcategories and are consistent with recession-push hypotheses.

Prosperity-Pull or Recession-Push?: Mexican Immigrant Self-Employment across the Business Cycle

The origins of self-employment among immigrant populations has led researchers to stress two competing hypotheses: immigrants may either be "pulled" into self-employment by the lure of high wages relative to wage and salary work, or they may be "pushed" into self-employment as a survival mechanism in the face of labor market disadvantages. In the prosperity-pull hypothesis, individuals freely choose to enter self-employment as a success strategy to foster their own socioeconomic programs (Clark and Drinkwater 1998; Fairlie and Meyer 1996; Zhou 2004). Past research that has focused on Mexican and other Hispanic immigrants in the United States have generally found evidence for these hypotheses (Fairlie and Woodruff 2007; Raijiman and Tienda 2000; Tienda and Raijiman 2004; Zhou 2004). Despite Mexican immigrants having a low rate of business ownership (but comprising the largest share of all immigrant-owned businesses due to the large number of Mexican immigrants in the US) (Fairlie and Lofstrom 2013), the results from these studies are important for they suggest that positive components associated with pulled self-employment may aid in individual and intergenerational upward socioeconomic mobility for members of a decidedly disadvantaged group in the US, those from Mexico. However, little research has taken into account the effects of the business cycle – and therefore recession-push hypotheses where individuals enter self-employment in order to circumvent and escape unemployment (Constant and Zimmerman 2004; Light 1979; Spener and Bean 1999) – when determining the origins of Mexican immigrant self-employment. The goal of this paper, therefore, is to understand the extent that Mexican immigrants are "pushed" into self-employment over the 1994 to 2013 period.

The specific objectives of this article are three fold. First, using the Current Population Survey (CPS), the most recent and comprehensive analysis of Mexican immigrants and self-

employment across the business cycle in the United States is analyzed. Unlike past cross-sectional analyses on this topic in the US that rely on the decennial census or the American Community Survey, the 20 years of data assembled covers all economic fluctuations associated with the business cycle: expansions, contractions, troughs, and peaks. The data allows us to determine how the relationship between Mexican immigrants and self-employment has changed over time.

Second, because transitions in and out of self-employment may occur over relatively short periods, a unique panel dataset needed to capture fast-moving trends of this type is created. Past quantitative studies on self-employment in the United States rely on a binary measure indicating who is self-employed and who is not. These measures combine those who have recently become self-employed and those who have been self-employed for a long time. This will obscure the conditions in which immigrants set up businesses. The two-year panel data, therefore, measures within-individual variation in self-employment rates that enables us to understand the relationship the business cycle has on enterprise formation and collapse. However, Mexican immigrants are a heterogeneous group and are therefore disaggregated by gender, period of migration, and citizenship.

Finally, as mentioned above, the ways in which changes in patterns of unemployment at both the national and ethnic population levels affects Mexican immigrant business formation over time are examined. Using the Merged Outgoing Rotation Groups (MORG) of the Current Population Survey (CPS), a model of business formation and collapse among Mexican immigrants is developed. Based on this model, predicted probabilities are generated for Mexican immigrant self-employment at different levels of unemployment. This analysis demonstrates the relative importance of recession-push hypotheses.

Prosperity-Pull, Recession-Push, and Disadvantage Hypotheses of Self-Employment

Prosperity-Pull Hypotheses

There is a complex relationship between immigrants and their relative propensity for self-employment. As already noted, much sociological and economic literature has viewed Mexican immigrants choosing self-employment in order to achieve upward socioeconomic mobility. This literature shows that Mexican immigrants who become self-employed are pulled or attracted by lucrative facets of owning a business. Business achievement then becomes important for self-employed individuals and their families as well as the entire co-ethnic community because business owners become civic leaders and economic role models (Tienda and Raijman 2004). Pull factors that potentially attract immigrants into self-employment are often associated with ethnic enclaves, legal status, language, religion, and country of origin and have been extensively discussed in the literature (see, e.g., Clark and Drinkwater 2000; Fairlie and Lofstrom 2013; Fairlie and Meyer 1996; Parker 2004). The sociological literature associated with pulled self-employment often makes no claims about the business cycle (e.g., Zhou 2004). However, it may be inferred from this research that the costs to self-employment are lowered when the economy is expanding, thus increasing the relative benefits of self-employment during economically good times (Constant and Zimmerman 2004). If self-employment fails during economically good times, the individual may fall back on paid employment. As the economy declines, however, the costs to self-employment increase, which reduces the propensity for self-employment among immigrant populations. That is, when times are economically good, individuals and groups who are able to make use of the pull mechanisms mentioned above will be more likely to become self-employed than when times are economically poor. Because pulled self-employment is

thought to lead to economic success at similar or higher rates of a native population, however, we may expect that immigrant populations will follow similar probability trends as unemployment increases compared with other advantaged groups in the United States.

Past research that focuses on Mexican immigrant business formation tends to stress pull hypotheses. For instance, Fairlie and Woodruff (2007) find that Mexican self-employment rates are higher for men who work in ethnic enclaves, have legal status, and are fluent in English. Tienda and Raijman (2004) report that only 4.6 percent of Hispanic immigrants within Little Village (a Mexican enclave in Chicago) perceive their business ownership as a strategy for overcoming labor market disadvantages. More qualitative evidence has suggested that Mexican immigrants and their children become self-employed as a strategy for intergenerational mobility (Raijiman and Tienda 2000; Zhou 2004; Zhou et al. 2008). However, much of Mexican businesses reside in the informal sector despite the evidence that Mexican immigrants enter self-employment due to pull mechanisms (Tienda and Raijman 2004).

But there remains a possibility that individuals, who are lacking any other means of earning an income, may enter self-employment as a survival strategy (Light 1979). This view stresses the idea that different groups hold relative disadvantages in the labor market such as high unemployment rates that "push" them into self-employment. The body of literature that is associated with pushed self-employment stems from disadvantage hypotheses (Light 1979; Light an Rosenstein 1995). It is this hypothesis that I now turn to in order to draw on the relationship between self-employment and unemployment.

Recession-Push and Disadvantaged Hypotheses of Self-Employment

As already mentioned, recession-push or disadvantaged hypotheses of self-employment suggest that immigrants are "pushed" into self-employment as a survival strategy when demand for wage and salary work declines. In this view, immigrants and other minorities face general labor market disadvantages (e.g., unemployment, underemployment, etc.) that may encourage a higher propensity for self-employment during recessions (Light 1979, 1980; Aurand 1983). Disadvantages may take two forms: resource and labor market. Resource disadvantages occur when groups lack human capital that allows for better employment prospects. Labor market disadvantages occur when groups are susceptible to discrimination and therefore lack access to good paying jobs (Light and Rosenstein 1995). Immigrants who face these disadvantages tend to gravitate towards secondary sectors since they enter the labor market in less traditional ways, and have less labor force attachment than working class natives (Piore 1979).

Disadvantaged status that pushes immigrants into self-employment may be further aggravated in times of recession when people look for a victim to blame (Brubaker 2011). Perceived increases in economic insecurity, such as rising unemployment, generates fear by the native-born as pre-existing antiforeigner sentiments deepen (Burns and Gimpel 2000). The native-born may then limit (intentionally or unintentionally) job access to immigrants that leads to disadvantage. But Mexican immigrants – the focus of this article – face further disadvantages in that increased border control has forced the permanent settlement of this population (Massey et al 2003). Beginning with the Immigration Reform and Control Act (IRCA) in 1986, command-and-control policies have implemented punitive measures on employers and immigrants that eroded working conditions and drove down wages (Massey et al 2003). As a result, post-IRCA undocumented waves became susceptible to labor market insecurities such as wage theft, sporadic employment, and long working hours with unsafe working conditions and

no benefits (Valenzuela 2001). Disadvantage created by punitive policies then drive Mexican immigrants – and in particular undocumented immigrants – to self-employment (Bohn and Lofstrom 2013).

The disadvantage hypothesis views the origins of self-employment as a function of economic deprivation and providing less economic benefit to immigrants than other forms of employment. This rationale, therefore, leads to the expectation that already disadvantaged immigrants will become self-employed at increased rates when faced with high unemployment rates that may be compounded with harsh policies at the national level. Recessions will "push" immigrants into self-employment as a defensive strategy to unemployment (Evans and Leighton 1989) where disadvantaged immigrants are less likely to become self-employed than a native reference group when the economy is performing well, but will be more likely to become self-employed when the economy is weak, all else being equal.

Pulled self-employment appears to be a common theme for Mexican immigrants as mentioned above, however, the broader literature on the relationship between ethnic self-employment and unemployment is more mixed. In cross-national studies, Blanchflower and Oswald (1990, 1998) and Blanchflower (2000) find a negative relationship between self-employment and unemployment suggesting a pro-cyclical trend. In the United States, Steinmetz and Wright (1989) find no relationship between unemployment and self-employment between 1947 and 1985 using data from the Current Population Survey. Moreover, Portes and Zhou (1996) argue that positive outliers in earnings are found disproportionately among the self-employed that log-linear models do not account for. Portes and Zhou show that in models that do not log earnings that self-employed workers make more than their wage and salary counterparts thus suggesting pull mechanisms are in play. These studies suggest that self-

employment rates operate pro-cyclically or independently of the business cycle as defined by pull hypotheses.

In contrast to the above studies, however, other researchers view ethnic self-employment as a means of circumventing unemployment. Economists and some sociologists tend to view ethnic self-employment as a rational response to labor market obstacles like employer discrimination that face different groups (Nee and Sanders 2001). For instance, Min (1984) suggests that labor market disadvantages are the most important reason Koreans go into business for themselves – and Valenzuela (2001, 2002) makes a similar case for immigrant day laborers in Los Angeles. Further qualitative data shows that women are more likely to become self-employed if their husbands become unemployed (Valdez 2011) that point to the push dynamics mentions above. Moreover, in a cross-national quantitative study, Tubergen (2005) finds that immigrants who enter a country with a high native unemployment rate are more likely to undertake self-employment. Finally, in the most recent study, Fairlie (2012) finds that immigrants who have become unemployed are more likely to report self-employment through the Great Recession using monthly files of the Current Population Survey. However, he looks at immigrant status broadly defined, while this article focuses more specifically on Mexican immigrants. Whether immigrants are "pushed" or "pulled" into self-employment may depend on the historical context in which immigrants enter or leave the labor force. That is, business cycle downturns may transform the labor market in such a way as to foster higher self-employment rates for some groups, while simultaneously lowering the propensity for self-employment for others.

Hypotheses

To determine whether Mexican immigrants are pulled or pushed into self-employment, I outline the major hypotheses and then categorize them according to Mexican immigrant subpopulations that they relate to.

H1: The pull hypothesis predicts that the probability of becoming self-employed will decline as unemployment increases similar to other advantaged groups in the United States. Concretely, this implies that:

a. Mexican immigrant self-employment and unemployment are negatively related such that self-employment rates fall when co-ethnic unemployment rises and vice versa, all else equal.

H2: The disadvantage or push hypothesis predicts that the probability of becoming self-employed among disadvantaged groups will be lower in economically good times and higher in economically bad times than an advantaged group. Concretely, this implies that:

a. Mexican immigrant self-employment and unemployment are positively related to one another such that self-employment rises when unemployment rises and vice versa.

Data and Methods

Data come from the Merged Outgoing Rotation Groups (MORG) of the Current Population Survey (CPS) for various years. The CPS collects monthly data on 60,000 households to determine employment and unemployment in the United States. The CPS is unique in the United States compared with similar surveys such as the American Community Survey (ACS) in that it samples in a rotational scheme that allows one to examine changes in labor market status in a one-year period. The CPS interviews households on a rotational basis where, in any given month, eight different rotation groups are surveyed. Each household in the CPS is given four monthly interviews, leaves the survey for eight months, and is given four more monthly

interviews before permanently leaving the sample. The rotation groups differ in the month they first enter the survey. Thus, a household entering the CPS in January of year one (month in survey = 1) will leave the survey in April (month in survey = 4) and then enter the CPS in January of the next year (month in survey = 5). Rotations four and eight are considered the "outgoing rotation groups" since they leave the sample or there is an interruption in their sampling. The MORG data combines all the outgoing rotation groups throughout the year. In this dataset, an individual appears once in a file year, but may reappear in the following year. The matched dataset, therefore, follows individuals from one year to another and excludes those without data in the two years.

Since the CPS is a survey of households and not individuals, occupants of a household may leave (for whatever reason), and will not be followed by the survey. Rather, the new occupants of the household will be interviewed. While this potentially creates an attrition bias in the sample, in most instances there are low to negligible statistical effects of attrition and labor market outcomes (see, e.g., Neumark and Kawaguchi 2004). Further specifications of the matching strategy can be found in Appendix A.

The CPS gathers information on individuals who identify themselves as self-employed (incorporated or not incorporated) on their main job every month (Robles and Cordero-Guzman 2007). Workers count as self-employed after they respond to the question: Were you employed by government, by a private company, a non-profit organization, or were you self-employed (or working in a family business). The CPS also provides a rich set of demographic, familial, occupation and industry characteristics that makes it well suited to elucidating the patterns of self-employment among America's immigrant workforce. In this paper, I focus on Mexican immigrants. The CPS provides information on Mexican immigrants through two recession

periods – the dot-com crash of 2001 and the Great Recession of 2008 – and two periods of strong economic growth – 1994-2000 and 2002-2007. The purpose of focusing on Mexican immigrants, as opposed to Hispanic immigrants more generally, is to control for national origin and other features that this population shares (e.g., rural origin and an economically driven flow, as opposed to refugee flows from El Salvador, Guatemala, and Cuba), which differentiates it from other Latin American populations.

The analysis is described in two parts. First, a logistic regression is used to estimate annual probabilities of self-employment between 1994 and 2013. The predicted probabilities for various immigrant race/ethnicity categories are reported in Figure 1 as well as the national unemployment rate for Hispanic immigrants. The probabilities inform theories that predict whether Mexican immigrant self-employment propensities rise or fall as unemployment increases or recessions begin. They also show the historical relationship between Mexican immigrants and self-employment. The analyses use the full CPS matched MORG files (before matching) from 1994 to 2012 and control for demographic and structural variables such as experience, gender, education, occupation, industry, region, metropolitan status and a host of other control variables defined in Table A2 in the appendix.

The second analysis takes advantage of the longitudinal aspect of the CPS to determine changes in labor market status (defined in Appendix A). Using a matching scheme of the MORG files, the odds that Mexican immigrants become or leave self-employment as their primary job from one year to the next are reported. As described above, the matching process creates two-year panel data where changes in self-employment can be calculated. The dataset is limited to individuals aged 18 to 65 who are not self-employed in time 1 but are in the labor force. Logistic models predicting the odds that an individual becomes self-employed by the

second data point in year 2 are then run. To capture the effects of the business cycle on the odds of becoming self-employed, a measure of disadvantage is added: the national co-ethnic unemployment rate for the year. That is, Mexican immigrants and Hispanic non-Mexican immigrants are assigned the Hispanic immigrant unemployment rate each year. The respective unemployment rate is also assigned to African Americans, white immigrants, black immigrants, Hispanic-origin natives, other immigrants, and other non-immigrants. The models control for region, metropolitan status, occupation, and industry, which control for observed and unobserved geographic and business cycle factors that give rise to differential rates of employment opportunities. Year dummies are added to control for time-varying factors affecting self-employment that remain uncaptured in my model. In addition to these control variables, the models control for other time 1 variables like marital status, sex, education, experience and experience squared. A list of the control variables is included in Table A2. By controlling for time 1 variables only, a lag is inherently built into the model where co-ethnic unemployment (and other control variables) predicts the job change in the following year.

An interaction term is included between the ethnic categories and the co-ethnic unemployment rate to determine whether unemployment has an effect on the odds of self-employment. Separate analyses are run for men and women since their labor market participation differs. A pooled model is also presented. Positive and significant interaction effects when determining the odds of becoming self-employed are interpreted as evidence that Mexican immigrants are pushed into self-employment. However, the interaction effects are supplemented with predicted probabilities of becoming self-employed at varying levels of co-ethnic unemployment rates for Mexican immigrants, Mexican non-immigrants, and native non-

Hispanic whites to provide a better understanding of how unemployment affects these propensities.

Mexican immigrants, however, are a heterogeneous group and the Mexican immigrant variable is therefore disaggregated. Again, three analyses are run: one for men-only, one for women-only, and a pooled analysis. First, Mexican citizens from noncitizens are isolated; second, Mexican immigrants are separated based on period of migration. The period of migration model is broken into sub-periods based on major border crackdowns. These periods include those who immigrated before IRCA (pre-1986); between IRCA and the Clinton administration's "prevention through deterrence" strategy of 1994 (1986-1993); between 1994 and 2001; and 2001 and beyond when border build up intensified due to the September 11th attacks. All models use control variables defined above; and Table 1 presents sample sizes and weighted descriptive statistics from the MORG-matched samples.

[INSERT TABLE 1 HERE]

Table 1 reports that the percent of men who work in industries that are hard hit by business cycle downturns is large. For instance, 10.61 percent of men in the sample work in the construction industry compared to 1.26 percent of women. Heavy concentration among men in these industries leads to higher unemployment rates than women. This is why the recession of 2008 was commonly referred to as a "mancession" (Hout et al. 2010). Women, on the other hand, are largely concentrated in services industries which are more recession proof than male dominated industries. The service sector often caters to ongoing demand (like health and child care) that leads to fewer layoffs than industries like construction and manufacturing. Within these types of jobs, reduction in hours rather than layoffs seems more likely. Nevertheless, the

number of self-employment transitions that occurs in the sample is small, and I therefore interpret the findings cautiously.

Results

Figure 1 presents the predicted probability that a native non-Hispanic white, a Mexican-origin native, and a Mexican immigrant are self-employed, holing all the control variables described above at their means. The probabilities use the MORG files and are run for each survey year for which immigrant status is available using a logistic regression. The national annualized averaged unemployment rate for Hispanic immigrants is also presented.

[INSERT FIGURE 1 HERE]

Figure 1 shows the predicted probability that a Mexican immigrant is self-employed has been increasing over time. This overall upward trend may be a reflection of compositional differences in the immigrant workforce, structural shifts in the economy, or political shifts vis-à-vis immigration. This trend may also point to the gradual economic assimilation of this group over time. The upward trend, however, appears to become more pronounced after the dot-com crash and September 11th attacks. These events, however, had a muted response on Mexican immigrants' self-employment rates (Wang and Lofstrom 2009).[1] In the years that witness large unemployment increases, there is also a sharp rise in Mexican immigrants' propensity for self-employment. The trend steadies, however, once the Great Recession of 2008 was at its peak. This may reflect selection issues where those who were most vulnerable and likely to set up business did so early-on in the recession and remained so throughout the economically precarious time. It may also reflect those who are pushed-into self-employment being offset by

[1] However, Wang and Lofstrom's (2009) difference in difference approach began in 1999 and ended in 2003 thus missing the large gap between 2000 and 2004.

those who are being pulled-out of self-employment. Nevertheless, the counter-cyclical trend that occurs with Mexican immigrants, but not with Mexican-origin or native non-Hispanic whites, is consistent with the push hypotheses put forth above. Invariably, the difference between the probability that a Mexican immigrant is self-employed and a native white non-Hispanic is self-employed is significant ($p<.001$).

Figure 1, however, only suggests a positive relationship between self-employment and unemployment during poor economic times and it obscures any effect unemployment has on these trends. As described earlier, the CPS-Matched MORG dataset allows one to estimate the odds of joining and leaving self-employment in a one-year period. By focusing on those who become self-employed and those who leave self-employment, we can better understand the circumstances under which Mexican immigrants open and close shop. Table 2 presents the odds of becoming self-employed in a one-year period for selected race/ethnic immigrant categories and control variables for three samples: male-only, female-only, and pooled.

[INSERT TABLE 2 HERE]

The "becoming self-employed models" for each sample in Table 2 report the odds of becoming self-employed in a one year period and the interaction models of each sample adds an interaction effect between the race/ethnic immigrant categories and the co-ethnic unemployment rate. In the becoming self-employed models Hispanic immigrants who are not of Mexican origin (which includes many refugee migrations such as those from Cuba, El Salvador, and Guatemala) are more likely to become self-employed in a one-year period than native white non-Hispanics. In contrast, Mexican origin native-born men hold 28.7 percent lower odds of becoming self-employed compared to a white native non-Hispanic male, and Mexican origin native women hold 43.7 percent lower odds of becoming self-employed compared with a similarly situated

native white non-Hispanic female. Moreover, net of other factors, Mexican immigrants hold 21.7 percent lower odds of becoming self-employed relative native white non-Hispanics in the pooled sample. Mexican immigrant men and women are also less likely to become self-employed in a one-year period compared to native white men and women respectively. These results are consistent with the idea that Mexican immigrants hold lower odds of self-employment, while other Hispanic origin immigrants have equal or higher odds of self-employment than the native born (see, e.g., Light and Karageorgis 1994).

Meanwhile, the pooled sample shows that men are more likely to become self-employed in a one-year period than women. Those in the construction industry, agriculture, trade, and services are also more likely to become self-employed than those in the reference group of manufacturing in all samples. While women show large odds of becoming self-employed in the construction and agriculture industries, Table 1 reports that female concentration in these industries is low. The large odds ratios for women in these industries are therefore unlikely to translate into any meaningful gains in self-employment. Men, on the other hand, also exhibit high odds of becoming self-employed in the construction and agriculture industries than those in manufacturing. These odds are likely to produce large effects of men's overall odds of becoming self-employed given the large concentration of men in these industries.

The interaction models add an interaction effect between the immigrant race/ethnic categories and the co-ethnic unemployment rate. The interaction effects indicate that Mexican immigrant men are more likely to become self-employed than native white non-Hispanic men as their co-ethnic unemployment rates rise. In contrast, there is no statistically discernible interaction effect between Mexican immigrant women compared to native white non-Hispanic women suggesting that the propensity for becoming self-employed as the economy worsens is

largely a male phenomenon. However, since the interaction and main effects are not intuitive from Table 2, and odds ratios are only able to indicate the relative probabilities of self-employment among Mexican immigrants, I calculate the predicted probabilities of becoming self-employed at different co-ethnic unemployment rates for Mexican immigrants, Mexican-origin natives, and native non-Hispanic whites. Figure 1 above shows that the annualized averaged Mexican immigrant unemployment rate ranges between four and twelve percent. Therefore, Figure 2 presents the predicted probability of becoming self-employed in a one-year period at four, six, eight, ten, and twelve percent co-ethnic unemployment rates, holding the control variables at their means. The probabilities are calculated from the becoming self-employed models for each sample in Table 2.

As noted above, the interaction effect for Mexican immigrant men shows that as co-ethnic unemployment rates rise, Mexican immigrant men's propensity to become self-employed increases compared with native white, non-Hispanics. Figure 2 shows that this is in part due to the sharp decline in predicted probabilities that a native white, non-Hispanic becomes self-employed in a one-year period in all three samples. Mexican-origin men also exhibit a steep decline in the predicted probability as economic times worsen. Mexican immigrants, however, show a flat or small decrease in the predicted probability of becoming unemployed as the economy sours. When the economy reaches eight percent co-ethnic unemployment, Mexican immigrant men become more, rather than less, likely to become self-employed. That is, when the economy is performing relatively well (like in 2006 when Hispanic immigrant unemployment rates were at 4.3 percent), the predicted probability that a Mexican immigrant becomes self-employed is significantly lower ($p<.05$) than their native white male counterparts. However, in times of higher unemployment (such as during the mid-1990s when Hispanic

immigrant unemployment was between eight and nine percent) Mexican immigrant men have higher probabilities of becoming self-employed than native white men. The difference in probabilities between Mexican immigrant men and native white, non-Hispanic men is significant at the 10 ($p<.05$) and 12 ($p<.01$) percent unemployment levels. The probability that a Mexican immigrant woman becomes self-employed, however, fails to overtake the probability for native white, non-Hispanic women until the economy reaches 12% co-ethnic unemployment. The difference in probability between Mexican immigrant women and native white non-Hispanic women is significant at the 4 ($p<.01$) and 6 ($p<.05$) percent unemployment rate and shows no statistically discernable effect in the other unemployment rate levels.

[INSERT FIGURE 2 HERE]

Table 3 reports the odds of becoming self-employed by citizenship and period of entry and controls for the variables described in Table A2. As in Table 2, the becoming self-employed models report the odds of becoming self-employed in a one year period and the interaction models add an interaction effect between the race/ethnic categories and the co-ethnic unemployment rate. The becoming self-employed models show that both Mexican immigrant citizen men and Mexican immigrant citizen women hold lower odds of becoming self-employed in a one-year period than native white non-Hispanics all else equal. A similar picture is portrayed for Mexican immigrant noncitizens in the pooled and female-only models. Moreover, net of other factors, Mexican immigrants who immigrated before IRCA are significantly less likely to become self-employed relative to native white non-Hispanics in all samples. Interestingly, those entering after IRCA show no statistically discernible difference than native whites in joining self-employment. However, the interaction effects between the race/ethnic subcategories and co-ethnic unemployment reveal similar trends as in Table 2.

[INSERT TABLE 3 HERE]

Figure 3 reports the predicted probabilities from the becoming self-employed models in Table 3 for Mexican immigrant citizens and noncitizens at varying levels of co-ethnic unemployment, holding the control variables at their means. Mexican immigrant noncitizen men show no statistically discernable difference in predicted probabilities of becoming self-employed in a one year period vis-à-vis a native white, non-Hispanic male when the unemployment rate ranges between 4 and 8 percent. However, Mexican immigrant noncitizen men are more likely to become self-employed ($p<.001$) at 10 and 12 percent co-ethnic unemployment. Male Mexican immigrant citizens, however, are less likely to be self-employed than a male native white, non-Hispanic at four percent unemployment, but show no statistically discernable difference in predicted probability at any other unemployment level. Mexican immigrant citizens who are women, on the other hand, show increasing probabilities of becoming self-employed in a one year period as the unemployment rate rises. The difference between female Mexican immigrant citizens and native white, non-Hispanic women, however, shows no statistically discernible effect at the 10 and 12 percent unemployment rate. These results suggest that Mexican immigrant men, who may face several barriers in the labor market (especially if they are undocumented), become significantly more likely than a native white non-Hispanic male to become self-employed as co-ethnic unemployment rises.

[INSERT FIGURE 3 HERE]

As mentioned earlier, physical barriers may also hamper Mexican immigrants' ability to adjust to the business cycle by returning to Mexico. Figure 4, therefore, presents the predicted probabilities for Mexican immigrants based on period of entry models from Table 3. Mexican immigrant men who entered the United States after the Clinton administration's "prevention

through deterrence" policy of 1994, and those who have entered after 2001 show greater predicted probabilities of becoming self-employed ceteris paribus native white, non-Hispanic men at eight, ten, and twelve percent co-ethnic unemployment. The rising probability of becoming self-employed for the most recent arrivals and the declining probability of native white non-Hispanics shows the largest gap at twelve percent co-ethnic unemployment than in any other analysis. However, the probabilities for women do not exhibit the same trend. Recent arrivals often struggle with language and customs in the receiving country and they may be more likely to be undocumented that may make them more susceptible to the business cycle. Unfortunately, the CPS does not allow one to measure English attainment or documented status. However, border control tightening inhibits individuals' ability to adjust to the business cycle, and self-employment appears to be an alternative to unemployment for these individuals.

[INSERT FIGURE 4 HERE]

Finally, in unreported results (but available upon request) the odds of leaving self-employment in a one-year period, when the sample is limited to only self-employed individuals, show that almost invariably, the race/ethnic immigrant categories are more likely to leave self-employment in a one-year period than their native white counterparts in all samples. I suspect this is largely due to the self-employed being unable to find markets that would make their enterprise viable. However, this is no relationship between co-ethnic unemployment and leaving self-employment compared to native white non-Hispanics. This may be most likely due to Mexican immigrants being unable to find wage and salary jobs during recessions so they remain self-employed. In all, the results above suggest that Mexican immigrants – and Mexican immigrant men in particular - respond to business cycles by becoming self-employed. This is

consistent with the idea that Mexican immigrant men are pushed into self-employment as a last resort to unemployment.

Discussion/Conclusion

As shown above, the business cycle has consequential effects when determining entry into self-employment among Mexican immigrants. The analyses above help clarify which hypotheses of self-employment best capture business formation and collapse in the United States for various subgroups. Research that focuses on the propensity for self-employment during economically good times is likely to contain few disadvantaged or pushed business owners and vice versa. The long period of data in the above analyses allow for the addition of the business cycle that captures all variation in pulled and pushed self-employment among Mexican immigrants and other race/ethnicities. *The results suggest that in most cases, Mexican immigrants become self-employed in economically bad times compared to other more advantaged groups than in good times*. While Mexican immigrants – and Mexican immigrant men in particular – have lower probabilities of becoming self-employed compared to native white, non-Hispanic men when their co-ethnic unemployment rates are at four and six percent; they are *in most cases* significantly more likely to become self-employed when their co-ethnic unemployment rate is at eight, ten, and twelve percent compared with similarly situated native white non-Hispanics. Indeed, the threshold of when Mexican immigrant men's probability of becoming self-employed overtakes that of native white, non-Hispanics occurs at the eight percent unemployment level. This suggests that Mexican immigrant male business formation is largely a response to business cycle downturns – a finding consistent with the disadvantaged hypothesis (Light 1979).

The analyses also highlight the important role that co-ethnic unemployment plays in contributing to business formation – especially among men. As mentioned earlier, co-ethnic unemployment may serve as a signal of the need to become self-employed. If many people within a recently unemployed individual's co-ethnic social network are unemployed or if they have recently become self-employed, he or she may find value or necessity in becoming self-employed. However, these effects do not appear to hold for women. The relationship between Mexican immigrant female business formation and collapse appears to operate similarly to native white, non-Hispanic women. This result may be likely due to female concentration in the services industry and dependence on strong ties (Hagan 1998). Many services industries cater to ongoing demand that leads to fewer layoffs than in industries like construction and manufacturing. For instance, in his analysis of what caused unemployment during the Great Recession of 2008, Catron (2013; Appendix A) found that being in female dominated industries like services lowered the probability of being laid-off than in male dominated industries. Entering involuntary part-time work may be more likely for women during recessions. However, women often use informal self-employment (e.g., babysitting, domestic work) to supplement family income (Raijman 2001). The measure used in the above analyses misses the relationship between part-time self-employment and involuntary part-time employment and should be looked at in future studies. Although impossible to analyses with the current data, future research should also analyses local labor market conditions since parts of the country may be experiencing hard economic times while other local economies are growing (Fairlie 2012; Hoynes 2000). Thus unemployment may not only be group specific, but also geographically specific.

However, the gap between Mexican immigrants and native white, non-Hispanic's probability of self-employment has been decreasing since 1994. While some of this may be explained by the decline in self-employment among native white non-Hispanics during the Great Recession of 2008, the growing probability of Mexican immigrants may reflect growing demand for self-employment where Mexican immigrants are catering to their co-ethnics (e.g., Evans 1989; Light and Karageorgis 1994; Waldinger 1986). The demand for low-skilled workers has been diminishing over time due to deindustrialization in the United States. City-level policies and groups that demand certain services have also become more favorable to self-employment. The industrial mix (Light and Karageorgis 1994) and opportunity structures may be changing in such a way so as the foster higher propensities for self-employment among Mexican immigrants while simultaneously lowering the propensities for self-employment among native white, non-Hispanics.

Meanwhile, Mexican immigrants' citizenship appears to influence the propensity to become self-employed. Noncitizen Mexican immigrant men report high net odds of becoming self-employed at ten percent co-ethnic unemployment. Noncitizens may be vulnerable to business cycle downturns since their precarious status may lead to informal employment. They may also be undocumented, which limits what labor market responses they may have during recessions. This disadvantaged status then leads to increased probabilities for self-employment as witnessed in Figure 3. However, Mexican immigrant citizens also hold higher net odds of becoming self-employed at ten percent unemployment. Self-employment behavior for both citizens and non-citizens follows the hypotheses laid out by the disadvantage theory.

When faced with unemployment immigrant populations may turn to employment within an ethnic economy (Somashekhar 2014), move to better labor markets within the host country

(Cadena and Kovak 2013), return to their sending country (Lofstrom et al. 2011), or turn to self-employment. As the national co-ethnic unemployment rates rises, however, the first two responses may be difficult for the most disadvantaged groups. Recent arrival's resources in the United States are generally lower than long-tenure immigrants and their support system in their home country stronger than long-tenure immigrants. Increased demand for jobs within an ethnic economy may develop job queues that are inaccessible to disadvantaged groups who lack social resources. The ethnic economy may also reach saturation before disadvantaged groups are able to enter into these queues. Moving to better performing labor markets within the receiving country may be cost prohibitive for the same people and these markets may have also have high co-ethnic unemployment that may lead to increased competition between tenured immigrants and the recently arrived within the local labor market. Returning to their home country has also diminished given the caging effect of increased border control leaving self-employment as the last resort for disadvantaged groups.

Mexican immigrants used to have the option to adjust to the business cycle by moving back to Mexico. However, punitive border control laws have imposed a caging effect that has forced the permanent settlement of this group (Massey et al. 2003). While reports from the Mexican Migration Project suggest that the probability of return migration increased in the wake of the Great Recession, these probabilities remain low in the broader historical context.[2] The results suggest that increased border control has compounded the necessity to become self-employed in high co-ethnic unemployment times (especially after the Clinton administration's "prevention through deterrence" program in 1994 and the military build-up after 2001). Mexican immigrants who entered the United States before the main border build-up, however, do not show these effects. This may be due to cases of selection where immigrants in older cohorts that

[2] http://mmp.opr.princeton.edu/

wanted to return home did so before border control intensified. Those who remained in the US may have found suitable employment (which may include self-employment) that may have made them less susceptible to unemployment. These differences may also reflect the idea that migrants who entered the United States before the border build-up were more likely to have legal residence than those who entered after the border build-up. Unfortunately, this is impossible to capture in the CPS, but should be looked at in future research.

It cannot be argued, however, that effects witnessed in Figure 4 are due to time in the United States rather than increased punitive policies. Absent the caging effect, recent arrivals are the most likely to return to their home country when faced with unemployment. This effect would reduce the probability that the recent arrival groups become self-employed as the economy worsens because the dataset would no longer capture those who have a higher likelihood of becoming self-employed due to push mechanisms. However, Figure 4 clearly shows an increase in probability as unemployment increased for the most recent arrivals. This suggests that the costs and benefits of return have changed over time.

The results, however, do not speak to specific mechanisms that may push immigrants into self-employment. On one hand, immigrants may become unemployed (and weigh their options for finding employment in the local labor market and perhaps elsewhere) and decide to try their hand at self-employment. On the other hand, many Mexican immigrants (especially undocumented) hold wage and salaried jobs but are also self-employed after working hours and on weekends. During business cycle downturns and times of high unemployment, individuals may lose their wage and salary jobs leaving them with their side-job as their primary job. In both situations, individuals must shift their primary labor market focus from being an employee

to working for oneself. This forced shift may or may not have negative impacts on individuals and the group as a whole.

Nevertheless, self-employment is considered a form of non-standard employment characterized by the "bad" job characteristics of low remuneration and long working hours (Kalleberg, Reskin, and Hudson 2000). Factors that lead to a rise in self-employment may carry implications for the economic incorporation of different race/ethnic populations. Scholars interested in the relative advantages that self-employment confers for immigrant incorporation must therefore take into consideration the effect of the business cycle. The disadvantaged status of Mexican immigrants that was uncovered in the above analyses suggests that in times of high co-ethnic unemployment times individuals enter into survival or involuntary self-employment. Without such understanding debates around the relative advantages of self-employment will likely continue to yield mixed results.

References

Aldrich, Howard. 1990. "Using an Ecological Approach to Study Organizational Founding Rates." *Entrepreneurship Theory Pract.* 14(3): 7-24.

Aurand, Harold. 1983. "Self-Employment: Last Resort of the Unemployed." *International Social Science Review* 58: 7-11.

Blanchflower, David. 2000. "Self-Employment in OECD Countries." *Labor Economics* 7: 471-505.

Blanchflower, David and Andrew Oswald. 1990. "Self-Employment and the Enterprise Culture." In: Jowell, R.,Witherspoon, S., Jowell, R. _Eds.., British Social Attitudes: The 1990 Report. Gower Press, Aldershot.

Blanchflower, David and Andrew Oswald. 1998. "What Makes and Entrepreneur?" *Journal of Labor Economics* 16(1): 26-60.

Bohn, Sarah and Magnus Lofstrom. 2013. "Employment Effects of State Legislation." Pp. 282 314 in *Immigration, Poverty, and Socioeconomic Inequality* edited by David Card and Steven Raphael. Russell Sage.

Borjas, George. 1986. "The Self-Employment Experience of Immigrants." *The Journal of Human Resources* 21: 485-506.

Borjas, George. 1990. *Friends or Strangers: The Impact of Immigrants on the U.S. Economy*. Basic Books.

Brubaker, Rogers. 2011. "Economic Crisis, Nationalism, and Politicized Ethnicity." Pp. 93-108 in *The Deepening Crisis: Governance Challenges After Neoliberalism* edited by Craig Calhoun and Georgi Derluguian. New York: Social Science Research Council and New York University Press.

Burns, Peter and James G. Gimpel. 2000. "Economic Insecurity, Prejudicial Stereotypes, and Public Opinion on Immigration Policy." *Political Science Quarterly* 115(2): 201-225.

Cadena, Brian C. and Brian K. Kovak. 2013. "Immigrants Equilibrate Local Labor Markets." NBER Working Paper n. 19272.

Catron, Peter. 2013. "Immigrant Unionization through the Great Recession." *American Sociological Review* 78(2): 315-332.

Clark, Kenneth and Stephen Drinkwater. 1998. "Ethnicity and Self-Employment in Britain." *Oxford Bulletin of Economics and Statistics* 60(3): 383-407.

Clark, Kenneth and Stephen Drinkwater. 2000. "Pushed Out or Pulled In?: Self-Employment among Ethnic Minorities in England and Wales." *Labor Economics* 7, 603-628.

Constant, Amelie and Klaus F. Zimmermann. 2004. "Self-Employment Dynamics across the Business Cycle: Migrants Versus Natives." *IZA Discussion Paper* 136.

Evans, M.D.R. 1989. "Immigrant Entrepreneurship: Effects of Ethnic Market Size and Isolated Labor Pool." *American Sociological Review* 54: 950-962.

Evans, David and Linda Leighton. 1989. "Some Empirical Aspects of Entrepreneurship." *The American Economic Review* 79(3): 519-535.

Fairlie, Robert. 2012. "Entrepreneurship, Economic Conditions, and the Great Recession." *Journal of Economics and Management Strategy* forthcoming.

Fairlie, Robert W. and Magnus Lofstrom. 2013. "Immigration and Entrepreneurship." In the *Handbook on the Economics of International Migration* edited by Barry R. Chiswick and Paul W. Miller. Elsevier.

Fairlie, Robert W., and Bruce D. Meyer. 1996. "Ethnic and Racial Self-Employment Differences and Possible Explanations." *Journal of Human Resources* 31(4): 757-793.

Fairlie, Robert W., and Christopher Woodruff. 2007. "Mexican Entrepreneurship: A Comparison of Self-Employment in Mexico and the United States." Pp. 123-158 in *Mexican Immigration to the United States* edited by George Borjas. Chicago: University of Chicago Press.

Hagan, Jacqueline. 1998. "Social Networks, Gender, and Immigrant Incorporation: Resources and Constraints." *American Sociological Review* 63(1): 55-67.

Hout, Michael, Asaf Levanon, and Erin Cumberworth. 2011. "Job Loss and Unemployment." Pp. 59-81 in *The Great Recession*, edited by D.B. Grusky, B. Western, and C. Wimer. New York: Russell Sage Foundation.

Hoynes, Hilary. 2000. "Local Labor Markets and Welfare Spells: Do Demand Conditions Matter?" *Review of Economics and Statistics* 82(3): 351-368.

Kalleberg, Arne L., Barbara F. Reskin, and Ken Hudson. 2000. "Bad Jobs in America: Standard and Nonstandard Employment Relations and Job Quality in the United States." *American Sociological Review* 65(2): 256-278.

Light, Ivan. 1979. "Disadvantaged Minorities in Self-Employment." *International Journal of Comparative Sociology*. 20: 31-45.

Light, Ivan. 1980. "Asian Enterprise in America." Pp. 33-57 in *Self-Help in America*, edited by Scott Cummings. Pt. Washington, NY: Kennikat.

Light, Ivan and Stavros Karageorgis. 1994. "The Ethnic Economy." Pp. 647-671 in *Handbook of Economic Sociology*, edited by Neil Smelser and Richard Swedberg. New York: Russell Sage Foundation.

Light, Ivan and Carolyn Rosenstein. 1995. *Race, Ethnicity, and Entrepreneurship in Urban America*. New York: Aldine De Gruyter.

Lofstrom, Magnus, Sarah Bohn, and Steven Raphael. 2011. *Lessons from the 2007 Legal Arizona Workers Act*. San Francisco: Public Policy Institute of CA.

Madrian, Brigitte C. and Lars John Lefgren. 1999. "A Note on Longitudinally Matching Current Population Survey (CPS) Respondents." NBER Technical Working Paper 247. National Bureau of Economic Research, Cambridge MA.

Massey, Douglas, Jorge Durand, and Nolan Malone. 2003. *Beyond Smoke and Mirrors: Mexican Immigration in an Era of Economic Integration.* New York: Russell Sage Foundation.

Min, Pyong Gap. 1984. "From White-Collar Occupations to Small Business: Korean Immigrants' Occupational Adjustment." *The Sociological Quarterly* 25(3): 333-352.

Nee, Victor and Jimy Sanders. 2001. "Understanding the Diversity of Immigrant Incorporation: a Forms-of-Capital Model." *Ethnic and Racial Studies* 24(3): 386-411.

Neumark, David and Daiji Kawaguchi. 2001. "Attrition Bias in Economic Relationships Estimated with Matched CPS Files." *NBER Working Paper*: 8663

Parker, Simon C. 2004. *The Economics of Self-Employment and Entrepreneurship*. Cambridge University Press.

Piore, Michael. 1979. *Birds of Passage: Migrant Labor and Industrial Societies*. Cambridge: Cambridge University Press.

Portes, Alejandro and Min Zhou. 1996. "Self-Employment and the Earnings of Immigrants." *American Sociological Review* 61(2): 219-230.

Raijman, Rebeca. 2001. "Mexican Immigrants and Informal Self-Employment in Chicago." *Human Organization* 60(1): 47-55.

Raijiman, Rebeca and Marta Tienda. 2000. "Immigrants' Pathway to Business Ownership: A Comparative Ethnic Perspective." *International Migration Review* 34(3): 682-706.

Robles, Barbara and Hector Cordero-Guzman. 2007. "Latino Self-Employment and Entrepreneurship in the United States: An Overview of the Literature and Data Sources." *Annals of the American Academy of Political and Social Science* 613: 18-31.

Sanders, Jimy and Victor Nee. 1996. "Immigrant Self-Employment: The Family as Social Capital and the Value of Human Capital." *American Sociological Review* 61(2): 231-249.

Somashekhar, Mahesh. 2014. "Helping Immigrant Workers Wherever They Can: Ethnic Economies, Economic Downturns, and the American Suburbs." Paper Presented at the Population Association of America Annual Meeting, Boston, MA.

Spener, David and Frank Bean. 1999. "Self-Employment Concentration and Earnings among Mexican Immigrants in the U.S." *Social Forces* 77(3): 1021-1047.

Steinmetz, George and Erik Olin Wright. 1989. "The Fall and Rise of the Petty Bourgeoisie: Changing Patterns of Self-Employment in the Postwar United States." *The American Journal of Sociology* 94(5): 973-1018.

Thornton, Patricia. 1999. "The Sociology of Entrepreneurship." *Annual Review of Sociology* 25: 19-46.

Tienda, Marta and Rebeca Raijman. 2004. "Promoting Hispanic Immigrant Entrepreneurship in Chicago." *Journal of Developmental Entrepreneurship* 9(1): 1-21.

Tubergen, Frank van. 2005. "Self-Employment of Immigrants: A Cross-National Study of 17 Western Societies." *Social Forces* 84(2): 709-732.

Valdez, Zulema. 2011. *The New Entrepreneurs: How Race, Class, and Gender Shape American Enterprise*. Stanford: Stanford University Press

Valenzuela, Abel. 2001. "Day Labourers as Entrepreneurs?" *Journal of Ethnic and Migration Studies* 27(2): 335-352.

Valenzuela, Abel. 2002. "Working on the Margins in Metropolitan Los Angeles: Immigrants in Day-Labor Work." *Migraciones Internacionales* 1(2): 6-28.

Waldinger, Roger. 1986. *Through the Eye of the Needle: Immigrants and Enterprise in New York's Garment Trades*. New York: New York University Press.

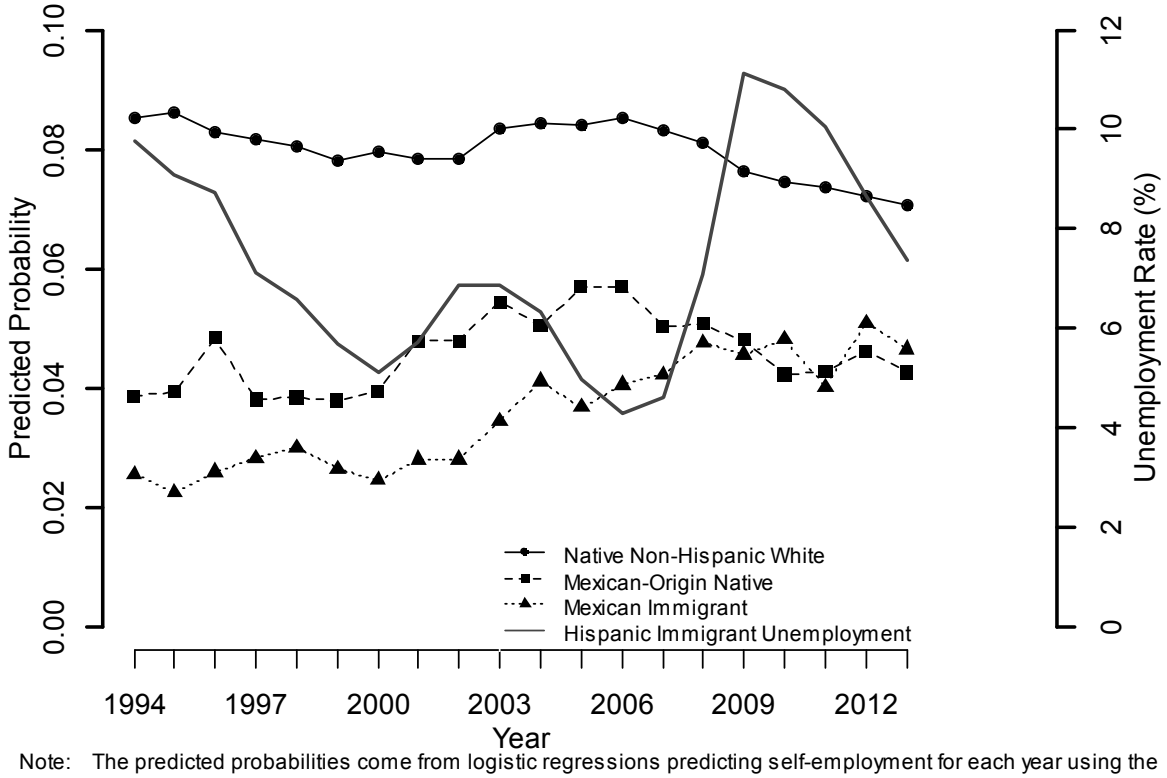
Waldinger, Roger and Michael Lichter. 2003. *How the Other Half Works: Immigration and the Social Organization of Labor*. Berkeley: University of California Press.

Wang, Chunbei and Magnus Lofstrom. 2009. "Did 9/11 Affect Mexican-Americans' Self Employment Entry Decisions?" *International Journal of Manpower* 30(1): 176-187.

Zhou, Min. 2004. "Revisiting Ethnic Entrepreneurship: Convergencies, Controversies, and Conceptual Advancements." *International Migration Review* (38): 1040-1074.

Zhou, Min, Jennifer Lee, Jody A. Vallejo, Rosaura Tafoga-Estrada, and Yang Soa Xiong. 2008. "Success Attained, Deterred, and Denied: Divergent Pathways to Social Mobility in Los Angeles' 'New Second Generation.'" *Annals of the American Academy of Political and Social Sciences* 620: 37-61

Figure 1: Predicted Probabilities of Self-Employment and the Hispanic Immigrant Unemployment Rate, 1994-2013



Note: The predicted probabilities come from logistic regressions predicting self-employment for each year using the MORG files before matching. The models control for gender, marital status, experience, education, occupation, industry, metropolitan status, and region as defined in Table A2. In the years prior to 2003, the other industry category is combined with the services industry category due to low cell count in the other industry category. The difference between the Mexican immigrants and Mexican-origin natives to Native, Non-Hispanic Whites is always significant ($p<.001$). Probabilities from male-only and female-only samples in each year reveal similar trends.

Figure 2: Predicted Probabilities of Becoming Self-Employed at Different Levels of Unemployment

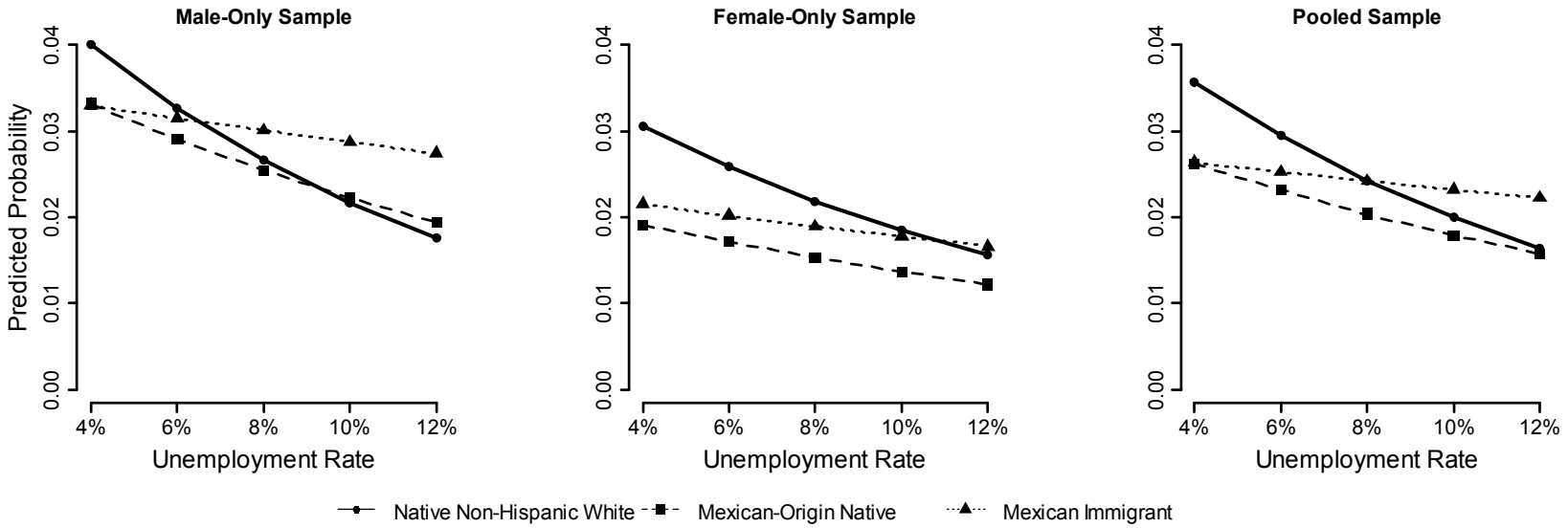


Figure 3: Predicted Probabilities of Becoming Self-Employed at Different Levels of Unemployment for Citizens and Non-Citizens

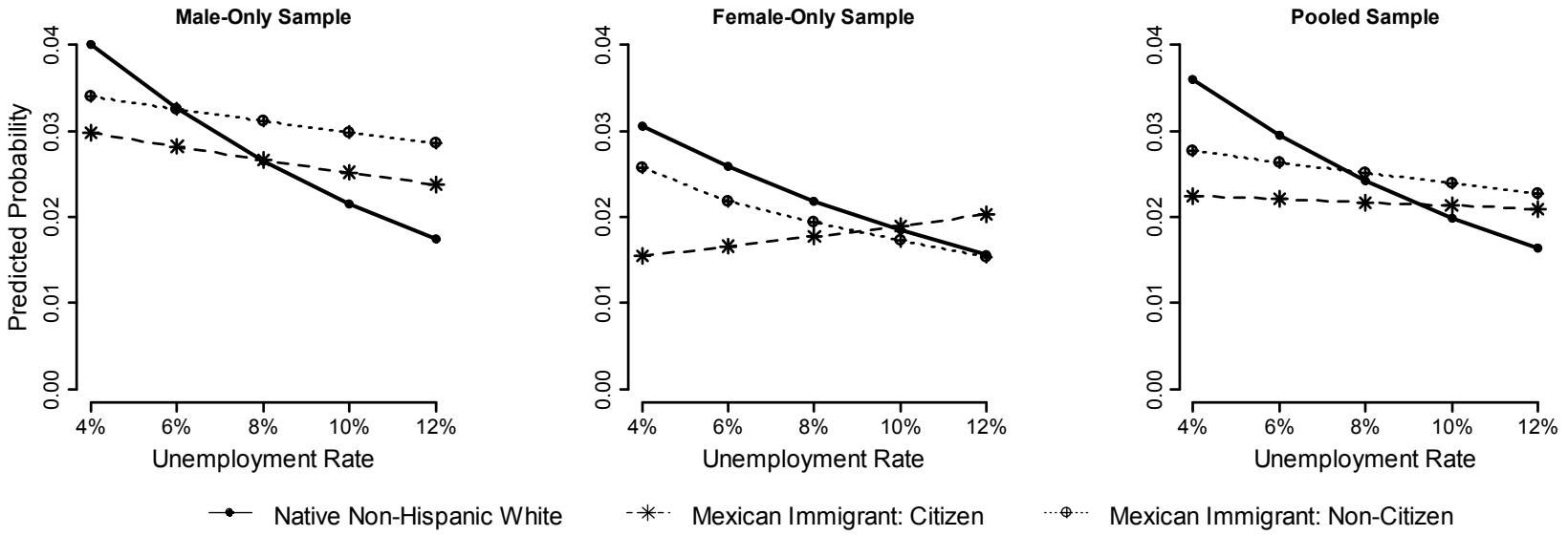


Figure 4: Predicted Probabilities of Becoming Self-Employed at Different Levels of Unemployment for Period of Entry

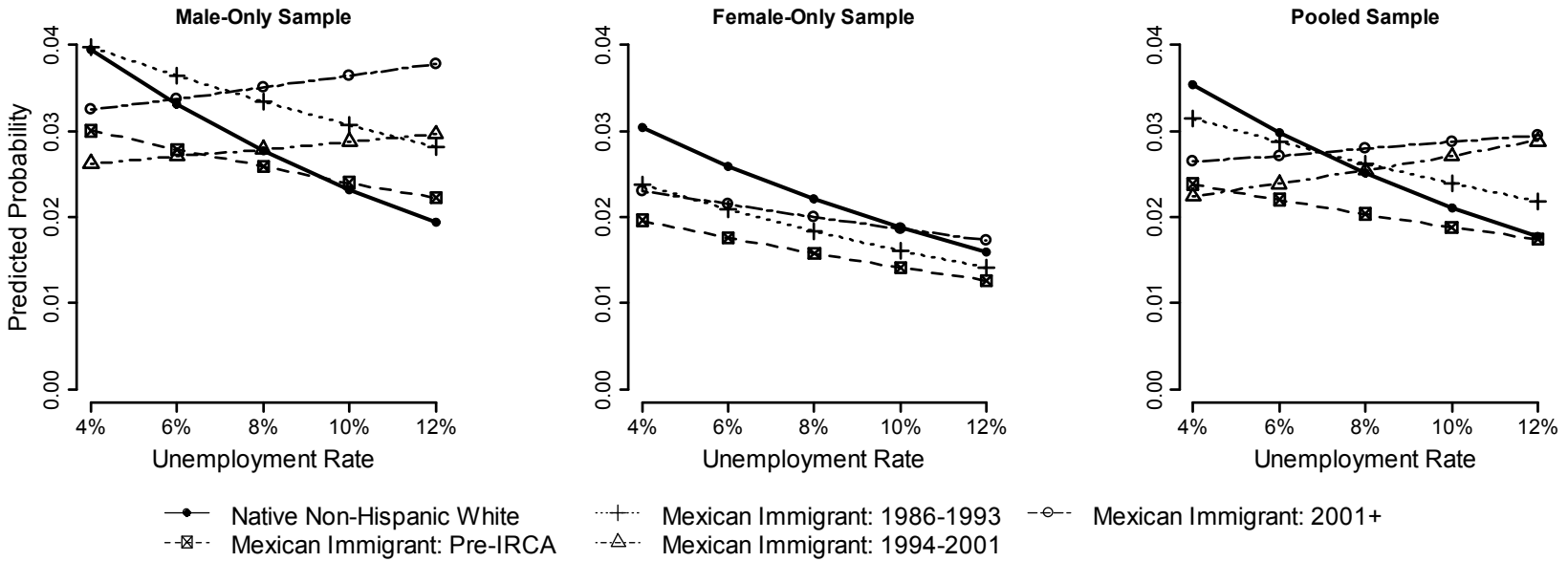


Table 1: Descriptive statistics of the CPS-MORG-Matched files, 1996-2013. Non-Self-Employed 18-65 year old workers in the labor market (percent).

	Male-only sample	Female-only sample	Pooled sample
Unemployed	5.15	4.05	4.62
Wage and salaried	94.65	95.31	94.96
White non-Hispanic nonimmigrant	68.53	69.10	68.80
White non-Hispanic immigrant	2.74	2.54	2.64
Black nonimmigrant, non-Hispanic	8.34	11.05	9.64
Black immigrant, non-Hispanic	1.08	1.17	1.12
Hispanic nonimmigrant, non-Mexican	2.09	2.09	2.09
Hispanic immigrant, non-Mexican	2.60	2.21	2.41
Hispanic nonimmigrant, Mexican	3.87	3.67	3.78
Hispanic immigrant, Mexican	5.25	2.59	3.98
Other nonimmigrant, non-Hispanic	2.19	2.23	2.21
Other immigrant, non-Hispanic	3.30	3.33	3.32
Male	-	-	52.16
Married (spouse present)	63.08	57.46	60.39
Experience	26.65	27.04	26.84
Less than high school	11.20	7.17	9.27
High school	31.88	29.59	30.79
Some college	27.25	31.59	29.33
College degree or higher	29.67	31.63	30.61
Occupation			
Professional/managerial	30.10	36.95	33.38
Production/craft/Repair	38.14	7.86	23.65
Service occupations	29.78	54.41	41.56
Other occupations	1.98	.78	1.04
Industry			
Manufacturing	16.14	7.27	11.89
Construction	10.61	1.26	6.14
Agriculture/mining/forestry	3.16	1.02	2.14
T.C.U	10.80	4.52	7.79
Wholesale/retail trade	18.97	18.18	18.59
F.I.R.E. and services	30.81	60.24	44.89
Public administration and other	9.51	7.51	8.55
Co-racial/ethnic unemployment rate	5.69 %	5.78 %	5.74 %
Number of individuals in transition categories			
Number becoming self-employed in time 2	16,876	12,467	29,343
N	462,757	447,151	909,907

Source: Merged Outgoing Rotation Groups of the Current Population Survey, various years
Note: Estimates use the appropriate weight. The matched files begin in 1996 due to a lack of geographic identifiers in the 1994 and 1995 files.

Table 2: Odds of becoming self-employed in a one-year period, 1996-2013

	Male-only sample		Female-only sample		Pooled-sample	
	Becoming self-employed model	Interaction model	Becoming self-employed model	Interaction model	Becoming self-employed model	Interaction model
Immigrant Ethnicity/Race (native white non-Hispanic reference)						
Hispanic nonimmigrant, non-Mexican	.838 (.682, 1.031)	.848 (.510, 1.412)	.782+ (.606, 1.010)	1.112 (.587, 2.104)	.804** (.685, .944)	.943 (.636, 1.398)
Hispanic immigrant, non-Mexican	1.195* (1.033, 1.382)	1.232 (.836, 1.815)	1.220* (1.019, 1.459)	1.204 (.754, 1.922)	1.185** (1.059, 1.327)	1.246 (.925, 1.679)
Native-born Mexican	.713*** (.594, .857)	.755 (.483, 1.181)	.563*** (.447, .708)	.547* (.326, .919)	.639*** (.554, .738)	.329** (.452, .875)
Mexican immigrant	.877+ (.765, 1.006)	.618** (.454, 1.420)	.717** (.587, .876)	.563* (.334, .947)	.783*** (.699, .876)	.532*** (.408, .693)
Co-racial/ethnic unemployment rate	.978 (.941, 1.071)	.906** (.845, .974)	.974 (.928, 1.022)	.764 (.414, 1.407)	.977 (.948, 1.007)	.904** (.858, .953)
Interaction between immigrant race/ethnic categories and co-ethnic unemployment rate (white native non-Hispanic reference)						
Hispanic nonimmigrant, non-Mexican x unemployment		1.033 (.967, 1.102)		.984 (.904, 1.070)		1.014 (.964, 1.067)
Hispanic immigrant, non-Mexican x unemployment		1.19 (.962, 1.080)		1.022 (.955, 1.094)		1.019 (.976, 1.064)
Native-born Mexican x unemployment		1.026 (.966, 1.091)		1.030 (.961, 1.104)		1.036 (.991, 1.083)
Mexican immigrant x unemployment		1.084** (1.035, 1.135)		1.055 (.981, 1.135)		1.082*** (1.042, 1.123)

Table 2 continued

	Male-only sample		Female-only sample		Pooled-sample	
	Becoming self-employed model	Interaction model	Becoming self-employed model	Interaction model	Becoming self-employed model	Interaction model
Selected Variables						
Male	-	-	-	-	1.357***	1.357***
					(1.316, 1.399)	(1.316, 1.399)
Industry (manufacturing reference)						
Construction	4.315***	4.311***	4.548***	4.539***	4.325***	4.319***
	(4.008, 4.645)	(4.004, 4.641)	(3.904, 5.298)	(3.897, 5.288)	(4.055, 4.614)	(4.049, 4.608)
Agriculture/mining/forestry	3.009***	3.002***	4.547***	4.538***	3.338***	3.329***
	(2.687, 3.369)	(2.681, 3.361)	(3.853, 5.365)	(3.846, 5.356)	(3.041, 3.663)	(3.034, 3.654)
F.I.R.E. and services	1.983***	1.984***	1.773***	1.770***	1.909***	1.892***
	(1.837, 2.141)	(1.838, 2.141)	(1.573, 1.998)	(1.571, 1.995)	(1.792, 2.034)	(1.792, 2.033)
N	462,757	462,757	447,151	447,151	909,908	909,908
McFadden's R^2	.04	.04	.05	.05	.04	.04

+.05<p<.1, *p<.05, **p<.01, ***p<.001 (two-tailed)

Source: Current Population Survey – Merged Outgoing Rotation Groups, various years.

Note: The models presented control for all variables outlined in Table A2. Odds ratios from the suppressed coefficients are available upon request. The suppressed coefficients include five immigrant race/ethnic variables; six demographic variables including marital status, experience, experience squared and educational attainment; three occupational dummies; three other industrial categories; and year, region, and metro fixed effects. Models run with appropriate weight. Robust 95% confidence interval in parentheses.

Table 3: Odds of becoming self-employed in a one-year period, 1996-2013

	Male-only sample		Female-only sample		Pooled sample	
	Becoming self-employed model	Interaction model	Becoming self-employed model	Interaction model	Becoming self-employed model	Interaction model
Citizenship						
Main Effects						
Mexican nonimmigrant	.714***	.709	.564***	.547*	.633***	.634**
	(.594, .858)	(.464, 1.085)	(.448, .709)	(.362, .919)	(.548, .730)	(.456, .882)
Mexican immigrant non-citizen	.909	.601**	.750*	.720	.839**	.596**
	(.786, 1.051)	(.425, .848)	(.598, .942)	(.389, 1.332)	(.746, .945)	(.444, .799)
Mexican immigrant citizen	.779*	.539+	.651**	.306*	.700***	.439**
	(.633, .961)	(.285, 1.019)	(.485, .872)	(.118, .795)	(.591, .829)	(.259, .744)
Co-racial/ethnic unemployment rate	.978	.898**	.817+	.917*	.979	.913**
	(.941, 1.016)	(.839, .961)	(.665, 1.004)	(.841, .999)	(.951, 1.009)	(.866, .962)
Interaction effects						
Mexican nonimmigrant x unemployment		1.038		1.030		1.031
		(.981, 1.098)		(.961, 1.104)		(.986, 1.077)
Mexican immigrant non-citizen x unemployment		1.088**		1.026		1.073**
		(1.036, 1.143)		(.941, 1.118)		(1.029, 1.119)
Mexican immigrant citizen x unemployment		1.081+		1.129+		1.091*
		(.993, 1.176)		(.999, 1.277)		(1.017, 1.169)
N	462,757	462,757	447,151	447,151	910,481	910,481
McFadden's R^2	.04	.04	.05	.05	.04	.04

Table 3 continued

	Male-only sample		Female-only sample		Pooled sample	
	Becoming model	Interaction model	Becoming model	Interaction model	Becoming model	Interaction model
Period of Entry Model						
Main effects						
Mexican nonimmigrant	.700***	.715	.562***	.546*	.632***	.626**
	(.582, .842)	(.468, 1.094)	(.447, .707)	(.325, .918)	(.548, .730)	(.450, .872)
Mexican immigrant: entered before IRCA	.757**	.633+	.596***	.571	.647***	.544**
	(.632, .907)	(.374, 1.071)	(.453, .785)	(.238, 1.371)	(.556, .753)	(.346, .854)
Mexican immigrant: entered 1986-1993	1.005	.869	.713*	.798	.858*	.746
	(.843, 1.197)	(.539, 1.402)	(.535, .949)	(.309, 1.716)	(.739, .995)	(.492, 1.131)
Mexican immigrant: entered 1994-2000	.802+	.437+	1.089	.457	.803*	.381**
	(.619, 1.039)	(.189, 1.006)	(.729, 1.627)	(.129, 1.730)	(.647, .996)	(.189, .769)
Mexican immigrant: entered 2001 and beyond	1.098	.527+	.792	.623	.960	.486*
	(.876, 1.376)	(.247, 1.124)	(.516, 1.216)	(.141, 2.753)	(.787, 1.171)	(.245, .965)
Co-ethnic unemployment	.984	.919*	.974	.920+	.862*	.914**
	(.947, 1.022)	(.858, .985)	(.928, 1.022)	(.844, 1.004)	(.757, .983)	(.867, .965)
Interaction effects						
Mexican nonimmigrant		1.027		1.029		1.032
		(.970, 1.087)		(.959, 1.103)		(.987, 1.078)
Mexican immigrant: entered before IRCA		1.050		1.027		1.051
		(.974, 1.132)		(.906, 1.164)		(.985, 1.120)
Mexican immigrant: entered 1986-1993		1.043		1.016		1.043
		(.975, 1.116)		(.904, 1.142)		(.984, 1.105)
Mexican immigrant: entered 1994-2000		1.109+		1.141		1.130**
		(.995, 1.238)		(.967, 1.346)		(1.033, 1.237)
Mexican immigrant: entered 2001 and beyond		1.117*		1.047		1.109*
		(1.021, 1.221)		(.875, 1.253)		(1.023, 1.203)
N	462,843	462,843	447,119	447,119	909,775	909,775
McFadden R^2	.04	.04	.05	.05	.04	.04

+.05<p<.1, *p<.05, **p<.01, ***p<.001

Source: Current Population Survey – Merged Outgoing Rotation Groups, various years

Note: The models presented control for all variables outlined in Table A2. Odds ratios from the suppressed coefficients are available upon request. The becoming and interaction model in the pooled sample of the citizenship analysis and the male-only sample in the period of migration analysis is run with one dummy for occupation (professional/managerial positions versus everything else) following computational problems. These changes to the model do not appear to affect the ethnic/race immigrant categories in other models. Models were also run without weights and the full specification of occupation dummies. Results remain substantively similar. Models are run with the appropriate weight. Robust 95% confidence intervals are in the parentheses.

Table 3 continued

	Male-only sample		Female-only sample		Pooled sample	
	Becoming model	Interaction model	Becoming model	Interaction model	Becoming model	Interaction model
Years in the US Model						
Main effects						
Mexican nonimmigrant	.700***	.715	.562***	.546*	.632***	.626**
	(.582, .842)	(.468, 1.094)	(.447, .707)	(.325, .918)	(.548, .730)	(.450, .872)
Mexican immigrant: 0-5 years	.757**	.633+	.596***	.571	.647***	.544**
	(.632, .907)	(.374, 1.071)	(.453, .785)	(.238, 1.371)	(.556, .753)	(.346, .854)
Mexican immigrant: 6-10 years	1.005	.869	.713*	.798	.858*	.746
	(.843, 1.197)	(.539, 1.402)	(.535, .949)	(.309, 1.716)	(.739, .995)	(.492, 1.131)
Mexican immigrant: 11-20 years	.802+	.437+	1.089	.457	.803*	.381**
	(.619, 1.039)	(.189, 1.006)	(.729, 1.627)	(.129, 1.730)	(.647, .996)	(.189, .769)
Mexican immigrant: 21+ years	1.098	.527+	.792	.623	.960	.486*
	(.876, 1.376)	(.247, 1.124)	(.516, 1.216)	(.141, 2.753)	(.787, 1.171)	(.245, .965)
Co-ethnic unemployment	.984	.919*	.974	.920+	.862*	.914**
	(.947, 1.022)	(.858, .985)	(.928, 1.022)	(.844, 1.004)	(.757, .983)	(.867, .965)
Interaction effects						
Mexican nonimmigrant		1.027		1.029		1.032
		(.970, 1.087)		(.959, 1.103)		(.987, 1.078)
Mexican immigrant: 0-5 years		1.050		1.027		1.051
		(.974, 1.132)		(.906, 1.164)		(.985, 1.120)
Mexican immigrant: 6-10 years		1.043		1.016		1.043
		(.975, 1.116)		(.904, 1.142)		(.984, 1.105)
Mexican immigrant: 11-20 years		1.109+		1.141		1.130**
		(.995, 1.238)		(.967, 1.346)		(1.033, 1.237)
Mexican immigrant: 21+ years		1.117*		1.047		1.109*
		(1.021, 1.221)		(.875, 1.253)		(1.023, 1.203)
N	462,843	462,843	447,119	447,119	909,775	909,775
McFadden R^2	.04	.04	.05	.05	.04	.04

+.05<p<.1, *p<.05, **p<.01, ***p<.001

Source: Current Population Survey – Merged Outgoing Rotation Groups, various years

Note: The models presented control for all variables outlined in Table A2. Odds ratios from the suppressed coefficients are available upon request. The becoming and interaction model in the pooled sample of the citizenship analysis and the male-only sample in the period of migration analysis is run with one dummy for occupation (professional/managerial positions versus everything else) following computational problems. These changes to the model do not appear to affect the ethnic/race immigrant categories in other models. Models were also run without weights and the full specification of occupation dummies. Results remain substantively similar. Models are run with the appropriate weight. Robust 95% confidence intervals are in the parentheses.

Appendix A

In order to create the matched datasets from the Merged Outgoing Rotation Groups of the Current Population Survey, a matching algorithm is adapted and described in Madrain and Lefgren (1999). After single-year data files were recoded and limited to 18-65 year olds workers and potential workers, the matching process was initiated where observations in the rotations in year *T* were matched to the corresponding rotation in year *T*+1. This was performed by first creating separate data files for year *T* and year *T*+1. The two files were then merged using state, household id, household number, and line number from the CPS. Individuals were then matched using sex, race, and age as identifiers between the files in time one and time two. If sex and race are different between the two time-periods, the individuals are dropped. If the person's age has increased by more than two years, the individual is dropped as well (if an individual's birthday falls near the interview date, their age may vary between 0 to 2 years). The years of interest were then appended into single files and the naive and valid merge rates are described in Table A1 and a list of the variables recoded is available in Table A2.

Table A1: Naïve and Valid Merge Rates from the MORG Matched Data.

Year	Naïve Merge Rate	Valid Merge Rate
1996	77.02	66.55
1997	76.03	65.63
1998	76.50	65.87
1999	76.92	66.16
2000	76.73	66.56
2001	76.82	66.24
2002	77.09	64.68
2003	75.85	65.70
2004	68.56	63.28
2005	75.97	65.24
2006	76.00	64.93
2007	77.44	66.67
2008	77.49	66.80
2009	77.38	66.45
2010	76.91	66.68
2011	76.63	66.66
2012	76.08	66.27

Table A2: Variables used in analyses

Race/ethnicity	*Occupation*
White non-Hispanic (reference)	Professional/managerial (reference)
Black	Production/craft/repair
Hispanic	Service occupations
Other Race	Other occupations
Male	*Industry*
Married (spouse present)	Manufacturing (reference)
Experience	Construction
Experience Squared	Agriculture/mining/forestry
Education	Wholesale/retail trade
Less than high school (reference)	FIRE and services
High school	Public administration and other
Some college	
College degree or higher	
Co-racial/ethnic unemployment rate	
Metropolitan Status	
In metro area (reference)	
In rest of SMSA	
Not in SMSA	
Missing	
Region	
Northeast (reference)	
Dummies for 3 regions	
Year Fixed Effects	
1996 (reference)	