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A Closer Look at Immigrants' Wage Differential in the U.S.: Analysis Correcting the Sample Selection Problem

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**A CLOSER LOOK AT IMMIGRANTS' WAGE DIFFERENTIAL IN THE U.S.:
ANALYSIS CORRECTING THE SAMPLE SELECTION PROBLEM**

by

Mitsuki Fukuda

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Submitted in partial fulfillment
of the requirements for
Honors in the Department of Economics

UNION COLLEGE

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ABSTRACT

FUKUDA, MITSUKI A Closer look at Immigrants' Wage Differential in the U.S.:
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Due to the increasing flow of immigrants into the United States in recent years, numerous researchers have been examining the socioeconomic characteristics of immigrants including wage differential. However, the majority of such wage analysis raises a key issue of the sample selection problem. This problem occurs when one has a non-random sample by ignoring the decision process to be participants of the sample, and it has a potential danger of a biased and inconsistent estimation. In the view of this, it is important to estimate the decision factors of employment status – being a wage earner or self-employed – before the wage analysis.

The regression analysis follows that of Lofstrom (2002). He estimates the earnings of wage earners and the self-employed by correcting selection bias using a method introduced by Heckman (1979). Using the data from the 2003 and 2013 American Community Survey PUMS, my study aims to analyze the economic performance of immigrant wage workers by country of origin while correcting for sample bias and updating the findings of Lofstrom. The estimates find that immigrant enclave and earning differential variables have significant effects on the probability of being a wage earner. The negative sign of the correction term suggests negative selection into the wage/salary sector.

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CHAPTER ONE

INTRODUCTION

A. Historical Background¹

The United States has been a popular destination for immigrants from all over the world for years. Increasing influx of immigrants into the United States has been one of the major concerns in the U.S. economic and political fields. After World War I, the number of immigrants started to grow significantly. Figure 1 displays the number of persons obtaining legal permanent residency from 1820 to 2010. The federal government enacted a national origins quota system in 1920, so as to restrict the entry of immigrants by setting restrictions per country and allowing a limited number of visas. This discriminative system essentially allowed immigrants almost only from Western countries. In 1965, the Immigration and Nationality Act Amendments put an end to the quota system by loosening visa restriction by country. However, this system employed a so-called categorical preference system, which implies that the limits were not fully abolished. The policy placed the caps for immigration from most countries, but the immediate relatives of persons residing in the U.S. were allowed to enter the country with almost no exceptions. The Act was amended over the years by escalating the ceiling of the limits. This amendment and successive immigration policy reforms made the number of immigrants grow in a steady manner. After World War I, immigration peaked during the “Great Migration,” reached its lowest in the 1930s, and has steadily increased since, such that it is at the highest rate. The skyrocketing in the late 1980s is due to the

¹ This subsection is written based on the information available from Congressional Budget Office (2006) and Monger and Yankay (2014).

Immigration Reform and Control Act of 1986, which is meant to deal with the growing concerns of increasing numbers of illegal immigrants. As a part of the act, about 2.7 million people who were residing in the U.S. illegally obtained legal resident status under its amnesty programs.

The demographic composition of immigrants' national origin has changed over time as well. As suggested above, immigrants from non-Western countries such as those in Asia and Africa, and some countries in Europe were in fact not able to easily enter the U.S. after the Act of 1920. In the 1950s, two thirds of the immigrant population was from Europe and Canada, but in the 1990s, the numbers of immigrants from such countries declined significantly; Latin Americans made up almost half the population of immigrants, and Asians comprised 30 percent. The outstanding fact here is that the rate of Asian immigrants' growth is significant – 6 percent to 30 percent from the 1950s to the 1990s (Borjas, 1999, Figure1-2). National origin change and immigrants' skills are closely related. Borjas (1985, 1994a) suggests that the relative skill of immigrants has been declining over the decades. Skill, interpreted as human capital, is often measured in years or level of education. His studies of immigrant cohorts in the 1970s, 1980s and 1990s show that, over time, the level of education attained and skill sets of immigrants have decreased.

B. Contribution and Organization of This Paper

Using the cross-sectional data from the 2003 and 2013 American Community Survey PUMS, this paper analyzes the wage earnings of immigrant wage earners correcting the sample selection problem. Following Heckman's two-step model, a probit

equation for being a wage earner is estimated before estimating the wage equation. The paper basically follows Lofstrom's (2002) procedure. While he uses data from the 1980 and 1990 Census of Population, this study updates his analysis while analyzing the wage model with the most recent data from the American Community Survey. It would be worthwhile to see the immigrants' economic performance in recent years given the fact that the majority of studies regarding immigrants' earnings are from before the 2000s. Moreover, this paper figures out the economic performance of immigrants from each origin country and the most recent immigrant cohorts. Most studies on immigrants' wages or earnings often ignore the distinctive difference of skill or self-employment rates among original countries. Therefore, estimating by country of origin enables us to look closer at the wage differential among immigrants.

This paper finds that the number of immigrants from the same country and the relative success of self-employment workers in the state affect the probability of being a wage earner significantly. Additionally, when the self-employment rate of the co-nationals is high, the wage regression without the correction term is found to be inconsistently estimating the wages of immigrants. Negative selection into wage/salary sectors reveals a different picture from Lofstrom (2002).

The organization of this paper is as follows. Chapter Two reviews the existing literature regarding wage differential among immigrants in the U.S. and immigrants' decision of employment status. Chapter Three provides the statistical methodology and econometric models used in this paper, including the probit model and the wage equation. Chapter Four presents the description of the data used to analyze the wages of immigrants

and natives. Chapter Five shows the results and analysis. Chapter Six concludes and summarizes the findings in the analysis.

CHAPTER TWO

REVIEW OF LITERATURE REGARDING IMMIGRANTS' EARNINGS AND EMPLOYMENT STATUS

This chapter first provides a review of the major existent literature on immigrants' earnings and wages. Secondly, I review the studies concerning the immigrants' decision of employment status.

A. Economic Performance of Immigrants in the U.S.

A number of economists, sociologists, and governmental organizations have been vigorously conducting research on the socioeconomic situation of immigrants, as the ethnic diversity has appeared to be a more dominant characteristic in the demographic picture of the United States. Immigrants have different wages than natives because of their distinguishing characteristics, as observed in their paths to assimilation into the U.S. labor market, and the various forms of human capital that immigrants intrinsically have or acquire throughout their lives. Examples of human capital include education, language ability, and knowledge of the U.S. labor market. Such characteristics make each ethnic group of immigrants different from each other. Likewise, the relative wage of immigrants in comparison with native workers significantly varies across such groups or countries of origin. For example, Borjas (1994b, Table 8) shows that Austrian immigrants earn 38.4 percent more than native-born citizens do, while Greek immigrants earn 0.9 percent less.

Immigrants' assimilation into the labor market and arrival cohorts' differences are the key components when their economic performance is debated. Borjas has written a number of the most well-known literature on immigrants in the U.S. labor market.

Borjas (1985, 1994a) questions Chiswick's (1978) assumption that immigrants have relatively lower wages than natives in their arrival, but as they assimilate into the labor market and accumulate human capital more rapidly than native counterparts, the wages reach and even surpass that of native workers after a few decades. Borjas argues that this finding might be subject to the change in each cohort's productivity. The cohort effect suggests that productivity of immigrants is different among arrival cohorts. The cohort effect takes place when an immigrant cohort's productivity changes, economic conditions in the origin country change, or there are predominantly high skilled immigrants left in the host country because those who have relatively lower skills return to the origin country. Given the essential difference among the arrival cohorts, Borjas insists that a single cross-sectional analysis overestimates the wage growth; an accurate estimation of the assimilation effect is done by tracking specific cohorts over time, rather than capturing a single year. Borjas (1994b) uses 1970, 1980, and 1990 Census data, and finds that more recent immigrant cohorts have relatively lower wages than native workers even though the pace of decline is decreasing. He also finds that the 1970 arrival cohort is far from reaching parity of natives' earnings. Most immigrant studies recognize this skill or "quality" decline of the recent immigrants (Butcher and Card, 1991; Lofstrom, 2002). However, Borjas (1999) and LaLonde and Topel (1992) suggest that much of such overall decline of relative skills of the recent immigrants can be attributed to the strong shift in the immigrants' origin country composition, due to the successive policy changes that enabled more non-Western countries to enter the U.S.

B. Immigrants' Decision of Self-employment

Immigrants, as well as natives, choose to work either in wage/salary sectors or in the self-employment sectors. The self-employment situation of immigrants is dissimilar from that of native-born citizens. The self-employment rate differs significantly not only between immigrants and natives, but also among immigrants. Fairlie and Mayer (1996) find that the self-employment rate of immigrants shows considerable differences across ethnic and racial groups, and even across larger categories such as Asian, Hispanic, and black people.

The question of whether immigrants tend to be self-employed and what factors affect the immigrants' probability of choosing self-employment have been debated by testing hypotheses in several studies. Yuengert (1995) tests three hypotheses regarding the self-employment decision of immigrants. He finds that self-employed immigrants are more likely to be from the countries with relatively high rates of self-employment, and that immigrants choose self-employment to avoid the burden of tax. Moreover, Clark and Drinkwater (1998) find that, in the U.K., the push factor affects immigrants' decisions on self-employment: discrimination within the labor market leads immigrants to negatively choose the self-employment sector rather than the paid sector, where immigrants have a disadvantage in terms of wages. Borjas and Bronars (1989) find that consumer discrimination on culturally-specified goods discourage able immigrants to self-select into the self-employment sector.

Borjas (1986) finds that immigrants are more likely to work in the self-employed sector than natives are. He attributes this finding to the so-called enclave effect. Immigrants with shared nationality, culture, and social convention create a community in the society. This "enclave" makes it easier for newly coming immigrants to

integrate into society. They may then find it easier to start up new businesses by getting help within the community of co-national people. This is also suggested by Evans (1989), who argues that a large co-national group and fluency in the origin language increase the probability that the members of the ethnic group are entrepreneurs, while Yuengert (1995) does not find evidence for the enclave effect in his analysis. Borjas (1986) also finds that the time spent in the U.S. also positively affects the immigrants' entrance into the self-employed sector. As immigrants grow older and assimilate into the U.S. society and the labor market, they are more eager to start their own businesses.

Lofstrom (2002) finds the impact of the relative success of the self-employed in the same statistical area on the probability of being self-employed is significant and it is stronger for immigrants than for natives. Rees and Shah (1986) also find the same results for the entire population in the U.K., explaining that people rationally choose to be self-employed due to the economic incentive. Moreover, Fairlie and Mayer (1996) point out that the wide range of self-employment rates among ethnic/racial groups are associated with the higher return from self-employment than wage earnings.

Major studies find that characteristics of individuals are also significant in making a self-employment decision. Age and education are widely recognized by almost all the studies that estimate self-employment probability as major explanatory factors for the self-employment decision. As the individuals become older and have higher education, the probability of choosing self-employment rises. (Borjas and Bronars, 1989; Clark and Drinkwater, 1998; Gill, 1988; Kidd, 1993; Lofstrom, 2002; Rees and Shah, 1986) Variables such as geographical location, marital status, length of residency, health,

and presence of children also often appear as variables in many papers, but their significances vary.

Kidd (1993), who studies the differences between the wages of immigrants and native-born citizens in Australia, finds that age, geographical location, length of residency, and presence of children have a significant impact on the self-employment decision. After including the sample selection correction term derived from Heckman's probit model into the earnings equation of natives and immigrants in the wage sector, the correction term's coefficient is negative, meaning that average earnings of paid workers are less than the average earnings of self-employed workers, holding their personal characteristics equal. He finds this result contrary to his expectation, and explains that this might be because the self-employment earnings of immigrants vary significantly.

Lofstrom (2002) finds that, by analyzing the 1980 and 1990 Census data, including the ethnic group dummy variable into the probit equation positively impacts education coefficients. Moreover, including the variables for the proportion of co-national population and the relative success of self-employed workers in the same metropolitan area positively affect the self-employment rate of immigrants, which supports Borjas' enclave effect. Lofstrom particularly stresses the importance of controlling for co-national groups in the equations. He also addresses the problem of not correcting for the selection process of employment status when earnings equations are estimated, indicating that differences in earnings between natives and immigrants can be overestimated in such a case.

Since the wage analyses of immigrants are relatively old, this paper looks at the immigrants' economic performance using the most recent data. In the wage estimates,

immigrants' lengths of residency and arrival cohort indicators are included to control for their assimilation effect and the cohort's different characteristics. Since predecessors suggest that the self-employment rate varies significantly within immigrant workers and the reasons for the decision vary among them, it is worth studying this in depth across origin countries. The probit model for the probability of being a wage earner is used to correct the selection bias in estimating the wage equation. In the spirit of Evans (1989), Rees and Shah (1986), and Lofstrom (2000), this paper estimates the probit model of being a wage earner using the variables for the "enclave effect," the proportion of co-nationals in the same residing state, and the relative success of the self-employed. The variables and statistical model used in this study also follow Lofstrom.

CHAPTER THREE

ECONOMETRIC MODELS FOR ESTIMATING THE PROBABILITY OF BEING A WAGE EARNER AND WAGE EARNINGS OF IMMIGRANTS

This chapter describes the econometric model used to estimate the wages of immigrants. The first subsection discusses the estimation method to correct the sample selection problem. The second subsection shows the econometric model and variables used in the analysis. The estimation models follow Lofstrom (2002).

A. Selection Bias and Heckman Model

Given the fact that self-employment rates vary across nationalities (shown in chapter four in this paper), this study's major goal is to consistently estimate the wage differential among immigrants. If a researcher only picks up the samples from the wage/salary sector when estimating wage equations, it is subject to the sample selection problem. It is a methodological imperfection when samples are not randomly collected, and therefore it makes the estimates biased. Particularly, in estimating wage equations, it is important to consider the initial decision of being a wage earner or self-employed. Sample selection problems occur often, but are likely to be ignored in a data collecting and analyzing process. Many studies regarding earnings or wages of immigrants often overlook the self-employed population. This study corrects such biases by looking at both populations in the wage analysis.

This paper uses Heckman's (1979) two-step model to correct the sample selection bias that can occur from excluding self-employment decision. A probit model was used as the first-step to estimate the probability of the sample, being a wage earner,

which is a binary dependent variable. The probit equation includes the factors that affect the probability of being a wage earner. The equation needs to include more than one additional explanatory variable that are relevant to the initial decision, but are irrelevant to the second model, the wage equation. The probit equation derives inverse Mill's ratio, which is the sample selection correction term expressed by λ . The term is applied in the second-stage OLS wage regression to correct for selection bias. Two models for the probit analysis and wage analysis are discussed below.

B. Econometric Model to Estimate the Wages of Immigrants

This subsection provides the econometric models used in the analysis. I discuss each of the dependent variables and independent variables used in the probit equation and the OLS models of the wages of immigrants and natives.

To examine the probability of being a wage earner, this study uses following econometric model and variables:

$$\begin{aligned}
 WAGE_EARN = & \beta_0 + \beta_1 IMMIG + \beta_2 AGE + \beta_3 AGESQ + \beta_4 AGE_IMMIG \\
 & + \beta_5 AGESQ_IMMIG + \beta_6 SCHOOL + \beta_7 SCHOOL_IMMIG + \beta_8 LIMENG \\
 & + \beta_9 MARRIED + \beta_{10} BLACK + \beta_{11} HISPANIC + \beta_{12} ASIAN \\
 & + \beta_{13} OTHER + \beta_{14} LES + \beta_{15} LESSQ + \beta_{16} ST_i + \beta_{17} PERIOD \\
 & + \beta_{18} ARRIVE05_09 + \beta_{19} ARRIVE00_04 + \beta_{20} ARRIVE95_99 \\
 & + \beta_{21} ARRIVE90_94 + \beta_{22} ARROV85_89 + \beta_{23} ARRIVE80_84 \\
 & + \beta_{24} ARRIVE75_79 + \beta_{25} ARP75 + \beta_{26} COUNTRY_i \\
 & + \beta_{27} ENCLAVE + \beta_{28} EARNDIFF + \epsilon
 \end{aligned}$$

...(1)

where ϵ is a stochastic error term.

The OLS model used to estimate the wages is as follows:

$$\begin{aligned}
LOGWAGE = & \beta_0 + \beta_1 IMMIG + \beta_2 AGE + \beta_3 AGESQ + \beta_4 AGE_IMMIG \\
& + \beta_5 AGESQ_IMMIG + \beta_6 SCHOOL + \beta_7 SCHOOL_IMMIG \\
& + \beta_8 LIMENG + \beta_9 MARRIED + \beta_{10} BLACK + \beta_{11} HISPANIC \\
& + \beta_{12} ASIAN + \beta_{13} OTHER + \beta_{14} LES + \beta_{15} LESSQ + \beta_{16} ST_i \\
& + \beta_{17} PERIOD + \beta_{18} ARRIVE05_09 + \beta_{19} ARRIVE00_04 \\
& + \beta_{20} ARRIVE95_99 + \beta_{21} ARRIVE90_94 + \beta_{22} ARROV85_89 \\
& + \beta_{23} ARRIVE80_84 + \beta_{24} ARRIVE75_79 + \beta_{25} ARPRE75 \\
& + \beta_{26} COUNTRY_i + \lambda + \epsilon
\end{aligned}$$

...(2)

where ϵ is a stochastic error term.

Definitions of Variables

Dependent variables

<i>WAGE_EARN</i>	1 if the individual is a wage earner; 0 otherwise
<i>LOGWAGE</i>	Logged annual wages

Independent variables

General Characteristics

<i>IMMIG*</i>	1 if the individual is an immigrant; 0 otherwise
<i>AGE</i>	Age of the individual (in years)
<i>AGESQ</i>	Age of the individual squared
<i>AGE_IMMIG*</i>	Interaction term for <i>AGE</i> and <i>IMMIG</i>
<i>AGESQ_IMMIG*</i>	Interaction term for <i>AGESQ</i> and <i>IMMIG</i>
<i>SCHOOOL</i>	Years of schooling
<i>SCHOOL_IMMIG*</i>	Interaction term for <i>SCHOOL</i> and <i>IMMIG</i>
<i>LIMENG*</i>	1 if the individual speaks little or no English; 0 otherwise
<i>MARRIED</i>	1 if the individual is married; 0 otherwise
<u>Race (reference group: non-Hispanic White)</u>	
<i>BLACK</i>	1 if the individual is non-Hispanic Black; 0 otherwise
<i>HISPANIC</i>	1 if the individual is Hispanic; 0 otherwise
<i>ASIAN</i>	1 if the individual is Asian; 0 otherwise
<i>OTHER</i>	1 if the individual is a race other than White, Black, Hispanic, or Asian; 0 otherwise
<i>LES*</i>	Length of residency
<i>LESSQ*</i>	Length of residency squared
<i>ST_i</i>	Dummy variable that indicates which state the individual lives in
<i>PERIOD</i>	1 if the data is from 2003

Cohort effect * (reference group: 2010-2013 arrivals)

<i>ARRIVE05_09</i>	1 if the individual arrived during 2005-2009; 0 otherwise
<i>ARRIVE00_04</i>	1 if the individual arrived during 2000-2004; 0 otherwise
<i>ARRIVE95_99</i>	1 if the individual arrived during 1995-1999; 0 otherwise
<i>ARRIVE90_94</i>	1 if the individual arrived during 1990-1994; 0 otherwise
<i>ARRIVE85_89</i>	1 if the individual arrived during 1985-1989; 0 otherwise
<i>ARRIVE80_84</i>	1 if the individual arrived during 1980-1984; 0 otherwise
<i>ARRIVE75_79</i>	1 if the individual arrived during 1975-1979; 0 otherwise
<i>ARPRE75</i>	1 if the individual arrived before 1975; 0 otherwise

Country of Origin * (reference group: those from Canada)

<i>COUNTRY_i*</i>	Dummy variable that indicates the individual's origin country
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Enclave effect and Earnings Differential

<i>ENCLAVE</i>	Proportion of immigrants from the same country of the total population by state and year
<i>EARNDIFF</i>	Ratio of self-employment earnings to wage/salary earnings (by state, year, and country of origin for immigrants; by state, year, and ethnicity for natives)
λ	Sample selection correction term calculated by using the inverse Mills ratio

*: hold 0 for natives

The dependent variable used in the first-stage probit equation is a dummy variable that indicates if the individual is a wage earner. Given that an individual might report earnings from both sectors, the definition of a wage earner used in this study is based on reported class of worker. Self-employed workers who also reported wage earnings were not included in wage workers. The dependent variable for annual logged wage is used in regular OLS and Heckman second-stage OLS models. I adjusted all the

earnings values from the 2003 data into 2013 price using the Consumer Price Index from the Bureau of Labor Statistics.

I use the independent variable that indicates whether the individual is an immigrant to examine the effect of being an immigrant on wages. Age and years of schooling are frequently used variables in earnings equations. They are also the essential variables that affect employment status decision as many studies have recognized (Borjas and Bronars, 1989; Clark and Drinkwater, 1998; Gill, 1988; Kidd, 1993; Lofstrom, 2002; Rees and Shah, 1986). I expect that age will positively impact earnings and negatively impact the probability of being a wage earner. An immigrant is likely to choose self-employment as he/she assimilates into U.S. society (Borjas, 1986). Because of the way the data for education attainment is recorded, I calculated the years of schooling following the procedure used by Lofstrom (2002).² Years of schooling should also impact the probability of being a wage earner as well as wage earnings, as the literature presented in chapter two show the positive effect of education on the self-employment rate of immigrants. Therefore, it should have a negative impact on being a wage earner. Limited English skill should also have a negative impact on wages and a positive impact on being a wage earner because, as education, English skill is counted as one form of human capital and operating a business requires a higher level of English.

Furthermore, I control for marital status, though Hout and Rosen (1999) discuss that it is not always an exogenous factor. State dummy variables are included to control

² Following Lofstrom (2002), the calculation for years of schooling is as follows: No schooling completed and kindergarten are coded as 0 years of schooling; nursery school to fourth grade are as 2.5 years; fifth through eighth grade as 6.5 years; ninth grade as 9 years; tenth grade as 10 years; eleventh or twelfth grade without a high school diploma as 11 years; high school graduate and GED or alternative credential as 12 years; some college with no degree as 13 years, associate degree as 14 years, bachelor's degree as 16 years, master's degree as 17 years and professional and doctorate degree as 20 years.

for geographical locations. Immigrants tend to concentrate in fewer major cities than natives do (Butcher and Card, 1991). Kidd (1993) includes dummy variables for metropolitan areas by state and finds a more significant positive impact on the self-employment decision of natives than that of immigrants. Length of residency estimates the assimilation effect of immigrants. Period effect controls for the secular change in labor market and economic situation between the two years.

The arrival cohort dummy variables account for the intrinsic differences across the immigrant arrival cohorts. This is intended to update Lofstrom's model, whose equation covers immigrant cohorts up until 1984. I suppose that the extent of their effects to show a different picture than those of Lofstrom because it is highly possible that the current labor market, economy, and public policies on migration in the U.S. have changed from decades ago. Most importantly, national origin composition has changed from the 1990s. Asian immigrants now compose around 40 percent of the entire population obtaining permanent resident status (Office of Immigration Statistics, 2013b), though it was around 30 percent in the 1990s. Borjas (1985, 1994a) frequently studies the cohort effect along with the assimilation effect on immigrants' economic performance by tracking each cohort, and he finds the successive decline of the relative entry wages of newly arriving immigrants up until the 1980s, even though it is at a declining rate. This study controls for such difference of "quality" of immigrants by using arrival cohort dummy variables.

The dummy variables of country of origin are the most important variables in the analysis. The previous studies that deal with immigrants' earnings by including individuals' race as an explanatory variable often only look at the larger ethnic/racial

categories. This is mostly because of the limited number of samples. However, the larger categories of ethnicity do not reveal the origin country difference within the group. In the estimate, I include all the countries with a reference group of those from Canada.

ENCLAVE is one of the key variables in the probit equation, which measures the enclave effect on the probability of being a wage earner for immigrants. The idea follows Lofstrom, but it is calculated by state and year. The value is the number of immigrants in a state divided by the total population of the state. A number of studies find the positive effect of the co-national enclaves on self-employment decision, though Yuengert (1995) does not find such effect. Enclaves are likely to provide the co-national immigrants with support and easier access to the self-employment sector, which is usually considered riskier than wage/salary sectors. Therefore, the higher the concentration of co-nationals living in the same area is, the more likely it is that immigrants are encouraged to have their own businesses. The earnings differential variable examines how the ratio of self-employment earnings to wage/salary earnings affects the decision of whether or not to be wage earner. I expect that the higher earnings for self-employment workers lead to fewer number of people who wish to become a wage earner. Particularly, Lofstrom (2000) finds that there is a stronger effect of the wage differential on immigrants' self-employment decision than that of natives. These two variables are only included in the first-stage probit model.

CHAPTER FOUR

SELECTING THE SAMPLE FROM THE AMERICAN COMMUNITY SURVEY PUMS DATA

This chapter describes the data from the 2003 and 2013 American Community Survey PUMS (Public Use Microdata Sample). It also provides descriptive statistics for selected samples used in the analysis.

A. Overview of the 2003 and 2013 PUMS Data from the American Community Survey

The American Community Survey by the Census Bureau collects data of the population and households. Unlike the previous Census of Population that produced data once in a decade, the American Community Survey collects and produces data every year. The survey is conducted in the form of questionnaire by mail or phone throughout the year. PUMS data is a collection of cross-sectional samples of persons and households from the American Community Survey. The dataset includes various socioeconomic, household, and geographic information such as age, sex, education attainment, relationships in a household, place of birth, years of entry, employment and work status, income, and language ability. PUMS data has currently the largest sample size among other available population dataset. In comparison with the popular Current Population Survey data, PUMS data has samples of 3,000,000, while CPS has that of 200,000, and more detailed geographic information.

B. Selection of Sample and Descriptive Statistics

In this analysis, I use the 2003 and 2013 one-year PUMS data. The two sets of samples are used to create immigrant cohorts over several decades. The collection of sample basically follows that of Lofstrom (2002). The sample individuals are males whose ages are between 18 and 64. Those who reported to be attending school, unemployed, working without pay, or in armed forces are excluded from the sample. The definition of an immigrant throughout the study is based on citizenship status: those who are not citizens of the U.S. at birth are categorized as immigrants. Therefore, the children of immigrants born in the U.S. are considered as the native-born. Because of the large size of the data, I keep all the immigrants in the sample but randomly extract 20 percent of natives. Unlike Lofstrom, I keep all the origin countries. The resulted overall sample size is 275,949, with 129,595 of immigrants and 146,354 of natives.³

Table 1 shows the descriptive statistics for immigrants and natives, respectively. On average, immigrants have approximately 1.5 years less schooling. Moreover, about 26 percent of immigrants report they do not speak English well or at all. Interestingly, the number of married men is approximately 7 percentage points higher for immigrants.

Table 2 presents self-employment rates by country of origin. While there is a large gap among the number of observations for each origin country, self-employment rates vary significantly across the origin countries. The countries with more than 25 percent of self-employment in both years are: Greece, Slovakia, Lithuania, Afghanistan, Iran, Israel, Jordan, Korea, and Syria.⁴ On the other hand, the countries with less than ten

³ In calculating the earnings differential for immigrants and natives, females and those who work without pay are also included. No restrictions on the sample were set when deriving enclave variables.

⁴ Iceland has self-employment rates of 50 percent in 2003 and 40 percent in 2013, but it has relatively small population in the data (2 individuals in 2003 and 10 individuals in 2013).

percent of self-employment in both years are: Indonesia, Laos, Nepal, the Philippines, Sri Lanka, Barbados, Haiti, Guyana, Cameroon, Cape Verde, Ghana, Liberia, Micronesia, and Samoa. One might conclude that European countries tend to have higher self-employment rates and the majority of countries with a small proportion of self-employed people are from developing countries, especially from Africa. However, Table 2 indicates that there is no strong evidence for the tendencies of self-employment rates across regions or continents. For example, those from Greece have 36.6 percent of self-employment rate, while those who from Norway have 9.5 percent self-employment rate in 2003.

Table 3 provides self-employment rates by immigrant arrival cohorts. The most recent arrival cohort has the lowest self-employment rate. Tracing the specific arrival cohort by comparing data from 2003 and 2013, we see that the self-employment increases for most of the arrival cohorts after they spend more time in the U.S. This is suggested by other studies regarding the assimilation effect on immigrants' choice of self-employment (Borjas, 1986; Lofstrom, 2002).

Education attainment by country of origin is shown in Table 4. Education levels vary across countries as well. The majority of developed countries have high rates of more than college degree. Especially, Norway, Switzerland, and Sweden, India, Taiwan, Malaysia, and Libya have the highest percentages of more than college degrees (more than 70 percent). Mexico, El Salvador, Guatemala, and Azores Islands are found to have more than 50 percent of those who do not have a high school diploma.

Table 5 presents education attainment and English proficiency by immigrant arrival cohorts. It suggests remarkable characteristics of the most recent cohorts who

immigrated during the twentieth century. Although there is a secular decline of the proportions of those with more than college degree until 2000 arrivals, the recent arrival cohorts of 2000-04, 2005-09, and 2010-13 have higher proportions of immigrants with more than college degrees. From 2003 to 2013, the most recent cohorts' proportion of those with less than high school degree decreases and that of those with more than college degree increases. Particularly, as for 2010-2013 arrivals, nearly 50 percent of the immigrants who migrated most recently have more than college degrees at the time of entry. This also contributes to the increase in years of schooling for immigrants shown in column 3. Column 3 shows the mean of years of schooling by arrival cohorts along with that of natives. Whereas the most recent cohort in 2003 has the lowest average years of schooling, the most recent cohort in 2013 has the highest average years of schooling, and it seems to have started to increase from the 2000-2004 arrivals.

Table 6 provides the mean of annual wage and self-employment earnings of immigrants, natives and each arrival cohort. The same table by country of origin is found in Appendix (Table A1). In most cases, wage/salary earnings are larger than self-employment earnings because self-employed individuals might report negative earnings. The mean of wage of the most recent cohort at the time of entry in 2003 is 42,221 dollars, while that of 2013 is much higher: 50,204 dollars. Almost all the arrival cohort shows the increase in wages after ten years. As for self-employment earnings, every arrival cohort's earnings decrease from 2003 to 2013. Furthermore, the self-employment earnings at the time of entry in 2013 are much lower than that of 2003.

CHAPTER FIVE

ESTIMATION RESULTS: ASSESSING EMPLOYMENT STATUS DECISION AND THE WAGES OF IMMIGRANTS

This chapter provides the results of the regression analysis. The explanations for the findings are presented in the following two subsections. The first subsection discusses the factors affecting the decision to be a wage earner. The second subsection discusses the OLS results for the wages of immigrants.

A. Decision of Being a Wage Earner

Table 7 shows the regression results for the first stage of the Heckman two-step procedure (the probit model) to examine the probability of being a wage earner. As noted above, the enclave and earnings differential variables are the key variables included in the probit estimation and are considered not to affect the wages. As expected, on average, age, years of schooling, and lengths of residency have significant and negative effects on the probability of being a wage earner. The model implies that as one spends more time in the U.S. and spends more years in school, the probability of being a wage earner decreases at an increasing rate. It is also the case that age and years of schooling affect the decision of being a wage earner differently for immigrants.

The inverse Mills ratio, the correction term that is inserted in the wage regression, is derived from this model. Both the enclave and earnings differential variables have negative impacts on being a wage earner and are statistically significant. This supports Lofstrom (2002), who finds positive marginal effects for both enclave and earnings differential variables on the probability of being self-employed. This probit model suggests that immigrants are less likely to choose to be a wage earner when there

are more co-nationals from the same country in the same state. In other words, when there are more co-nationals from the same country in the state, an immigrant is more likely to choose self-employment. Immigrants, so as natives, are also affected by the economic situations of the two sectors: an individual is likely to be self-employed when he finds self-employed people have higher earnings in the same residing state, holding other variables constant.

B. Wages of Immigrants after Correcting Self-Selection

Table 8 displays the two OLS regression results without and with the sample selection correction term, which is the inverse Mills ratio derived from the model in Table 7. As expected, both OLS and Heckman OLS show positive and significant effects of age, years of schooling, and length of residency on wages, controlling for other variables. The effects of age and years of schooling with and without the correction term are of similar magnitudes. Also, the interaction terms of age and immigrant, so as years of schooling and immigrants, show negative coefficients. It suggests that age and years of schooling have lesser effects on immigrants' wages than on natives. These findings correspond with Lofstrom (2002).

Furthermore, correcting self-selection significantly affects wage differences among ethnicities. The estimated coefficients for all the racial controls decrease when the correction term is included in the model. For example, the first model suggests being Asian decreases wages by two percent, while the second model with the correction term estimates the effect is about a ten percent decrease. Hence, Blacks, Hispanics, and Asians earn much less than White counterparts in the wage sector. This reveals that regular wage OLS regression tends to underestimate the effect of not being white. Additionally, the

model without the correction term, in general, overestimates the wages of arrival cohorts before 2000.

The results obtained from Table 8 show notable findings on the wages of immigrants from each country of origin. Since there are many variables for origin countries, the discussion here mainly focuses on the estimates with statistical significance. Almost all the origin country dummy variables show negative coefficients. While the coefficient difference between regular OLS and Heckman OLS varies among countries, including the correction term causes significant changes in some origin country coefficients. Heckman OLS shows that those from Denmark and Switzerland earn approximately 40 percent or more in the wage sector in comparison with those from Canada. The coefficients of both countries are underestimated in the OLS regression without the correction term. On the other hand, variables for countries such as Laos, the Philippines, Yemen, Sudan, and Micronesia have a significantly negative impact on wages.⁵ For example, immigrants from the Philippines have approximately 54 percent lower wages than those from Canada, holding other variables constant. As for Finland, Switzerland, Yugoslavia, Armenia, Korea, Pakistan, Syria, Brazil, Ethiopia, Morocco, Sudan, and New Zealand, the estimate coefficients change significantly after including the correction term, and their effects are underestimated in the normal OLS wage regression. The major finding here is that the majority of countries that are underestimated without the correction term, including some countries listed above, tend to have high self-employment rates. This suggests that if the country has a relatively higher proportion of self-employed workers than the average, the wage of immigrants

⁵ Samoa has a coefficient of -1.1463, (and the percentage effect is $\exp(-1.1463)-1=-0.81$) but has relatively small population in the data (30 wage earners and 0 self-employed workers), and is excluded from the probit model because of collinearity.

who are from the country is likely to be estimated inconsistently in a regular wage regression.

The negative sign of the correction term suggests that the wage earners are negatively selecting into the wage/salary sector. This is a major difference from Lofstrom (2002), who finds positive selections for the wage/salary sector and negative selections for the self-employment sector. Negative selection into the wage sector means that wage earners are earning less than what they would earn if they had chosen to be self-employed. This is counter-intuitive, and different studies have different (positive or negative) results for self-selection into a sector. An Australian study by Kidd (1993) finds wage/salary workers' negative selection into the sector as well, but he discusses that it is reasonable for the negative selection to arise, when the individuals' wages and what they would earn in self-employment sector are positively correlated, and the self-employment earnings are more widely distributed than the earnings in the wage sector. Taking the same approach, Borjas and Bronars (1989) explains negative selection into the self-employment sector among Hispanics and Asians. Given that, Table 9 shows the descriptive statistics of wages and self-employment earnings with corresponding standard deviations. It suggests that the standard deviations of the self-employment earnings are not much different than that of wage earnings for both natives and immigrants. Therefore, Kidd's (1993) argument does not apply in this case.

In addition, following Lofstrom (2002), this study produces predicted age-earnings profiles derived from the wage equation estimates without and with the correction term. Figure 1 shows predicted age-earnings profiles based on the OLS estimations and Figure 2 shows the same profiles based on Heckman-OLS estimations.

Both diagrams in Figure 3 are above those in Figure 2, since the negative selection into the wage/salary sector suggests that the self-employed workers earn more than the wage earners with the same characteristics. Moreover, the wage gap between natives and immigrants decreases when self-selection is controlled for. Unlike Lofstrom (2002), the average earnings of natives' are lower than that of immigrants when they enter the labor market in both Figure 2 and Figure 3. This might be because the recent immigrants are more educated and skilled than before as Table 5 suggests.

CHAPTER SIX

CONCLUSIONS

A. Summary of Findings

Using the data from the 2003 and 2013 American Community Survey PUMS, this study investigates the wages of immigrants correcting the potential bias of samples. Following the models used by Lofstrom (2002), this paper also analyzes how immigrants' "enclave" and relative success of self-employed worker affect the probability of being a wage earner. Moreover, each origin country variable is controlled in the analysis.

This study finds that the proportion of the immigrants from the same country in the same state negatively affects the decision of being a wage earner. The more co-nationals there are in the state, the less likely an individual chooses to be a wage earner. Moreover, the ratio of self-employment earnings to wage/salary earnings impacts the probability of being a wage earner as well. When self-employed workers have advantages over wage workers in terms of earnings, the individual is likely to choose to be self-employed, rather than a wage earner. These findings agree with Lofstrom (2002).

Estimating wage OLS equations without and with the correction term suggests that correcting the sample selection bias is of importance when analyzing the wages of immigrants. The wages of certain countries are estimated inconsistently without the correction term. Most importantly, this study finds that the wages of the countries that have relatively higher self-employment rates are likely to be distorted in the wage equation. The change in the coefficients between the two models also suggests that Asians have much lower wages than in regular wage estimation.

B. Policy Implications

The findings of this paper provide an important implication that the wage estimation should be done with the correction term of sample selection bias. Only using wages of immigrant wage earners does not reflect their economic performances in the society. Even though self-employed population is much smaller than wage/salary worker population, self-employed workers have to be taken into account in order to avoid selection bias in the estimate. Policy makers can utilize this result as a way to understand how immigrants, by origin countries, are performing in the U.S. labor market.

C. Suggestions for Future Research

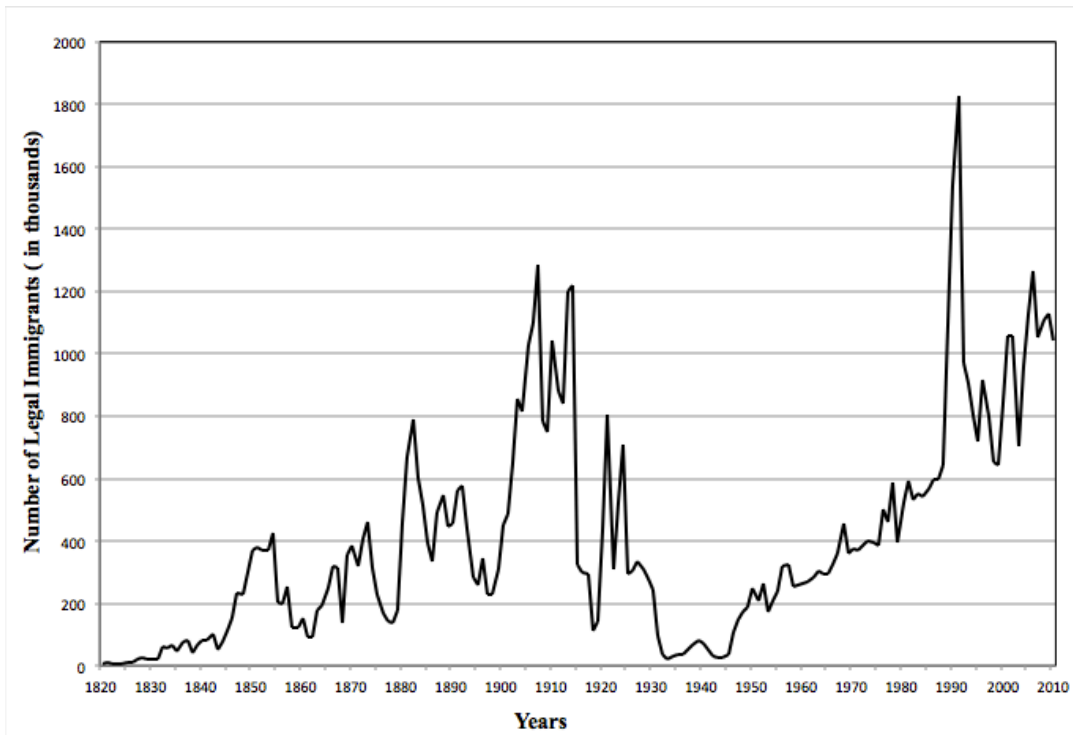
While this study reveals the consistently estimated wage differential among immigrants in comparison with natives, all the results shown in this study are not weighted because of the time limitations. The more consistent results would be found if one further estimates the Heckman model using weight. Secondly, the negative selection into the wage sectors is found to be counter-intuitive. This might be related to the skill change of immigrants in recent years, but the explanations are limited. Furthermore, because this study suggests that the skill decline of immigrants might not be the case anymore after the 2000s, it is worth continuing to study the recent immigrants' economic performance and its changes over time.

BIBLIOGRAPHY

- Borjas, George J. 1985. Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants. *Journal of Labor Economics* 3 (4) (Oct.): 463-89.
- _____. 1986. The Self-Employment Experience of Immigrants. *The Journal of Human Resource* 3 (4) (Autumn): pp. 485-506
- _____. 1994a. Assimilation and Changes in Cohort Quality Revisited: What Happened to Immigrant Earnings in the 1980s?. *Journal of Labor Economics* 13 (2) (Apr.): 201-245.
- _____. 1994b. The Economics of Immigration. *Journal of Economic Literature* 32 (4) (Dec.): 1667-717.
- _____. 1999. Heaven's Door: Immigration Policy and the American Economy. Princeton, N.J: Princeton University Press.
- Borjas, George J., and Stephen G. Bronars. 1989. Consumer Discrimination and Self-employment. *Journal of Political Economy* 97 (3) (Jun.): 581-605.
- Butcher, Kristin F., and David Card. 1991. Immigration and Wages: Evidence from the 1980's. *The American Economic Review* 81 (2, Papers and Proceedings of the Hundred and Third Annual Meeting of the American Economic Association) (May): 292-6.
- Chiswick, Barry R. 1978. The Effect of Americanization on the Earnings of Foreign-born Men. *Journal of Political Economy* 86 (5) (Oct.): 897-921.
- Clark, Kenneth, and Stephen Drinkwater. 1998. Ethnicity and Self-employment in Britain. *Oxford Bulletin of Economics & Statistics* 60 (3) (08): 383-407.
- Congressional Budget Office. 2006. Immigration Policy in the United States. Retrieved November 15, 2014, from <https://www.cbo.gov/topics/immigration>
- Department of Homeland Security. 2013. Yearbook of Immigration Statistics 2010. Retrieved November 10, 2014, from <http://www.dhs.gov/yearbook-immigration-statistics-2010-3>
- Evans, M. D. R. 1989. Immigrant Entrepreneurship: Effects of Ethnic Market Size and Isolated Labor Pool. *American Sociological Review* 54 (6) (Dec.): 950-962.
- Fairlie, Robert W., and Bruce D. Meyer. 1996. Ethnic and Racial Self-employment Differences and Possible Explanations. *The Journal of Human Resources* 31 (4) (Autumn): 757-93.

- Gill, Andrew M. 1988. Choice of Employment Status and the Wages of Employees and the Self-employed: Some Further Evidence: Summary. *Journal of Applied Econometrics (1986-1998)* 3 (3): 229.
- Heckman, James J. 1979. Sample Selection Bias as a Specification Error. *Econometrica* 47 (1) (Jan.): 153-61.
- Hout, Michael, and Harvey S. Rosen. 1999. Self-Employment, Family Background, and Race. *The Journal of Human Resources* 35 (4) (Autumn): 670-692.
- Kidd, Michael P. 1993. Immigrant Wage Differentials and the Role of Self-employment in Australia. *Australian Economic Papers* 32 (60): 92-115.
- LaLonde, Robert J. and Topel, Robert W. 1992. The Assimilation of Immigrants in the U.S. Labor Market. *Immigration and the Workforce: Economic Consequences for the United States and Source Areas*. G. Borjas and R. Freeman, eds. University of Chicago Press: 67-92.
- Lofstrom, Magnus. 2002. Labor Market Assimilation and the Self-employment Decision of Immigrant Entrepreneurs. *Journal of Population Economics* 15 (1, Special Issue on Marginal Labor Markets) (Jan.): 83-114.
- Monger, R., and Yankay, J. 2014. U.S. Lawful Permanent Residence: 2013. Department of Homeland Security. Retrieved November 10, 2014, from <http://www.dhs.gov/publication/us-lawful-permanent-residents-2013>
- Rees, Hedley, and Anup Shah. 1986. An Empirical Analysis of Self-employment in the U.K. *Journal of Applied Econometrics* 1 (1) (Jan.): 95-108.
- Yuengert, Andrew M. 1995. Testing Hypotheses of Immigrant Self-employment. *The Journal of Human Resources* 30 (1) (Winter): 194-204.

Figure 1: Persons obtaining legal permanent resident status: fiscal years 1820 to 2010



Source: Department of Homeland Security (2013), Table 1.

Figure 2: Predicted age-earnings profiles, based on the OLS estimates in Table 8

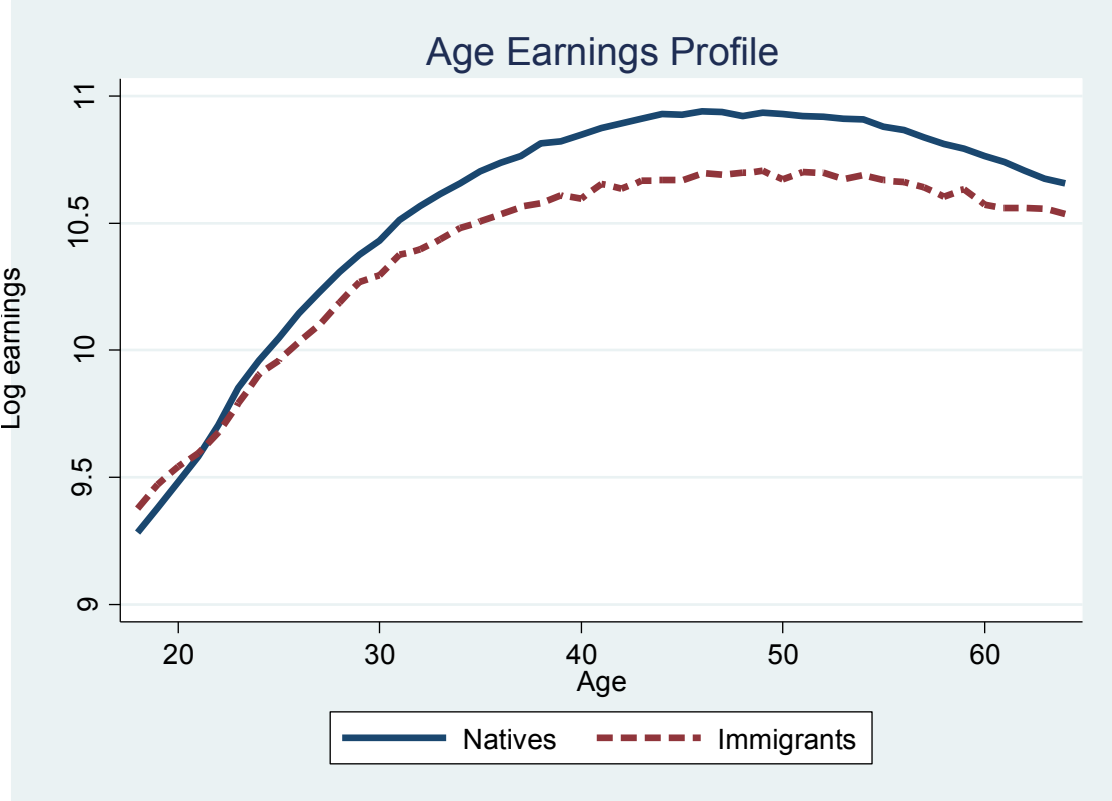


Figure 3: Predicted age-earnings profiles, based on the Heckman-OLS estimates in Table 8

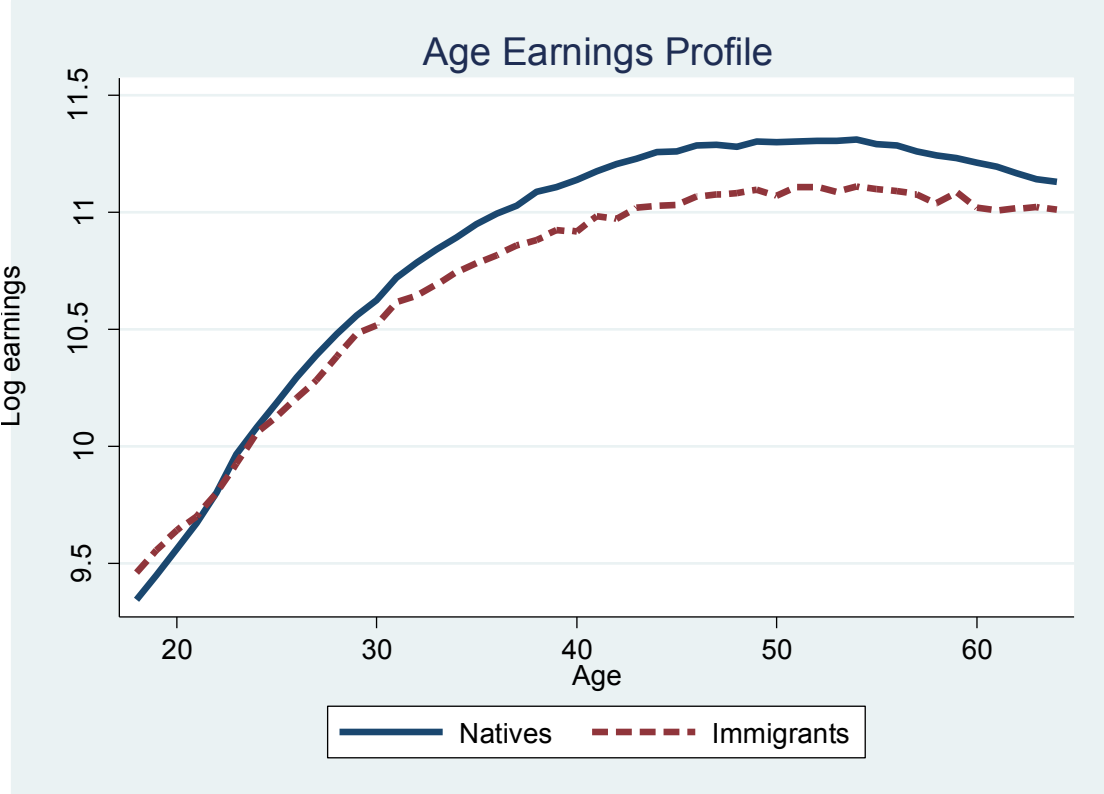


Table 1: Descriptive statistics for natives and immigrants

Variables	Immigrants		Natives	
	Mean	Standard Deviation	Mean	Standard Deviation
Logged wage	10.4980	(0.9503)	10.6604	(0.9463)
General Characteristics				
Age (years)	42.1949	(11.0673)	43.1314	(11.9561)
Age squared	1902.8968	(943.3689)	2003.2668	(1016.1905)
Years of schooling	12.1921	(4.6134)	13.6625	(2.6812)
Limited English	0.2560	(0.4364)	0	(0)
Married	0.7075	(0.4549)	0.6415	(0.4796)
Black	0.0585	(0.2346)	0.0734	(0.2608)
Hispanic	0.4745	(0.4994)	0.0652	(0.2469)
Asian	0.2547	(0.4357)	0.0109	(0.1036)
Other race	0.0189	(0.1361)	0.0229	(0.1495)
Length of residency (years)	19.4099	(12.0462)	0	(0)
Length of residency	521.8543	(582.3413)	0	(0)
Period effect (2003)	0.2351	(0.4240)	0.2976	(0.4572)
Arrival Cohorts				
2010-13 Arrivals	0.0495	(0.2169)	0	(0)
2005-09 Arrivals	0.0864	(0.2809)	0	(0)
2000-04 Arrivals	0.1532	(0.3602)	0	(0)
1995-99 Arrivals	0.1612	(0.3677)	0	(0)
1990-94 Arrivals	0.1405	(0.3475)	0	(0)
1985-89 Arrivals	0.1303	(0.3367)	0	(0)
1980-84 Arrivals	0.1079	(0.3103)	0	(0)
1975-79 Arrivals	0.0734	(0.2608)	0	(0)
Pre-1975 Arrivals	0.0976	(0.2967)	0	(0)
Country of origin				
Albania	0.0017	(0.0410)	0	(0)
Austria	0.0011	(0.0325)	0	(0)
Belgium	0.0008	(0.0276)	0	(0)
Bulgaria	0.0018	(0.0419)	0	(0)
Czechoslovakia	0.0004	(0.0196)	0	(0)
Denmark	0.0008	(0.0289)	0	(0)
Finland	0.0005	(0.0224)	0	(0)
France	0.0049	(0.0700)	0	(0)
Germany	0.0113	(0.1058)	0	(0)
Greece	0.0035	(0.0594)	0	(0)
Hungary	0.0015	(0.0384)	0	(0)
Iceland	0.0001	(0.0096)	0	(0)
Ireland	0.0038	(0.0617)	0	(0)
Italy	0.0081	(0.0895)	0	(0)
Netherlands	0.0027	(0.0521)	0	(0)
Norway	0.0006	(0.0242)	0	(0)
Poland	0.0114	(0.1060)	0	(0)
Portugal	0.0051	(0.0713)	0	(0)
Azores Islands	0.0005	(0.0226)	0	(0)
Romania	0.0043	(0.0653)	0	(0)
Spain	0.0022	(0.0472)	0	(0)
Sweden	0.0010	(0.0313)	0	(0)
Switzerland	0.0012	(0.0345)	0	(0)
United Kingdom	0.0207	(0.1423)	0	(0)
Yugoslavia	0.0014	(0.0368)	0	(0)
Czech Republic	0.0006	(0.0253)	0	(0)
Slovakia	0.0004	(0.0208)	0	(0)
Bosnia and Herzegovina	0.0034	(0.0578)	0	(0)
Croatia	0.0011	(0.0326)	0	(0)
Macedonia	0.0006	(0.0250)	0	(0)
Serbia	0.0008	(0.0287)	0	(0)
Latvia	0.0003	(0.0184)	0	(0)
Lithuania	0.0008	(0.0280)	0	(0)
Armenia	0.0017	(0.0411)	0	(0)
Azerbaijan	0.0004	(0.0206)	0	(0)
Belarus	0.0011	(0.0331)	0	(0)
Georgia	0.0004	(0.0192)	0	(0)
Moldova	0.0007	(0.0272)	0	(0)
Russia	0.0073	(0.0852)	0	(0)

Ukraine	0.0070	(0.0835)	0	(0)
USSR	0.0012	(0.0348)	0	(0)
Other Europe, N.S.	0.0013	(0.0359)	0	(0)
Afghanistan	0.0015	(0.0391)	0	(0)
Bangladesh	0.0049	(0.0700)	0	(0)
Myanmar	0.0023	(0.0479)	0	(0)
Cambodia	0.0033	(0.0576)	0	(0)
China	0.0354	(0.1849)	0	(0)
Cyprus	0.0003	(0.0167)	0	(0)
Hong Kong	0.0076	(0.0868)	0	(0)
India	0.0612	(0.2396)	0	(0)
Indonesia	0.0022	(0.0466)	0	(0)
Iran	0.0096	(0.0977)	0	(0)
Iraq	0.0033	(0.0570)	0	(0)
Israel	0.0038	(0.0617)	0	(0)
Japan	0.0074	(0.0856)	0	(0)
Jordan	0.0018	(0.0418)	0	(0)
Korea	0.0210	(0.1434)	0	(0)
Kuwait	0.0007	(0.0266)	0	(0)
Laos	0.0052	(0.0717)	0	(0)
Lebanon	0.0042	(0.0643)	0	(0)
Malaysia	0.0019	(0.0438)	0	(0)
Nepal	0.0015	(0.0384)	0	(0)
Pakistan	0.0096	(0.0975)	0	(0)
Philippines	0.0404	(0.1970)	0	(0)
Saudi Arabia	0.0006	(0.0245)	0	(0)
Singapore	0.0006	(0.0250)	0	(0)
Sri Lanka	0.0014	(0.0378)	0	(0)
Syria	0.0020	(0.0441)	0	(0)
Taiwan	0.0104	(0.1015)	0	(0)
Thailand	0.0035	(0.0592)	0	(0)
Turkey	0.0031	(0.0554)	0	(0)
Uzbekistan	0.0010	(0.0310)	0	(0)
Vietnam	0.0336	(0.1802)	0	(0)
Yemen	0.0010	(0.0312)	0	(0)
Asia	0.0012	(0.0340)	0	(0)
Other Asia, N.S.	0.0021	(0.0453)	0	(0)
Bermuda	0.0001	(0.0100)	0	(0)
Canada	0.0226	(0.1486)	0	(0)
Mexico	0.3133	(0.4638)	0	(0)
Belize	0.0008	(0.0287)	0	(0)
Costa Rica	0.0021	(0.0456)	0	(0)
El Salvador	0.0314	(0.1744)	0	(0)
Guatemala	0.0247	(0.1551)	0	(0)
Honduras	0.0108	(0.1036)	0	(0)
Nicaragua	0.0056	(0.0748)	0	(0)
Panama	0.0016	(0.0400)	0	(0)
Antigua & Barbuda	0.0003	(0.0162)	0	(0)
Bahamas	0.0007	(0.0256)	0	(0)
Barbados	0.0010	(0.0313)	0	(0)
Cuba	0.0222	(0.1474)	0	(0)
Dominica	0.0005	(0.0232)	0	(0)
Dominican Republic	0.0153	(0.1228)	0	(0)
Grenada	0.0007	(0.0265)	0	(0)
Haiti	0.0103	(0.1010)	0	(0)
Jamaica	0.0127	(0.1120)	0	(0)
St. Vincent & the Grenadines	0.0004	(0.0188)	0	(0)
Trinidad & Tobago	0.0048	(0.0689)	0	(0)
West Indies	0.0007	(0.0260)	0	(0)
Caribbean, N.S.	0.0007	(0.0273)	0	(0)
Argentina	0.0048	(0.0691)	0	(0)
Bolivia	0.0016	(0.0400)	0	(0)
Brazil	0.0080	(0.0890)	0	(0)
Chile	0.0023	(0.0483)	0	(0)
Colombia	0.0136	(0.1158)	0	(0)
Ecuador	0.0097	(0.0979)	0	(0)
Guyana	0.0062	(0.0786)	0	(0)
Paraguay	0.0003	(0.0184)	0	(0)
Peru	0.0096	(0.0977)	0	(0)
Uruguay	0.0012	(0.0351)	0	(0)

Venezuela	0.0042	(0.0645)	0	(0)
South America	0.0003	(0.0184)	0	(0)
Americas, N.S.	0.0006	(0.0245)	0	(0)
Algeria	0.0006	(0.0255)	0	(0)
Cameroon	0.0007	(0.0262)	0	(0)
Cape Verde	0.0007	(0.0263)	0	(0)
Egypt	0.0047	(0.0682)	0	(0)
Ethiopia	0.0037	(0.0609)	0	(0)
Eritrea	0.0007	(0.0263)	0	(0)
Ghana	0.0033	(0.0572)	0	(0)
Kenya	0.0019	(0.0439)	0	(0)
Liberia	0.0012	(0.0349)	0	(0)
Libya	0.0002	(0.0136)	0	(0)
Morocco	0.0019	(0.0438)	0	(0)
Nigeria	0.0048	(0.0689)	0	(0)
Sierra Leone	0.0007	(0.0258)	0	(0)
Somalia	0.0009	(0.0299)	0	(0)
South Africa	0.0030	(0.0544)	0	(0)
Sudan	0.0008	(0.0280)	0	(0)
Tanzania	0.0005	(0.0215)	0	(0)
Uganda	0.0005	(0.0226)	0	(0)
Zimbabwe	0.0005	(0.0227)	0	(0)
Africa	0.0021	(0.0453)	0	(0)
Eastern Africa, N.S.	0.0007	(0.0258)	0	(0)
Western Africa, N.S.	0.0012	(0.0346)	0	(0)
Other Africa, N.S.	0.0028	(0.0529)	0	(0)
Australia	0.0028	(0.0524)	0	(0)
Fiji	0.0010	(0.0315)	0	(0)
Micronesia	0.0004	(0.0196)	0	(0)
New Zealand	0.0011	(0.0326)	0	(0)
Tonga	0.0004	(0.0196)	0	(0)
Samoa	0.0002	(0.0152)	0	(0)
Other US Island Areas, N.S.	0.0005	(0.0229)	0	(0)
Enclave effect and Earnings Differential				
Proportion of immigrants from the same country of the total population by state and year	2.9381	(4.0891)	0	(0)
Ratio of self-employment earnings to wage/salary earnings (by state, year, and country of origin for immigrants; by state, year, and ethnicity for natives)	0.7542	(1.3239)	0.6692	(0.1179)
Observations	129,595		146,354	

Note: Unweighted results. State dummy variables are not shown in the table.

Table 2: Self-employment rates by country of origin

Countries	2003	2013
Albania	10.8	13.8
Austria	26.2	22.4
Belgium	25.0	18.7
Bulgaria	20.8	18.3
Czechoslovakia	23.8	24.1
Denmark	19.0	16.7
Finland	32.0	17.5
France	15.4	13.9
Germany	18.7	13.0
Greece	36.6	32.2
Hungary	16.7	21.4
Iceland	50.0	40.0
Ireland	26.4	22.0
Italy	20.7	20.5
Netherlands	21.6	16.2
Norway	9.5	18.2
Poland	20.5	19.0
Portugal	12.7	14.8
Azores Islands	12.0	24.4
Romania	21.5	20.2
Spain	14.8	12.7
Sweden	10.6	18.8
Switzerland	16.3	21.6
United Kingdom	14.5	15.5
Yugoslavia	22.0	23.4
Czech Republic	14.8	37.5
Slovakia	31.3	27.5
Bosnia and Herzegovina	8.3	13.7
Croatia	24.5	11.2
Macedonia	23.3	23.5
Serbia	10.5	13.6
Latvia	28.6	16.7
Lithuania	25.0	30.8
Armenia	32.7	23.4
Azerbaijan	0.0	19.2
Belarus	11.1	19.4
Georgia	0.0	21.4
Moldova	15.4	21.7
Russia	16.4	18.2
Ukraine	15.8	18.0
USSR	20.0	13.7
Other Europe, N.S.	20.6	17.3
Afghanistan	32.7	26.6
Bangladesh	16.7	15.6
Myanmar	14.0	5.1
Cambodia	15.2	12.3
China	13.7	12.1
Cyprus	7.7	43.5
Hong Kong	17.3	8.8
India	14.0	10.2
Indonesia	9.8	8.0
Iran	29.3	28.8
Iraq	15.6	21.7
Israel	31.0	33.6
Japan	16.3	14.2
Jordan	47.3	27.3
Korea	30.7	25.8
Kuwait	24.0	17.9
Laos	8.6	7.6
Lebanon	25.2	24.8
Malaysia	11.9	9.7
Nepal	5.3	5.8
Pakistan	20.1	21.0
Philippines	7.1	5.2
Saudi Arabia	40.0	10.3

Singapore	18.2	10.2
Sri Lanka	9.3	7.7
Syria	25.8	27.7
Taiwan	16.3	14.4
Thailand	18.4	11.3
Turkey	21.2	20.3
Uzbekistan	42.9	16.9
Vietnam	13.8	13.2
Yemen	16.7	21.6
Asia	39.5	22.3
Other Asia, N.S.	15.4	9.1
Bermuda	0.0	16.7
Canada	18.5	17.4
Mexico	8.0	10.9
Belize	11.1	10.1
Costa Rica	8.6	19.0
El Salvador	6.2	10.7
Guatemala	5.7	12.0
Honduras	13.7	10.3
Nicaragua	6.7	11.1
Panama	4.3	11.1
Antigua & Barbuda	16.7	3.6
Bahamas	15.8	7.6
Barbados	2.5	4.6
Cuba	20.2	18.1
Dominica	13.3	12.7
Dominican Republic	7.8	10.9
Grenada	15.4	9.2
Haiti	6.1	7.2
Jamaica	12.2	10.7
St. Vincent & the Grenadines	0.0	14.0
Trinidad & Tobago	10.5	10.5
West Indies	9.4	10.7
Caribbean, N.S.	11.8	11.1
Argentina	24.2	20.9
Bolivia	10.4	13.1
Brazil	16.7	24.7
Chile	18.2	18.1
Colombia	13.4	16.8
Ecuador	7.3	11.4
Guyana	8.7	9.8
Paraguay	0.0	25.0
Peru	13.1	14.7
Uruguay	23.1	27.3
Venezuela	24.5	16.9
South America	28.6	13.0
Americas, N.S.	0.0	9.4
Algeria	21.4	17.1
Cameroon	7.7	6.6
Cape Verde	7.7	0.0
Egypt	17.5	16.9
Ethiopia	13.2	16.3
Eritrea	21.4	15.8
Ghana	7.1	8.7
Kenya	18.6	9.2
Liberia	6.3	3.6
Libya	14.3	11.8
Morocco	25.0	19.3
Nigeria	13.9	12.1
Sierra Leone	9.1	12.5
Somalia	0.0	11.2
South Africa	12.6	16.8
Sudan	7.4	14.7
Tanzania	35.3	20.9
Uganda	10.5	27.7
Zimbabwe	5.9	16.0
Africa	12.1	12.6
Eastern Africa, N.S.	16.7	5.9
Western Africa, N.S.	16.4	14.0
Other Africa, N.S.	17.6	11.2

Australia	15.0	13.6
Fiji	14.3	8.0
Micronesia	0.0	2.5
New Zealand	27.5	22.4
Tonga	22.7	10.7
Samoa	0.0	0.0
Other US Island Areas, N.S.	18.8	17.3

Note: Unweighted results.

Table 3: Self-employment rates by arrival cohorts

	2003	2013
Natives	14.3	12.0
Immigrants	13.2	13.2
2010-13 Arrivals		6.1
2005-09 Arrivals		8.6
2000-04 Arrivals	6.0	11.6
1995-99 Arrivals	7.6	12.8
1990-94 Arrivals	12.0	14.3
1985-89 Arrivals	14.6	15.3
1980-84 Arrivals	15.9	16.7
1975-79 Arrivals	17.5	16.2
Pre-1975 Arrivals	19.0	17.1

Note: Unweighted results.

Table 4: Education attainment by country of origin

Countries	2003		2013	
	Less than high school	More than College	Less than high school	More than College
Albania	18.9	21.6	6.6	39.2
Austria	3.3	45.9	3.9	53.9
Belgium	4.2	62.5	2.7	73.3
Bulgaria	6.3	62.5	2.8	59.4
Czechoslovakia	4.8	57.1	3.4	55.2
Denmark	4.8	52.4	3.0	62.1
Finland	0.0	56.0	5.0	67.5
France	3.8	63.5	3.3	70.7
Germany	4.6	53.9	2.9	60.4
Greece	26.7	31.1	14.8	41.9
Hungary	6.7	46.7	6.9	48.1
Iceland	0.0	50.0	0.0	60.0
Ireland	10.7	35.2	4.7	47.8
Italy	22.3	26.2	13.9	38.9
Netherlands	4.8	56.8	2.6	64.5
Norway	0.0	61.9	0.0	76.4
Poland	8.8	31.5	7.8	30.7
Portugal	36.9	11.9	34.9	12.9
Azores Islands	60.0	16.0	41.5	4.9
Romania	8.7	40.9	7.6	47.5
Spain	9.8	59.0	9.2	63.6
Sweden	0.0	76.6	1.3	77.5
Switzerland	2.3	79.1	1.8	66.7
United Kingdom	5.7	58.0	2.3	61.0
Yugoslavia	11.0	22.0	6.4	30.9
Czech Republic	11.1	63.0	1.8	55.4
Slovakia	0.0	31.3	0.0	47.5
Bosnia and Herzegovina	17.4	9.1	8.6	18.2
Croatia	4.1	30.6	4.5	44.9
Macedonia	20.0	13.3	15.7	35.3
Serbia	15.8	26.3	8.0	47.7
Latvia	0.0	78.6	0.0	60.0
Lithuania	0.0	58.3	0.0	50.0
Armenia	13.5	40.4	5.4	39.5
Azerbaijan	0.0	33.3	1.9	55.8
Belarus	5.6	55.6	4.0	57.3
Georgia	16.7	50.0	4.8	69.0
Moldova	0.0	53.8	8.4	48.2
Russia	4.7	66.5	3.6	65.8
Ukraine	4.5	49.8	5.1	50.6
USSR	0.0	82.5	0.9	75.2
Other Europe, N.S.	8.8	50.0	9.8	34.6
Afghanistan	10.9	41.8	17.5	30.8
Bangladesh	11.8	53.9	9.1	59.0
Myanmar	9.3	62.8	43.5	31.8
Cambodia	28.3	19.2	33.0	25.5
China	18.3	57.6	17.5	56.7
Cyprus	15.4	53.8	4.3	65.2
Hong Kong	7.8	60.1	9.2	62.6
India	4.6	81.7	3.3	84.7
Indonesia	1.2	64.6	3.0	60.0
Iran	3.3	71.3	2.5	68.2
Iraq	17.7	29.2	21.1	34.6
Israel	6.3	57.7	6.2	50.8
Japan	3.0	69.3	2.3	68.1
Jordan	16.4	43.6	5.2	57.0
Korea	4.3	63.0	2.4	63.7
Kuwait	8.0	44.0	4.5	67.2
Laos	28.7	16.3	24.7	20.2
Lebanon	8.2	54.4	9.5	51.9
Malaysia	7.1	71.4	9.2	72.5
Nepal	10.5	73.7	9.3	63.4
Pakistan	8.0	61.4	9.4	61.8
Philippines	7.2	45.1	4.5	47.5
Saudi Arabia	0.0	90.0	1.5	57.4

Singapore	18.2	63.6	3.4	71.2
Sri Lanka	9.3	60.5	5.6	58.5
Syria	17.7	53.2	18.3	41.4
Taiwan	2.3	78.1	3.1	79.6
Thailand	12.6	35.9	10.8	42.5
Turkey	7.1	59.6	7.3	62.7
Uzbekistan	0.0	71.4	12.7	55.1
Vietnam	23.4	29.6	23.6	32.5
Yemen	25.0	20.8	39.2	15.7
Asia	13.2	42.1	13.4	43.8
Other Asia, N.S.	0.0	61.5	29.0	35.7
Bermuda	0.0	100.0	0.0	25.0
Canada	7.2	48.1	3.8	59.1
Mexico	62.2	4.9	56.2	5.5
Belize	38.9	0.0	11.2	27.0
Costa Rica	31.4	15.7	17.5	25.0
El Salvador	53.5	6.9	52.0	6.8
Guatemala	61.7	5.8	60.1	6.8
Honduras	47.6	8.8	52.1	8.1
Nicaragua	28.2	17.8	24.2	19.4
Panama	13.0	41.3	8.6	32.7
Antigua & Barbuda	0.0	50.0	7.1	32.1
Bahamas	5.3	47.4	6.1	36.4
Barbados	25.0	15.0	11.5	25.3
Cuba	17.0	29.6	14.8	27.9
Dominica	26.7	26.7	14.5	23.6
Dominican Republic	39.9	12.2	29.8	14.8
Grenada	11.5	42.3	10.8	21.5
Haiti	23.5	20.9	18.5	22.3
Jamaica	19.0	23.7	15.1	23.6
St. Vincent & the Grenadines	0.0	33.3	23.3	9.3
Trinidad & Tobago	15.4	25.9	9.8	23.9
West Indies	12.5	21.9	16.1	23.2
Caribbean, N.S.	11.8	17.6	19.0	30.2
Argentina	15.7	36.0	10.4	39.2
Bolivia	14.6	31.3	5.0	37.5
Brazil	10.7	34.4	12.1	36.9
Chile	15.6	41.6	7.5	42.9
Colombia	15.6	33.3	10.2	35.3
Ecuador	27.5	18.7	32.4	16.4
Guyana	15.3	18.9	17.7	24.1
Paraguay	25.0	25.0	16.7	22.2
Peru	8.6	29.9	10.2	32.0
Uruguay	20.5	20.5	15.7	24.0
Venezuela	9.2	43.9	5.9	56.1
South America	0.0	28.6	21.7	17.4
Americas, N.S.	7.1	14.3	25.0	17.2
Algeria	7.1	57.1	5.7	57.1
Cameroon	0.0	92.3	2.6	57.9
Cape Verde	30.8	15.4	32.8	17.2
Egypt	5.6	72.7	2.6	69.0
Ethiopia	9.2	48.7	6.2	38.2
Eritrea	14.3	28.6	23.7	39.5
Ghana	5.7	38.6	7.0	41.6
Kenya	0.0	62.8	2.4	59.9
Liberia	4.2	52.1	10.0	30.9
Libya	0.0	85.7	0.0	82.4
Morocco	13.5	42.3	10.7	43.1
Nigeria	2.6	68.7	1.8	68.8
Sierra Leone	0.0	40.9	7.8	32.8
Somalia	44.4	22.2	28.0	16.8
South Africa	2.3	73.6	3.4	67.4
Sudan	11.1	33.3	14.7	36.0
Tanzania	0.0	70.6	11.6	74.4
Uganda	5.3	73.7	2.1	61.7
Zimbabwe	0.0	70.6	4.0	60.0
Africa	5.5	31.9	13.1	28.6
Eastern Africa, N.S.	16.7	66.7	11.8	51.5
Western Africa, N.S.	20.0	43.6	18.0	40.0
Other Africa, N.S.	8.8	61.8	12.8	40.4

Australia	4.7	69.2	8.0	61.6
Fiji	31.0	11.9	18.4	19.5
Micronesia	40.0	0.0	25.0	7.5
New Zealand	5.0	50.0	2.0	54.1
Tonga	18.2	18.2	17.9	7.1
Samoa	30.0	10.0	20.0	5.0
Other US Island Areas, N.S.	37.5	18.8	19.2	15.4

Note: Unweighted results.

Table 5: Education attainment and English proficiency by arrival cohorts

2003				
	(1) Less than high school	(2) More than College	(3) Years of schooling	(4) Limited English
Natives	8.0	31.8	13.4	N/A
Immigrants	29.8	31.8	11.7	0.28
2000-04 Arrivals	35.0	32.5	11.3	0.50
1995-99 Arrivals	33.7	31.8	11.6	0.40
1990-94 Arrivals	30.2	31.1	11.6	0.30
1985-89 Arrivals	33.0	27.0	11.4	0.27
1980-84 Arrivals	30.3	29.3	11.6	0.22
1975-79 Arrivals	27.4	34.9	11.9	0.17
Pre-1975 Arrivals	20.1	36.5	12.4	0.10

2013				
	(1) Less than high school	(2) More than College	(3) Years of schooling	(4) Limited English
Natives	6.4	33.5	13.8	N/A
Immigrants	28.2	32.5	12.4	0.25
2010-13 Arrivals	22.2	47.7	13.3	0.33
2005-09 Arrivals	28.8	35.8	12.4	0.36
2000-04 Arrivals	30.3	30.1	12.2	0.32
1995-99 Arrivals	29.3	31.7	12.3	0.26
1990-94 Arrivals	29.2	29.6	12.0	0.23
1985-89 Arrivals	30.9	28.7	12.2	0.22
1980-84 Arrivals	28.8	30.7	12.4	0.19
1975-79 Arrivals	27.4	33.9	12.4	0.16
Pre-1975 Arrivals	19.4	33.8	13.0	0.10

Note: Unweighted results.

Table 6: Mean of wage/salary earnings and self-employment earnings by arrival cohorts

	2003		2013	
	Wage/salary	Self-employment	Wage/salary	Self-employment
Natives	64,515	43,273	63,065	41,445
Immigrants	56,382	45,045	56,817	36,065
2010-13 Arrivals			50,204	22,533
2005-09 Arrivals			47,389	24,711
2000-04 Arrivals	42,221	30,575	48,484	27,914
1995-99 Arrivals	47,826	37,939	55,800	33,248
1990-94 Arrivals	51,943	41,034	56,956	36,670
1985-89 Arrivals	52,059	39,818	57,945	37,304
1980-84 Arrivals	57,270	45,410	62,895	43,060
1975-79 Arrivals	67,972	45,047	72,513	44,849
Pre-1975 Arrivals	76,488	58,291	74,194	48,596

Note: The values are adjusted to 2013 dollars using the Consumer Price Index by the Bureau of Labor Statistics.
Unweighted results.

Table 7: Regression results for the Heckman first stage (probit) model to estimate the probability of being a wage earner, based on 2003 and 2013 ACS PUMS data

Variables	Marginal effect	Standard errors
Immigrant	-0.0807***	(0.021)
General Characteristics		
Age	-0.0103***	(0.001)
Age squared	0.0001***	(0.000)
Age*immigrant	0.0024**	(0.001)
Age squared*immigrant	-0.0000	(0.000)
Years of schooling	-0.0009***	(0.000)
Years of schooling*immigrant	0.0025***	(0.000)
Limited English	0.0075***	(0.003)
Married	-0.0144***	(0.002)
Black	0.0797***	(0.004)
Hispanic	0.0477***	(0.004)
Asian	0.0409***	(0.006)
Other race	0.0378***	(0.005)
Length of residency	-0.0067***	(0.001)
Length of residency squared	0.0001***	(0.000)
Period effect (2003)	-0.0238***	(0.002)
Arrival Cohorts		
2005-09 Arrivals	-0.0145**	(0.007)
2000-04 Arrivals	-0.0089	(0.007)
1995-99 Arrivals	0.0050	(0.008)
1990-94 Arrivals	0.0127	(0.009)
1985-89 Arrivals	0.0207**	(0.010)
1980-84 Arrivals	0.0299***	(0.010)
1975-79 Arrivals	0.0474***	(0.011)
Pre-1975 Arrivals	0.0511***	(0.012)
Country of Origin		
Albania	-0.0178	(0.026)
Austria	-0.0808**	(0.032)
Belgium	-0.0426	(0.037)
Bulgaria	-0.0534**	(0.023)
Czechoslovakia	-0.0573	(0.049)
Denmark	-0.0236	(0.037)
Finland	-0.1130**	(0.044)
France	0.0053	(0.014)
Germany	0.0207**	(0.010)
Greece	-0.0959***	(0.014)
Hungary	-0.0442*	(0.024)
Iceland	-0.1866*	(0.105)
Ireland	-0.0567***	(0.015)
Italy	-0.0156	(0.011)
Netherlands	-0.0284	(0.019)
Norway	-0.0662	(0.047)
Poland	-0.0232**	(0.010)
Portugal	0.0423***	(0.014)
Azores Islands	-0.0099	(0.041)
Romania	-0.0362***	(0.014)
Spain	-0.0365*	(0.021)
Sweden	0.0008	(0.033)
Switzerland	-0.0552**	(0.028)
United Kingdom	0.0179**	(0.008)
Yugoslavia	-0.0492**	(0.024)
Czech Republic	-0.1131***	(0.038)
Slovakia	-0.1918***	(0.051)
Bosnia and Herzegovina	-0.0081	(0.020)
Croatia	-0.0488	(0.032)
Macedonia	-0.0741	(0.046)
Serbia	-0.0531	(0.040)
Latvia	-0.0996*	(0.058)
Lithuania	-0.1480***	(0.032)
Armenia	-0.0624***	(0.020)
Azerbaijan	-0.0648	(0.045)

Belarus	-0.0520*	(0.029)
Georgia	-0.1247**	(0.051)
Moldova	-0.0585	(0.036)
Russia	-0.0210*	(0.012)
Ukraine	-0.0243**	(0.012)
USSR	-0.0148	(0.030)
Other Europe, N.S.	-0.0480*	(0.026)
Afghanistan	-0.0891***	(0.022)
Bangladesh	-0.0450***	(0.015)
Myanmar	0.0547*	(0.029)
Cambodia	-0.0090	(0.019)
China	0.0038	(0.010)
Cyprus	-0.0783	(0.074)
Hong Kong	0.0280**	(0.014)
India	0.0046	(0.009)
Indonesia	0.0380	(0.025)
Iran	-0.0705***	(0.010)
Iraq	-0.0506***	(0.016)
Israel	-0.1065***	(0.014)
Japan	-0.0266**	(0.013)
Jordan	-0.1004***	(0.020)
Korea	-0.1035***	(0.010)
Kuwait	-0.0355	(0.038)
Laos	0.0524***	(0.018)
Lebanon	-0.0526***	(0.014)
Malaysia	0.0378	(0.027)
Nepal	0.0312	(0.041)
Pakistan	-0.0678***	(0.012)
Philippines	0.1035***	(0.010)
Saudi Arabia	-0.1162	(0.076)
Singapore	-0.0115	(0.051)
Sri Lanka	0.0272	(0.031)
Syria	-0.0820***	(0.020)
Taiwan	-0.0105	(0.012)
Thailand	-0.0056	(0.018)
Turkey	-0.0396**	(0.017)
Uzbekistan	-0.0513*	(0.030)
Vietnam	0.0128	(0.010)
Yemen	-0.0132	(0.033)
Asia	-0.1317***	(0.031)
Other Asia, N.S.	-0.0136	(0.027)
Bermuda	-0.0557	(0.103)
Mexico	0.0395***	(0.008)
Belize	0.0044	(0.037)
Costa Rica	-0.0667***	(0.021)
El Salvador	0.0244***	(0.009)
Guatemala	-0.0120	(0.009)
Honduras	-0.0161	(0.012)
Nicaragua	0.0287*	(0.015)
Panama	0.0316	(0.027)
Antigua & Barbuda	0.0963	(0.096)
Bahamas	0.0095	(0.044)
Barbados	0.0910*	(0.053)
Cuba	-0.0339***	(0.009)
Dominica	-0.0285	(0.046)
Dominican Republic	0.0063	(0.011)
Grenada	0.0085	(0.044)
Haiti	0.0453***	(0.013)
Jamaica	-0.0087	(0.011)
St. Vincent & the Grenadines	-0.0424	(0.055)
Trinidad & Tobago	0.0043	(0.016)
West Indies	-0.0260	(0.042)
Caribbean, N.S.	-0.0059	(0.045)
Argentina	-0.0807***	(0.014)
Bolivia	-0.0105	(0.025)
Brazil	-0.0687***	(0.011)
Chile	-0.0625***	(0.019)
Colombia	-0.0340***	(0.010)
Ecuador	0.0053	(0.012)
Guyana	0.0260*	(0.014)

Paraguay	-0.1101*	(0.056)
Peru	-0.0232**	(0.011)
Uruguay	-0.1260***	(0.024)
Venezuela	-0.0642***	(0.015)
South America	-0.0853	(0.057)
Americas, N.S.	-0.0111	(0.048)
Algeria	-0.0751*	(0.044)
Cameroon	-0.0169	(0.047)
Cape Verde	0.0701	(0.074)
Egypt	-0.0125	(0.014)
Ethiopia	-0.1009***	(0.017)
Eritrea	-0.1428***	(0.040)
Ghana	-0.0189	(0.021)
Kenya	0.0105	(0.030)
Liberia	0.0120	(0.046)
Libya	-0.1414	(0.180)
Morocco	-0.0851***	(0.022)
Nigeria	-0.0431***	(0.016)
Sierra Leone	-0.0739	(0.046)
Somalia	-0.0728*	(0.039)
South Africa	0.0043	(0.018)
Sudan	-0.1325***	(0.051)
Tanzania	-0.1397***	(0.050)
Uganda	-0.1719***	(0.047)
Zimbabwe	-0.0681	(0.050)
Africa	-0.0853***	(0.024)
Eastern Africa, N.S.	-0.0625	(0.069)
Western Africa, N.S.	-0.1842***	(0.034)
Other Africa, N.S.	-0.0331*	(0.020)
Australia	-0.0025	(0.020)
Fiji	0.0316	(0.032)
Micronesia	0.1002	(0.106)
New Zealand	-0.0867***	(0.031)
Tonga	-0.0387	(0.045)
Other US Island Areas, N.S.	-0.1799***	(0.053)
Enclave effect and Earnings Differential		
Proportion of immigrants from the same country of the total population by state and year	-0.0021***	(0.000)
Ratio of self-employment earnings to wage/salary earnings (by state, year, and country of origin for immigrants; by state, year, and ethnicity for natives)	-0.0072***	(0.001)
Observations	267,686	

Note: Unweighted results. Samoa was omitted because of collinearity. The values in the table represent the marginal effect of each independent variable. All models include state dummy variables.

*Statistically significant at the 0.10 level.

**Statistically significant at the 0.05 level.

***Statistically significant at the 0.01 level.

Table 8: Regression results for annual logged wage, based on 2003 and 2013 ACS PUMS data

Variables	(1) OLS	(2) Standard Errors	(3) Heckman OLS	(4) Standard Errors
Immigrant	1.9722***	(0.048)	2.0882***	(0.079)
General Characteristics				
Age	0.1299***	(0.001)	0.1409***	(0.002)
Age squared	-0.0014***	(0.000)	-0.0014***	(0.000)
Age*immigrant	-0.0518***	(0.002)	-0.0534***	(0.003)
Age squared*immigrant	0.0005***	(0.000)	0.0005***	(0.000)
Years of schooling	0.1006***	(0.001)	0.1024***	(0.001)
Years of schooling*immigrant	-0.0518***	(0.001)	-0.0569***	(0.002)
Limited English	-0.2255***	(0.007)	-0.2375***	(0.011)
Married	0.2827***	(0.004)	0.3103***	(0.007)
Black	-0.3565***	(0.008)	-0.4965***	(0.020)
Hispanic	-0.1796***	(0.009)	-0.2676***	(0.017)
Asian	-0.0211	(0.015)	-0.1021***	(0.026)
Other race	-0.2113***	(0.012)	-0.2871***	(0.021)
Length of residency	0.0181***	(0.001)	0.0315***	(0.002)
Length of residency squared	-0.0002***	(0.000)	-0.0004***	(0.000)
Period effect (2003)	0.1164***	(0.005)	0.1670***	(0.009)
Arrival Cohorts				
2005-09 Arrivals	0.1606***	(0.014)	0.1736***	(0.023)
2000-04 Arrivals	0.0945***	(0.015)	0.0943***	(0.024)
1995-99 Arrivals	0.1258***	(0.017)	0.0984***	(0.028)
1990-94 Arrivals	0.0996***	(0.020)	0.0589*	(0.033)
1985-89 Arrivals	0.0862***	(0.022)	0.0319	(0.037)
1980-84 Arrivals	0.1099***	(0.025)	0.0411	(0.041)
1975-79 Arrivals	0.1829***	(0.027)	0.0774*	(0.045)
Pre-1975 Arrivals	0.1530***	(0.031)	0.0447	(0.050)
Country of Origin				
Albania	-0.5390***	(0.073)	-0.5000***	(0.116)
Austria	-0.1598	(0.109)	0.0655	(0.166)
Belgium	0.0419	(0.114)	0.1426	(0.177)
Bulgaria	-0.2139***	(0.072)	-0.0825	(0.112)
Czechoslovakia	-0.2962*	(0.169)	-0.1191	(0.256)
Denmark	0.3281***	(0.115)	0.3981**	(0.178)
Finland	0.1086	(0.169)	0.4633*	(0.251)
France	0.0092	(0.039)	-0.0138	(0.063)
Germany	-0.1182***	(0.028)	-0.1690***	(0.044)
Greece	-0.3678***	(0.050)	-0.0718	(0.081)
Hungary	-0.2856***	(0.078)	-0.1644	(0.120)
Iceland	0.3236	(0.455)	0.9345	(0.637)
Ireland	-0.0737	(0.047)	0.0778	(0.074)
Italy	-0.3071***	(0.033)	-0.2574***	(0.051)
Netherlands	-0.0702	(0.060)	0.0043	(0.093)
Norway	0.1384	(0.165)	0.3505	(0.250)
Poland	-0.3770***	(0.029)	-0.3202***	(0.045)
Portugal	-0.3940***	(0.039)	-0.4820***	(0.062)
Azores Islands	-0.4296***	(0.126)	-0.3866**	(0.196)
Romania	-0.3425***	(0.043)	-0.2514***	(0.068)
Spain	0.0251	(0.057)	0.0872	(0.091)
Sweden	0.1944**	(0.094)	0.1923	(0.149)
Switzerland	0.1940**	(0.091)	0.3340**	(0.141)
United Kingdom	0.0731***	(0.023)	0.0284	(0.037)
Yugoslavia	-0.4333***	(0.079)	-0.2995**	(0.123)
Czech Republic	-0.2415*	(0.145)	0.1188	(0.216)
Slovakia	-0.5011**	(0.211)	0.0825	(0.308)
Bosnia and Herzegovina	-0.5619***	(0.058)	-0.5298***	(0.091)
Croatia	-0.2512**	(0.101)	-0.1328	(0.157)
Macedonia	-0.1333	(0.155)	0.0547	(0.238)
Serbia	-0.4353***	(0.121)	-0.3193*	(0.190)
Latvia	-0.0762	(0.211)	0.2081	(0.316)
Lithuania	-0.2485**	(0.121)	0.1948	(0.183)
Armenia	-0.8085***	(0.068)	-0.6313***	(0.106)
Azerbaijan	-0.4872***	(0.153)	-0.3092	(0.233)
Belarus	-0.3057***	(0.090)	-0.1787	(0.140)
Georgia	-0.4334**	(0.187)	-0.0957	(0.281)
Moldova	-0.3261***	(0.115)	-0.1755	(0.178)

Russia	-0.2712***	(0.034)	-0.2227***	(0.054)
Ukraine	-0.3239***	(0.034)	-0.2711***	(0.054)
USSR	-0.1523*	(0.090)	-0.1234	(0.141)
Other Europe, N.S.	-0.2959***	(0.083)	-0.1671	(0.130)
Afghanistan	-0.4517***	(0.075)	-0.2042*	(0.117)
Bangladesh	-0.6753***	(0.042)	-0.5870***	(0.068)
Myanmar	-0.3759***	(0.065)	-0.4795***	(0.106)
Cambodia	-0.4915***	(0.053)	-0.4768***	(0.084)
China	-0.3826***	(0.025)	-0.3985***	(0.040)
Cyprus	0.1083	(0.263)	0.3459	(0.397)
Hong Kong	-0.2300***	(0.035)	-0.3055***	(0.057)
India	-0.0013	(0.023)	-0.0183	(0.037)
Indonesia	-0.4429***	(0.059)	-0.5362***	(0.096)
Iran	-0.2430***	(0.032)	-0.0381	(0.054)
Iraq	-0.7794***	(0.050)	-0.6560***	(0.079)
Israel	-0.1855***	(0.049)	0.1281	(0.081)
Japan	0.0434	(0.035)	0.0855	(0.056)
Jordan	-0.4658***	(0.073)	-0.1635	(0.114)
Korea	-0.4419***	(0.028)	-0.1886***	(0.051)
Kuwait	-0.5335***	(0.115)	-0.4496**	(0.180)
Laos	-0.6167***	(0.043)	-0.7392***	(0.071)
Lebanon	-0.2649***	(0.046)	-0.1124	(0.072)
Malaysia	-0.1507**	(0.066)	-0.2321**	(0.107)
Nepal	-0.6193***	(0.088)	-0.6806***	(0.143)
Pakistan	-0.5094***	(0.034)	-0.3566***	(0.055)
Philippines	-0.5883***	(0.024)	-0.7764***	(0.043)
Saudi Arabia	-0.3806	(0.250)	-0.1180	(0.384)
Singapore	0.0380	(0.135)	0.0464	(0.215)
Sri Lanka	-0.2396***	(0.075)	-0.3114***	(0.121)
Syria	-0.4349***	(0.069)	-0.1815*	(0.107)
Taiwan	-0.1171***	(0.032)	-0.1114**	(0.051)
Thailand	-0.5748***	(0.047)	-0.5780***	(0.075)
Turkey	-0.2467***	(0.051)	-0.1521*	(0.080)
Uzbekistan	-0.5990***	(0.090)	-0.4795***	(0.141)
Vietnam	-0.5242***	(0.025)	-0.5623***	(0.040)
Yemen	-0.9114***	(0.095)	-0.8750***	(0.150)
Asia	-0.6482***	(0.113)	-0.2817	(0.171)
Other Asia, N.S.	-0.5717***	(0.069)	-0.5497***	(0.111)
Bermuda	-0.6590*	(0.353)	-0.4954	(0.536)
Mexico	-0.5037***	(0.019)	-0.5669***	(0.031)
Belize	-0.3457***	(0.093)	-0.3870***	(0.150)
Costa Rica	-0.3842***	(0.062)	-0.2555***	(0.098)
El Salvador	-0.4743***	(0.023)	-0.5348***	(0.037)
Guatemala	-0.4739***	(0.024)	-0.4682***	(0.039)
Honduras	-0.4618***	(0.030)	-0.4489***	(0.048)
Nicaragua	-0.4580***	(0.038)	-0.5403***	(0.061)
Panama	-0.2936***	(0.065)	-0.3776***	(0.106)
Antigua & Barbuda	-0.1532	(0.177)	-0.3454	(0.293)
Bahamas	-0.2617**	(0.108)	-0.3112*	(0.174)
Barbados	-0.1758*	(0.099)	-0.3640**	(0.164)
Cuba	-0.3547***	(0.025)	-0.2759***	(0.041)
Dominica	-0.4069***	(0.123)	-0.3753*	(0.196)
Dominican Republic	-0.5480***	(0.027)	-0.5729***	(0.043)
Grenada	-0.3546***	(0.103)	-0.4026**	(0.168)
Haiti	-0.4116***	(0.030)	-0.5159***	(0.049)
Jamaica	-0.2907***	(0.028)	-0.3018***	(0.045)
St. Vincent & the Grenadines	-0.2837*	(0.145)	-0.2309	(0.232)
Trinidad & Tobago	-0.2791***	(0.040)	-0.3133***	(0.064)
West Indies	-0.3193***	(0.110)	-0.3007*	(0.176)
Caribbean, N.S.	-0.2325**	(0.116)	-0.2509	(0.186)
Argentina	-0.1210***	(0.042)	0.0619	(0.068)
Bolivia	-0.4973***	(0.066)	-0.4969***	(0.105)
Brazil	-0.2919***	(0.033)	-0.1227**	(0.055)
Chile	-0.3600***	(0.058)	-0.2296**	(0.092)
Colombia	-0.3618***	(0.028)	-0.3048***	(0.045)
Ecuador	-0.4549***	(0.031)	-0.4840***	(0.049)
Guyana	-0.3556***	(0.035)	-0.4230***	(0.057)
Paraguay	-0.7341***	(0.192)	-0.4528	(0.294)
Peru	-0.4909***	(0.031)	-0.4602***	(0.049)
Uruguay	-0.2806***	(0.083)	0.0340	(0.130)

Venezuela	-0.2093***	(0.044)	-0.0805	(0.070)
South America	-0.6384***	(0.187)	-0.4320	(0.287)
Americas, N.S.	-0.3607***	(0.124)	-0.3576*	(0.199)
Algeria	-0.0758	(0.153)	0.1295	(0.232)
Cameroon	-0.2484**	(0.107)	-0.2400	(0.174)
Cape Verde	-0.3904**	(0.154)	-0.5300**	(0.252)
Egypt	-0.5255***	(0.040)	-0.4978***	(0.064)
Ethiopia	-0.4194***	(0.049)	-0.2214***	(0.079)
Eritrea	-0.2716**	(0.131)	0.0365	(0.203)
Ghana	-0.2635***	(0.049)	-0.2455***	(0.079)
Kenya	-0.1202*	(0.070)	-0.1550	(0.113)
Liberia	-0.5616***	(0.108)	-0.5516***	(0.175)
Libya	0.0834	(0.788)	0.6021	(1.096)
Morocco	-0.5756***	(0.074)	-0.3533***	(0.115)
Nigeria	-0.2720***	(0.041)	-0.2155***	(0.065)
Sierra Leone	-0.3116**	(0.136)	-0.1627	(0.215)
Somalia	-0.6821***	(0.107)	-0.5448***	(0.171)
South Africa	0.1571***	(0.051)	0.1395*	(0.080)
Sudan	-1.0189***	(0.165)	-0.7338***	(0.255)
Tanzania	-0.2901	(0.182)	0.0886	(0.273)
Uganda	-0.2107	(0.177)	0.2427	(0.266)
Zimbabwe	-0.0209	(0.159)	0.1334	(0.246)
Africa	-0.3015***	(0.071)	-0.1439	(0.113)
Eastern Africa, N.S.	0.0315	(0.204)	0.1433	(0.320)
Western Africa, N.S.	-0.6072***	(0.122)	-0.1684	(0.188)
Other Africa, N.S.	-0.4196***	(0.052)	-0.3732***	(0.083)
Australia	0.1675***	(0.055)	0.1616*	(0.087)
Fiji	-0.3627***	(0.082)	-0.4439***	(0.131)
Micronesia	-1.0648***	(0.213)	-1.2461***	(0.349)
New Zealand	0.2350**	(0.105)	0.4739***	(0.161)
Tonga	-0.7083***	(0.135)	-0.6318***	(0.212)
Samoa	-1.2412***	(0.456)	-1.6427**	(0.766)
Other US Island Areas, N.S.	-0.9075***	(0.205)	-0.4278	(0.303)
Correction term			-1.3219***	(0.137)
Constant	6.1755***	(0.033)	6.0248***	(0.056)
Observations	232,682		232,682	
R-squared	0.314			

Note: Unweighted results. Both models include state dummy variables.

*Statistically significant at the 0.10 level.

**Statistically significant at the 0.05 level.

***Statistically significant at the 0.01 level.

Table 9: Descriptive statistics for wages and self-employment earnings

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
Immigrants					
Wages	120,031	56714.2	66880.5	4.030196	674872.9
Self-emp. earnings	13,614	38165.8	58707.0	-12829	416117.8
Natives					
Wages	136,618	63490.6	66185.4	4.030196	674872.9
Self-emp. earnings	17,110	42066.9	66054.5	-12829	462465

Note: Unweighted results. The values are adjusted to 2013 dollars using the Consumer Price Index by the Bureau of Labor Statistics.

Appendix

Table A1: Mean of Annual wage and self-employment earnings by country of origin

Country	2003		2013	
	Wage/salary	Self-employment	Wage/salary	Self-employment
Albania	44,215	13,857	46,348	50,649
Austria	96,843	68,642	85,186	66,209
Belgium	85,668	91,095	128,140	42,656
Bulgaria	96,369	32,076	70,459	30,524
Czechoslovakia	129,707	29,730	82,031	80,782
Denmark	97,474	61,040	139,287	77,178
Finland	78,293	68,984	116,117	5,105
France	111,639	47,039	102,910	29,250
Germany	85,848	38,266	98,912	47,699
Greece	76,836	48,443	81,010	50,161
Hungary	93,789	95,233	80,742	64,944
Iceland	113,548	.	135,861	29,471
Ireland	85,894	62,829	111,643	68,868
Italy	80,668	60,687	78,848	63,978
Netherlands	104,941	34,946	106,948	70,102
Norway	111,457	59,821	126,796	62,720
Poland	63,675	40,660	62,672	35,915
Portugal	57,783	49,623	61,088	41,372
Azores Islands	64,846	41,057	46,837	34,617
Romania	67,341	30,845	76,798	48,925
Spain	93,849	43,256	92,173	59,644
Sweden	109,673	26,815	123,068	53,189
Switzerland	149,364	73,902	145,150	25,657
United Kingdom	115,793	49,429	118,908	46,834
Yugoslavia	75,443	27,567	69,823	50,613
Czech Republic	75,627	51,193	82,030	49,928
Slovakia	62,494	51,642	73,969	29,823
Bosnia and Herzegovina	37,726	28,869	44,766	58,361
Croatia	51,578	52,789	81,292	21,118
Macedonia	46,408	35,861	73,651	19,446
Serbia	58,371	12,830	62,869	28,911
Latvia	116,627	61,489	99,452	32,913
Lithuania	71,109	21,811	70,356	57,974
Armenia	45,295	53,218	56,060	44,592
Azerbaijan	45,761	.	64,899	20,258
Belarus	54,899	30,985	72,469	26,911
Georgia	63,039	.	74,898	29,345
Moldova	58,624	19,053	69,028	28,875
Russia	74,560	44,333	77,642	42,332
Ukraine	60,761	32,575	70,091	36,669
USSR	83,872	33,617	90,306	22,088
Other Europe, N.S.	86,330	94,354	71,347	56,090
Afghanistan	49,612	59,987	57,503	37,527
Bangladesh	49,614	28,218	55,548	26,039
Myanmar	74,380	20,605	46,843	88,229
Cambodia	47,153	54,090	48,267	52,594
China	68,727	54,620	69,845	44,685
Cyprus	88,422	26,944	75,586	31,234
Hong Kong	88,425	60,376	87,683	40,642
India	92,474	51,236	101,597	56,486
Indonesia	60,625	48,755	66,288	20,241
Iran	89,654	63,462	104,108	59,813
Iraq	56,009	49,327	45,947	29,708
Israel	112,322	49,945	98,916	51,283
Japan	103,958	52,399	95,280	45,010
Jordan	63,317	37,500	75,299	67,672
Korea	69,246	56,936	73,203	41,980
Kuwait	39,998	18,869	82,952	33,048
Laos	39,184	29,792	44,614	28,272
Lebanon	89,516	58,684	93,571	54,612
Malaysia	67,446	65,114	95,991	79,623
Nepal	58,857	.	52,642	30,083
Pakistan	67,072	66,561	75,437	41,546
Philippines	52,869	53,861	55,604	29,975

Saudi Arabia	78,051	91,416	64,297	13,400
Singapore	99,198	82,541	91,713	22,368
Sri Lanka	76,960	59,875	87,658	38,331
Syria	75,582	92,926	74,315	87,175
Taiwan	97,211	40,261	98,252	42,955
Thailand	47,256	69,467	48,651	36,763
Turkey	76,513	64,428	88,630	49,473
Uzbekistan	47,697	26,999	55,916	56,342
Vietnam	53,075	41,297	57,066	39,358
Yemen	62,752	88,315	37,580	36,327
Asia	117,645	44,977	58,946	28,289
Other Asia, N.S.	77,495	85,621	44,041	38,776
Bermuda	84,680	.	45,854	186,900
Canada	93,036	52,848	111,366	52,036
Mexico	31,073	32,964	31,611	26,131
Belize	38,046	19,245	54,738	45,079
Costa Rica	50,839	8,887	57,218	35,160
El Salvador	35,374	34,797	33,113	27,890
Guatemala	31,294	40,667	27,947	21,681
Honduras	37,887	30,424	29,534	24,711
Nicaragua	40,103	36,079	41,599	25,101
Panama	57,631	22,068	60,189	43,136
Antigua & Barbuda	68,770	.	57,326	-6,650
Bahamas	58,859	29,061	61,364	15,113
Barbados	44,459	26,687	63,269	7,053
Cuba	59,457	43,165	49,559	28,043
Dominica	43,743	98,152	44,623	6,088
Dominican Republic	38,628	28,245	36,470	26,204
Grenada	68,086	13,172	50,488	20,504
Haiti	39,416	33,249	39,710	24,952
Jamaica	49,106	37,173	48,554	30,062
St. Vincent & the Grenadines	98,366	.	49,659	12,628
Trinidad & Tobago	49,922	54,058	54,512	23,406
West Indies	48,136	32,076	45,782	23,207
Caribbean, N.S.	61,087	32,717	54,579	101,435
Argentina	66,158	62,529	84,933	28,317
Bolivia	63,324	64,665	49,715	21,869
Brazil	52,596	34,706	70,466	32,123
Chile	63,753	47,537	63,975	35,008
Colombia	51,668	45,160	52,683	30,327
Ecuador	38,957	27,613	42,348	23,218
Guyana	48,915	76,404	54,005	23,289
Paraguay	37,416	.	34,055	30,701
Peru	42,532	45,678	44,974	24,629
Uruguay	51,219	67,359	74,900	29,324
Venezuela	64,765	28,851	66,350	33,011
South America	46,146	39,389	34,279	10,579
Americas, N.S.	39,306	.	51,198	16,740
Algeria	76,291	51,321	68,153	17,560
Cameroon	53,029	7,720	66,574	24,015
Cape Verde	40,864	33,936	36,251	.
Egypt	82,210	44,090	75,462	60,989
Ethiopia	44,173	29,756	45,607	26,000
Eritrea	47,387	24,891	45,601	37,607
Ghana	60,519	57,656	55,909	45,946
Kenya	83,372	24,224	75,950	46,666
Liberia	43,619	97,082	39,646	106,624
Libya	76,688	.	100,818	70,528
Morocco	61,180	22,462	58,321	49,021
Nigeria	58,265	60,834	62,834	36,040
Sierra Leone	52,445	125,095	44,288	73,114
Somalia	21,869	.	28,122	47,597
South Africa	108,104	102,093	127,884	56,155
Sudan	35,854	.	42,416	11,620
Tanzania	136,531	33,102	89,528	77,581
Uganda	129,123	10,906	88,512	82,115
Zimbabwe	86,303	6,415	92,059	18,270
Africa	44,428	36,800	44,991	26,805
Eastern Africa, N.S.	77,382	180,907	62,379	1,965
Western Africa, N.S.	47,909	16,200	43,032	16,201

Other Africa, N.S.	70,376	51,482	56,628	29,336
Australia	104,326	43,724	114,037	44,765
Fiji	44,320	24,591	55,996	34,113
Micronesia	31,781	.	22,809	605
New Zealand	99,878	63,440	117,461	52,276
Tonga	41,237	16,056	39,683	15,113
Samoa	40,210	.	39,259	9,068
Other US Island Areas, N.S.	35,523	230,945	27,819	15,084

Note: The values are adjusted to 2013 dollars using the Consumer Price Index by the Bureau of Labor Statistics. Zero values are shown as missing.