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English proficiency and earnings of U.S. immigrants

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ENGLISH PROFICIENCY AND EARNINGS OF U.S. IMMIGRANTS

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Abstract

Every year thousands of immigrants come to the United States and look to join the labor force. Most of these immigrants have a first language that is not English. This study analyzes how wage income, business and farm income, and investment income are affected by English proficiency in 2004, 2009, and 2014. I use data from the American Community Survey and a log-linear econometric model to explore this relationship. I conclude that wage income and business and farm income had a positive relationship with English proficiency in 2004, 2009, and 2014 whereas investment income only had a significant positive relationship with English proficiency in 2004. The results should encourage immigrants to enroll in English courses to make higher earnings. It should also encourage the U.S. to provide accessible and affordable English programs to immigrants to help them better perform in the labor market.

I. Introduction

Every year immigrants come to the United States and join the work force. In 2004, approximately 957,883 immigrants legally obtained permanent residency in the U.S. This number increased in 2009 to about 1.131 million immigrants. The number dropped to about 1.017 million immigrants in 2014, but continued to stay a high number (U.S. Department 2016). With a high number of immigrants in the U.S., they are clearly an important part of the U.S. economy. However, most immigrants have a first language that is not English (Toppelberg and Collins 2010). This may affect their performance in the labor market and their effects on the U.S. economy. Analyzing English proficiency's effects on earnings is an important and interesting issue for me because it has the potential to raise awareness about the importance of being proficient in English. If immigrants understand the importance of it, they may decide to improve their English and be in a better financial position making their transition to the U.S. easier.

Although English is not the official language of the U.S., it is still widely accepted and commonly used. Prior studies (Carnevale et al. 2001, Chiswick and Miller 2002, Schreck 2009, Jongsung 2011, Zhen 2015) on English proficiency and earnings look at proficiency's effects on wage income only. This study is unique in that it analyzes the effects of English proficiency on immigrants' wage income, business and farm income, and investment income instead of only wage income. I focus on the years 2004, 2009, and 2014 and use the term "immigrant" to refer to a foreign-born person residing in the U.S. This definition includes people born abroad to U.S. citizens. Gathering data from the American Community Survey, I use a log-linear Ordinary Least Squares econometric model to approximate the effects on income from English proficiency.

I find results similar to previous literature in that there is a positive relationship for English proficiency and wage income. Compared to speaking very good English, an immigrant

speaking good, bad, or no English in 2004, 2009, and 2014 had significantly lower wage income. Speaking bad or no English compared to very good English significantly lowered business and farm income for 2004, 2009, and 2014. Finally, speaking bad English compared to very good English significantly lowered investment income in 2004. English proficiency did not significantly affect investment income in 2009 and 2014. Based off these results, U.S. immigrants should be encouraged to enroll in English classes and the U.S. government should make an effort to provide easily accessible and affordable English programs so that immigrants can better perform in the labor market and can better help the U.S. economy.

II. Literature Review

Recent literature on this topic finds that English proficiency increases the earnings of U.S. immigrants (Carnevale et al. 2001, Chiswick and Miller 2002, Schreck 2009, Jongsung 2011, Zhen 2015). Carnevale *et al.* (2001) take into account four dimensions of the English language on earnings. These dimensions are understanding, speaking, reading, and writing. They get their data from the National Adult Literacy Survey. The survey uses bilingual interviewers and instruments to collect responses which the Census does not. The responses that interviewees can give for their English abilities are "very well," "well," "not well," and "not at all." The sample that Carnevale *et al.* uses is male foreign-born adults, ages 18 to 64. In order to be included, the male must have worked 12 months prior to the interview and reported his usual weekly wage or salary.

Carnevale *et al.* (2001) use ordinary least squares to estimate the regression. They find that when looking at the results of English speaking and not taking into account the effects of understanding, reading, and writing English, "immigrants who speak English 'not at all' are paid

about 30-percent less than comparable immigrants who speak English 'very well'" (161). When all four dimensions of English are considered, there is a significant negative wage effect of not understanding spoken English. In additional research, Carnevale *et al.* find the four language dimensions tend to be complementary, but understanding English is a basic skill.

Chiswick and Miller (2002) determine the effects that English language skills, living in a linguistic concentration area, and the stage of the business cycle upon entry into the U.S. labor market have on immigrants' earnings. They get their data from the 1990 Census of Population, Public Use Microdata Sample (PUMS). The data "are for the 5 percent sample of the foreign-born men from non-English speaking countries" (36). The United Kingdom, Ireland, Canada, Australia, and New Zealand are considered English speaking countries. The men in the sample are ages 25 to 64 and had positive earnings in 1989.

Chiswick and Miller (2002) find it difficult for workers to earn a high wage from formal education unless they can speak English. Immigrants fluent in English have a higher earnings growth from additional years of pre-immigration experience than immigrants who are not fluent in English. This makes sense because pre-immigration experience is more valuable when it can be transferred to the new country. *Ceteris paribus*, fluency in English is associated with 14 percent higher earnings for immigrants.

Next, Chiswick and Miller (2002) find that living in an area where the immigrant's native language is not spoken, fluency in English raises earnings by 19 percent. Living in an area where 20 percent of the population speaks the immigrant's native language raises earnings by only one percent. Finally, they find that the unemployment rate in the labor market upon entry affects an immigrant's earnings. Initial weekly earnings are estimated to be 14.5 percent lower if the U.S. unemployment rate is eight percent rather than three percent when the immigrant enters the

workforce. The effect of the unemployment rate upon entry diminishes as the immigrant lives in the U.S. for a longer period of time. At a mean employment rate of 5.1 percent, the effect of the initial rate disappears after 18 years.

Schreck (2009) bases his study off Chiswick and Miller's 2002 study. He analyzes the effects of English proficiency on the earnings of U.S. immigrants. The data come from the 2008 American Community Survey (ACS), and the sample used is U.S. immigrants ages 20 to 65 that participated in the survey and provided data for all the categories of interest. Schreck uses the same income definition that Zhen uses in her study. He defines income as the "respondent's total pre-tax wage and salary income for 2007" (Schreck 7).

Survey respondents can choose four levels of English proficiency, and Schreck (2009) combines those four levels of proficiency into two variables. "Speaking only English" and "speaking English very well" were combined into one variable (good English); "speaking English well" and "speaking English, but not well" were combined into another variable (some English). Schreck's results show that the coefficients for English proficiency are significant and important in determining immigrants' earnings. The variable for speaking good English has a higher estimated coefficient than the variable for speaking some English. Schreck's results are similar to Chiswick and Miller's (2002) as they both show a positive relationship between English fluency and immigrants' earnings.

Jongsung's (2011) study's results support Carnevale *et al.*'s (2001) findings that there is a positive relationship between English proficiency and earnings. Unlike Carnevale *et al.*, Jongsung (2011) focuses on male Mexican and Chinese immigrants. Jongsung's data set is composed of male immigrants born in Mexico and China and residing in the U.S. The sample is further restricted to being non-students and full-time workers between the ages of 25 and 64 that

are *not* in the top or bottom one percent of the earnings distribution (19). Jongsung gets her data from the 1990 Census Public Use Microdata Sample (PUMS).

The findings show that English language proficiency has a positive effect on Chinese and Mexican male immigrants' earnings. The earnings immigrants lose by not being proficient in English are substantial. As Jongsung predicted, earnings for workers with a high school education are more negatively affected than earnings of workers with a college education. This is true for all levels of English proficiency that were used as variables. The levels of proficiency are the following: well, not well, and not at all. Earnings of workers with a high school education are also more negatively affected than earnings of workers with an education lower than high school.

Zhen (2015) finds similar results to Carnevale *et al.* (2001) and Jongsung (2011). Zhen compares the effects of English proficiency on earnings of foreign-born U.S. immigrants from 1980 to 2000. The population is restricted to immigrants ages 25 to 60 with positive earnings in 1979, 1989, and 1999. The data used is from the Integrated Public Use Micro-data Series (IPUMS) USA. The data comes from the 5 percent Public Use Sample of the 1980, 1990, and 2000 U.S. Census of Population and Housing.

Zhen (2015) finds that English proficiency has a positive effect on earnings for foreign-born immigrants from 1980-2000. The "importance declined from 1980 to 1990, and then slightly rebounded from 1990 to 2000" (346). Zhen suggests that the change in importance may be due to changes in minority-language enclaves; however, she does not go into further research about this possible explanation.

My study is similar to Carnevale *et al.*'s (2001) because we both use four levels of English ability for our English proficiency variables. The four levels we use are the following: very good, good, bad, and not at all. Also, we both include speaking only English and speaking

very good English in the very good English category. My study is also similar to Schreck's (2009) because we both use data from the ACS, and it is like Zhen's because we get the data from IPUMS USA. However, my study is different from previous literature because I analyze the effects on wage income, business and farm income, and investment income. Previous literature only analyzes the effects on wage income. By looking at more types of income, my results can be applied to more people and can be beneficial to more people.

III. Data

The data for this study came from American Community Surveys (ACS) for the years 2004, 2009, and 2014. The ACS is an annual survey sent out by the Census Bureau. It goes to over 3.5 million households across the U.S. and provides the government with social, economic, housing, and demographic information. I got the ACS data from the Integrated Public Use Micro-data Series (IPUMS) USA. IPUMS USA collects census data and organizes it so it is easy for researchers to use.

The three years used are 2004, 2009, and 2014 (Ruggles et al. 2017). First, 2009 was chosen because the Great Recession had set in and the economy experienced negative effects from it in 2009. According to the Bureau of Labor Statistics, the Great Recession lasted from December 2007 to June 2009 (Barello). I chose 2009 rather than 2008 because the greatest decline in consumer-related employment was during 2009. Also, non-agricultural wage and salary employment was lower in 2009 than 2008 (Barello). The year 2014 was chosen because overall employment reached prerecession levels in that year. Finally, 2004 was chosen because it was before the Great Recession occurred, and it creates a 5 year time difference between the three years of data.

The data were cleaned and any survey respondents that said they were born in the U.S. were excluded from the sample. Forty-two observations were also excluded because their age was less than the number of years they had been in the U.S. After cleaning the data set, the sample consists of 538,101 immigrants ages 25 to 65. I chose this age group because it is when people are in their prime working years. The number of observations for 2004, 2009, and 2014 were the following: 74,673; 224,473; and 238,955. Summary statistics are in Table 1 on page 35.

IV. Model

This model is a modified version of Chiswick and Miller's 2002 study. Like Chiswick and Miller, I used Jacob Mincer's human capital earnings model with educational attainment and age variables to account for number of years of schooling and labor market experience (Mincer 1974). My study is similar to Chiswick and Miller's because we both used variables for years of schooling, years in the U.S., English proficiency, birth place, and citizenship. I modify their model by having variables for age, age squared, race, current school attendance, and sex. Chiswick and Miller used a variable for potential time in the workforce whereas I used an age variable. I added a race variable because whites tend to make more than minority races. Schreck (2009) found that currently attended school significantly affected wage earnings so I included a current school attendance variable. Finally, I used a sex variable because my sample consists of both men and women.

The econometric model used in this study is the following:

$$\boldsymbol{LOGINCX} = Constant + \beta_1 GDENG + \beta_2 BDENG + \beta_3 NOENG + \beta_4 FEM + \beta_5 AGE + \beta_6 AGESQ + \beta_7 NOSCHOOL + \beta_8 GRDSCDRPOUT + \beta_9 HSDRPOUT + \beta_{10} HSDPLM + \beta_{11} SMCOLLEGE + \beta_{12} AADGR + \beta_{13} MSTRDGR + \beta_{14} DOCTDGR + \beta_{15} SCHOOL + \beta_{16} MARST + \beta_{17} NCHILD + \beta_{18} NCHILDUfive + \beta_{19} YRSUSA + \beta_{20} USTERR + \beta_{21} EURP + \beta_{22} MIDEAST + \beta_{23} ASIA + \beta_{24} PCFC + \beta_{25} AFRICA + \beta_{26} MEXICO + \beta_{27} CNTRLSTHAM + \beta_{28} CARIBATL + \beta_{29} NEAST + \beta_{30} SOUTH + \beta_{31} WEST + \beta_{32} BLACK + \beta_{33} ASIAN + \beta_{34} OTHER + \beta_{35} CITIZEN + \varepsilon$$

Dependent Variables

The dependent variable for this model was the log of income. There were three different models that the 2004, 2009, and 2014 data was applied to. The income components of the three separate dependent variables were the following: wage and salary income (INCWAGE); business and farm income (INCBUSFM); and interest, dividend, and rental income (INCINVST). Notation and descriptions of the different dependent variables are in Table 2 on page 39. Wage and salary income was used because a large percent of immigrants are likely employees rather than employers. Business and farm income was in the model because employers and farmers may not have to be very proficient in English. They can hire employees to communicate with customers rather than them having to do that which would lower the earnings benefits from being proficient in English. Finally, interest, dividend, and rental income was included for a similar reason that business and farm income was included. Immigrants can

barely know English and still earn interest from a bank or rental property. If they are earning money from a trust or estate, little communication is required once the trust is created.

Independent Variables

The independent variables and their notation, description, and expected coefficient sign are in Table 2 on page 39. The key variable in the study is English proficiency. Survey participants were asked if they speak a language other than English at home. If they answer yes, they were then asked how well they speak English. The ACS has four responses for English speaking ability for respondents that speak a language other than English at home. They are the following: very well, well, not well, and not at all. Speaks English well (GDENG), not well (BDENG), and not at all (NOENG) are all independent variables in the model. Speaks English very well (VRGDENG) is composed of those that said they speak only English, and those that said they speak English very well. Very good English was the omitted variable for English proficiency in the regression model.

The dummy female variable (FEM) was included as a variable because males and females have different earnings. If the respondent was a female, she received a 1 to account for that. Age (AGE) and age squared (AGESQ) were both included because an increase in age increases one's experience in the labor market. Since data were unavailable for the number of years of experience in the labor market, age was used to compensate for that. Age squared accounted for the diminishing returns that come once a worker reaches a certain age.

Higher education is associated with higher earnings. I accounted for this by using multiple dummy variables. Respondents selected the highest level of education they have received, and I grouped the responses into nine categories: no school, grade school dropout, high

school dropout, high school diploma or GED, some college, associate's degree, bachelor's degree, master's or professional degree (e.g. MD, DDS, JD), and doctoral degree. I decided to use nine detailed groups because I thought there may be significantly different coefficients for grade school dropouts and high school dropouts. I also thought that different levels of college education may have significantly different effects on income. Bachelor's degree (BCHDGR) was the omitted educational attainment variable in the regression and all others are dummy variables where the participants received a 1 for the variable that pertains to their highest level of education received.

No school (NOSCHOOL) means the respondent did not answer the question or did not have any formal education. Grade school dropout (GSDRPOUT) means the respondent dropped out of school when in nursery school through eighth grade and high school dropout (HSDRPOUT) means the respondent dropped out when in grades nine through 12. High school diploma or GED (HSDPLM) means the respondent received a high school diploma, GED, or the equivalent. Some college (SMCOLLEGE) means the respondent attended college for less than one year or for more than one year but did not receive a college degree. Associate's degree (AADGR) means the respondent received an associate's degree. Master's degree or professional degree (MSTRDGR) means the respondent received a master's degree or a professional degree beyond a bachelor's degree. Finally, doctoral degree (DOCTDGR) means the respondent received a doctoral degree.

Schreck (2009) included a variable for currently attending school because he believed being enrolled in school takes time away from work. I accounted for current school attendance as well because Schreck found that it significantly lowered earnings, because it has the highest absolute estimated coefficient in his model, and because his theory that attending school takes

time away from work makes sense. I use a dummy variable (SCHOOL) for current school attendance. Respondents get a 1 if they attended school in the past three months. The schooling must lead to a high school diploma or college degree for it to be considered "school."

Marital status (MARST) was included as a dummy variable because being married is associated with higher earnings (Korenman and Neumark 1991). Respondents got a 1 if they were married regardless of if the spouse was present or absent. They got a 0 if they were separated, divorced, widowed, single, or never married. The number of children living in the household (NCHILD) and number of children under five years old living in the household (NCHILDU5) were both included as discrete variables because studies have shown that wages are lower for women with children than for women without children (Budig and England 2001). Step, biological, and adopted children are considered to be the respondent's children. I included both number of children living at home and number of children under five years old living at home because I predicted younger children have greater negative wage effects than children in their teens.

Years in the U.S. (YRSUSA) was used as a discrete variable because the longer people live in a country, the more accustomed they become to the culture which may affect earnings. IPUMS calculates years in the U.S. based off the respondent's year of immigration. Due to a misreport of ages, 42 observations were deleted because their age was 65 but years in the U.S. was greater than that.

Place of birth was included as multiple dummy variables because it is easier for immigrants from countries with similar cultures to the U.S. to immigrant and adapt to life than it is for immigrants from cultures that are very different than the U.S. Like years in the U.S., this may affect immigrant earnings. I grouped places of birth into ten regions: Canada (CNDA), U.S.

territories (USTERR); Europe (EURP), the Middle East (MDEAST); Asia (ASIA); Australia, New Zealand, and Pacific Islands (PCFC); Africa (AFRICA); Mexico (MEXICO); Central and South America (CNTRLSTHAM); and Caribbean and Atlantic Islands (CARIBATL). Canada was used as the omitted birth region variable because of its close proximity to the U.S. The other nine variables were dummy variables where respondents received a 1 for their region of birthplace.

I used multiple dummy variables again to account for where respondents live in the U.S. by using dummy variables for the different regions. I predicted that housing location in the U.S. affects income because different regions may have different costs of living that is reflected through income. There were four census regions: Northeast, Midwest, South, West, and Midwest. The respondents received a 1 for the region variable that their housing unit was in. The Midwest was used as the omitted census region variable. The Northeast region (NEAST) included Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania. The Midwest region (MDWEST) included Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. The South region (SOUTH) included Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma/Indian Territory, and Texas. Finally, the West region (WEST) included Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, and Washington.

I used dummy variables for race because place of birth and race can differ and both may affect earnings. I divided race into four groups: White, Black, Asian, and Other. White (WHITE) was the omitted race variable. Black (BLACK) included Black, African American, and Negro

respondents. Asian (ASIAN) included Chinese, Japanese, Other Asian, and Pacific Islanders. Other (OTHER) includes American Indians, Alaska natives, other races, two or more major races, and blank responses. Respondents received a 1 for the variable of their race.
Finally, U.S. citizenship (CITIZEN) was a dummy variable because this can affect employment opportunities. Chiswick and Miller (2002) found that fluent English speakers receive greater benefits when they are U.S. citizens. Respondents received a 1 if they are a U.S. citizen.

For 2004 and 2014, approximately 56 percent of the sample speaks very good English, 22 percent speaks good English, 16 percent speaks bad English and six percent speaks no English. These percentages are very similar for 2009 and 2014. For 2009, approximately 54 percent of the sample speaks very good English, 22 percent speaks good English, 17 percent speaks bad English, and seven percent speaks no English.

For 2004, 2009, and 2014, 47 percent of the sample are females and the average age of respondents is 43 for 2004, 44 for 2009, and 45 for 2014. The means for the educational attainment variables were very similar for all three years. Approximately two percent of the sample has no schooling, 11 percent dropped out of grade school, ten percent dropped out of high school, and 21 percent received a high school diploma, GED, or the equivalent. Approximately 15 percent of the sample attended some college but have no degree, seven percent have an associate's degree, 19 percent have a bachelor's degree, 12 percent have a master's degree, and three percent have a doctoral degree.

Approximately six percent of the sample is currently attending school for all three years. The percent of married people in the sample decreased over the three years. Approximately 70 percent of the sample is married for 2004, 69 percent for 2009, and 66 percent for 2014. Number of children in the household and number of children under five years old in the household have

both decreased from 2004 to 2014. For 2004, number of children in the household is 1.173 for each person in the sample. That number decreased to 1.129 in 2014. Number of children in the household under five years old decreased from 0.221 in 2004 to 0.179 in 2014. Average years in the U.S. increased by almost one year from 2004 to 2009 and from 2009 to 2014. In 2004, it was approximately 20.6 years, in 2009 approximately 21.5 years, and approximately 22.9 years in 2014.

For housing unit's region in the U.S., the average percent in each region did not change much from year to year. Approximately 23 percent has a housing unit in the Northeast, ten percent in the Midwest, 31 percent in the South, and 36 percent in the West. The average percent of the population in each birth region also did not change much from year to year. Approximately three percent of the sample were born in Canada, four percent were born in a U.S. territory, 14 percent in Europe, two percent in the Middle East, 28 percent in Asia, one percent in the Pacific region, four percent in Africa, 23 percent in Mexico, 13 percent in Central and South America, and eight percent in the Caribbean and Atlantic Islands.

The percent of each race in the sample has stayed almost the same for 2004, 2009, and 2014. Forty-eight percent of the sample is White, eight percent is Black, 26 percent is Asian, and 18 percent is classified as Other race. Finally, the percent of the sample that are U.S. citizens has stayed is approximately 56 percent for 2004 and 2009 and approximately 58 percent for 2014.

V. Results and Discussion

The regression results are given by year and are in Tables 3A, 3B, and 3C on pages 41, 44, and 47. I used robust standard errors and the results were weighted.

English Proficiency Variables

Compared to speaking very good English, immigrants that speak good, bad, and no English earned significantly less wages at the one percent level. Speaking good English compared to very good English lowered wages by 14.9 percent. As expected, speaking bad English compared to very good English lowered wages by more than speaking good English. Speaking bad English compared to very good English lowered wages by 28.2 percent. Wage income was even lower when speaking no English. Speaking no English compared to very good English lowered wage income by 41.2 percent in 2004. For business and farm income, immigrants that speak good, bad, and no English earned less income than immigrants speaking very good English. Speaking good English lowered wages by six percent, but this result was insignificant. Immigrants speaking bad English and no English earned 16 and 57.7 percent less business and farm income than immigrants speaking very good English. Business and farm income was significant at the ten percent level for speaking bad and no English. For investment income in 2004, speaking good, bad, and no English lowered income. However, speaking bad English was the only statistically significant English proficiency variable, and it was significant at the ten percent level. Speaking bad English compared to very good English lowered wages by 26.9 percent. Speaking good English compared to very good English insignificantly lowered business and farm income by 1.9 percent, and speaking no English insignificantly lowered business and farm income by 52 percent compared to speaking very good English.

A possible explanation for the difference in significance between the three sources of income is that speaking good English for business and farm income and for investment income is enough for immigrants to communicate with their employees, brokers, lawyers, etcetera, and those people will do most of the communicating with English speaking clients. I hypothesize that

the opposite is true for immigrants earning wages and salaries. I think they are the ones that communicate with clients, thus there is a significant difference between speaking good English and very good English.

For 2009, speaking good, bad and no English lowered wage income by more than in 2004. In 2009, speaking good English compared to very good English lowered wage income by 17.4. Speaking bad English compared to very good English lowered wage income by 31.5 percent in 2009 compared to 28.2 percent in 2004. Speaking no English compared to very good English lowered wages by 41.5 percent when compared to speaking very good English. These results were all statistically significant at the one percent level. For business and farm income, speaking good English raised income by 1.4 percent. This, however, was not significant at the one, five, or ten percent levels. Speaking bad English and no English were significant at the one percent level. They also negatively affected business and farm income more in 2009 than in 2004. Speaking bad English lowered wages by 14.3 percent and speaking no English lowered business and farm income by 30 percent when compared to speaking very good English. For investment income, English proficiency in 2009 was not statistically significant. In 2004, only speaking bad English was significant. In 2009, speaking good English insignificantly lowered income by 6.9 percent compared to speaking very good English. Speaking bad and no English insignificantly raised investment income by 2.9 and 18.1 percent.

For 2014, English proficiency for wage income was again significant at the one percent level for all levels of proficiency. Speaking good English lowered wage income by 17.8 percent compared to speaking very good English. This effect was only 0.4 percentage points greater than in 2009. Speaking bad English compared to very good English lowered wage income by 29.4 percent which is less than in 2009 and more than in 2004. Finally, negative wage effects for

speaking no English compared to very good English declined from 41 percent in 2004 and 2009 to 38 percent in 2014. Like in 2004 and 2009, business and farm income was only significant for speaking bad and no English. Compared to speaking very good English, speaking bad English lowered business and farm income by 9.1 percent at the five percent level. The negative effects from speaking bad English instead of very good English decreased from 2004 to 2014. Speaking no English compared to very good English lowered business and farm income by 31.5 percent at the one percent level. This effect was much less than in 2004 when business and farm income was 57.7 percent lower when speaking no English compared to very good English. Like in 2009, the English proficiency variables were not statistically significant for investment income. Speaking good, bad, and no English compared to very good English insignificantly lowered investment income by nine, 1.3, and 1.8 percent.

For the English proficiency variables that were statistically significant, the coefficients were all negative which was what I expected since speaking English at a lower level than very well should lower an immigrant's income. I also expected that the negative income effects from English proficiency would be greatest for those speaking no English and smallest for those speaking good English. The results supported this expectation.

Female Variable

For all nine regressions, being a female significantly lowered income at the one percent level. The year and type of income most affected was business and farm income in 2004. Compared to being male, female immigrants earned 62.1 percent less income. The year and type of income least affected by being a female was in 2009 when female immigrants earned 20.3

percent less investment income than male immigrants. The negative income effects were as expected due to the wage gap between males and female (Oaxaca 1973).

Age and Age Squared Variables

All age coefficients were positive as expected. As a worker's age rises, income should rise as well. For all regressions except for 2004 business and farm income where age was not significant, the age coefficients were significant at the one percent level. Income was affected the most in 2014 when age raised investment income by 10.8 percent. Of the coefficients that were significant, income was affected the least in 2004 when age increased business and farm income by 4.4 percent. The coefficients for age squared were either zero or negative as expected. Other than business and farm income and investment income in 2004, age squared was significant at the one percent level. Age squared lowered income the most by 0.1 percent for wage income in 2004, 2009 and 2014, and for investment income in 2014.

Highest Educational Level Attained Variables

The coefficients for highest educational level attained were as expected for wage income. The omitted variable was Bachelor's Degree, and the coefficients were negative for education levels below this and positive for education levels above it. All educational attainment variables were significant at the one percent level for wage income for all three years. Educational attainment was not as significant for business and farm income and investment income as it was for wage income. The coefficients also did not have the expected signs like wage income did.

In 2004, no schooling was the most affected education variable for wage income. Immigrants earned 60 percent less in wage income when they had no schooling compared to

when they had a bachelor's degree. Having a doctoral degree had the greatest positive effects on wage income by raising income 41.9 percent. For business and farm income, educational attainment was only significant for having a master's Degree. If an immigrant had a master's degree, business and farm income was 29.2 percent more than having a bachelor's degree at the one percent level. For investment income, having only a high school diploma versus a bachelor's degree reduced wages by 17 percent at the ten percent level and for an immigrant with a master's degree, investment income was 29.1 percent higher at the five percent level.

In 2009, the expected trend of coefficient signs continued for wage income. No schooling affected wage income the most. This also happened in 2004. Having no schooling compared to a bachelor's degree lowered wages by 62.5 percent. Having a doctoral degree, again, had the greatest positive effects on wage income and raised income by 52.2 percent. For business and farm income, educational attainment was significant for being a grade school dropout, having only a high school diploma, and having a master's degree. Compared to having a bachelor's degree, being a grade school dropout lowered income 8.9 percent, whereas having a high school diploma raised wages by 7.1 percent at the ten percent level. Finally, having a master's degree rather than a bachelor's degree raised business and farm income by 27.3 percent at the one percent level. Investment income in 2009 was significant at the one percent level for all education levels except for having no schooling and having a doctoral degree. Surprisingly, the coefficients for grade school dropout and high school dropout were positive. They increased investment income by 34.5 and 28.5 percent. Having only a high school diploma lowered investment income the most by 21.8 percent

Finally, in 2014, no schooling had the greatest negative effects on wage income by reducing income by 67.1 percent at the one percent level when compared to having a bachelor's

degree. The negative effects from having no schooling compared to a bachelor's degree increased from 2004 to 2014. This shows that, in terms of wage income, the importance from having some schooling increased over the ten year span. The greatest positive effects were again for having a doctoral degree. Having a doctoral degree compared to a bachelor's degree raised wages by 47.3 percent at the one percent level. Business and farm income was no longer significant for having a master's degree. Having only a high school diploma was the only significant educational level attained. Having only a high school diploma raised business and farm income by 9.8 percent at the five percent level compared to having a bachelor's degree. For investment income, educational attainment was significant for having no schooling, being a grade school dropout, being a high school dropout, having an associate's degree, and having a master's degree. Surprisingly, having no schooling and being a grade school and high school dropout compared to having a bachelor's degree raised investment income by 28 and 24.9 percent at the ten percent level and raised income by 47 percent at the one percent level. As expected, having an associate's degree lowered income and having a master's degree raised income compared to having a bachelor's degree. Investment income was 21 percent lower at the five percent level and 22.4 percent higher at the one percent level for having an associate's degree and master's degree.

Perhaps the reason that business and farm income increased significantly when an immigrant had only a high school diploma compared to a bachelor's degree was because they had more years of experience in the labor market. Survey participants could have dedicated more time to their businesses or farms at a younger age by not going to college. This could have made their income higher than someone's that went to college. The reason that investment income was significantly higher for grade school and high school dropouts compared to immigrants with a

bachelor's degree is possibly because school dropouts grew up around investment or because they inherited enough from others that they could drop out of school and make enough money from dividends, interest, and/or estates so they didn't need to continue their education for financial reasons.

School Attendance

Currently attending school compared to not significantly lowered wage and business and farm income for all three years. For 2004, attending school lowered income the greatest for business and farm income. In 2004, business and farm income was lower by 62.1 percent at the one percent level when attending school compared to when not. In 2009, attending school lowered business and farm income by 38.9 percent at the one percent level. Finally, in 2014 business and farm income was lowered the most by 43.7 percent at the one percent level when compared to not attending school. Surprisingly, attending school was only significant for investment income in 2014 when it raised income by 20.6 percent at the ten percent level.

Wage income and business and farm income have results that I expected. I assumed attending school takes away work time from immigrants. Investment income was likely not significant in 2004 and 2009 because immigrants are required to physically attend "work" less for investment income than the other two types of income.

Marital Status

In 2004, marital status was significant at the one percent level only for wage income. Being married compared to not being married significantly increased wage income by 4.6 percent. For 2009, it was significant at the one percent for all three types of income. Income

increased by 5.8 and 8 percent for wage and business and farm income. For investment income, being married lowered wages by 13.4 percent. In 2014, marital status was significant at the one percent level for wage income only. Being married raised wages by 8.5 percent compared to not being married. Higher wage income and business and farm income for married immigrants versus unmarried immigrants can most likely be attributed to the male marital wage premium.

Number of Children in the Household and Number of Children under 5 Years Old in the Household

For each additional child in the household, investment income significantly increased by 9.3 percent at the one percent level in 2004. Income effects were insignificant for wage income and business and farm income in 2004. In 2009, number of own children in the household was significant for all three types of income. An additional child in the household significantly increased wage income by 0.4 percent at the ten percent level. Business and farm income significantly increased by 2.6 percent at the five percent level for each additional child in the household, and investment income was raised significantly by 8.5 percent at the one percent level. Finally, in 2014, number of children in the household was significant for business and farm income and for investment income at the one percent level. Business and farm income increased by 3.9 percent and investment income increased by 17 percent for each additional child in the household.

Number of children under 5 years old in the household was significant at the one percent level for wage income in 2004. Wage income was 2.7 percent higher for each additional child. Children under 5-years-old living in the household was not significant for any of the three types of income in 2009. In 2014, each additional child under 5 significantly raised wage income by

3.1 percent at the one percent level and significantly raised investment income by 9.9 percent at the ten percent level.

The coefficient results for number of children in the household and number of children under 5 years old in the household really surprised me. I assumed that both of the variables would have significant negative coefficients because workers would have more sick days, take more time off, and be less focused on work when they had more children at home, especially when the children were under 5 years old. It is possible that having kids encourages workers to be more productive and responsible because they have a family to provide for. This increase in productivity could make income higher.

Years in the U.S.

Years in the U.S. significantly raised wage income and investment income in 2004. For each year in the U.S., wage income increased by 0.7 percent at the one percent level and investment income also rose by 0.7 percent but at the five percent level. For 2009, wage income increased by 0.6 percent at the one percent level for each year in the U.S. and business and farm income rose by 0.2 percent at the ten percent significance level. Wage income in 2014 was again significantly higher at the one percent level. Like in 2004, wage income increased significantly by 0.7 percent. Business and farm income rose by 0.4 percent at the 5 percent significance level for each year in the U.S.

I was surprised that the wage income effects and business and farm income effects from years in the U.S. were so low. I assumed the longer an immigrant had been in the U.S., then the more culturally-adapted they would be and the higher their wage and business and farm income would be. Although these two types of income significantly rose in 2009 and 2014 and wage

income was significantly higher in 2004, I thought they would rise by greater amounts. It is possible that cultural adaptation simply does not have large effects on wage and business and farm income. It could also be because years in the U.S. increases income at a decreasing rate (Chiswick 1978). This lower effect for immigrants who have been in the U.S. for a longer period of time may lower the coefficient for years in the U.S.

Census Region

Having a housing unit in the Northeast compared to the Midwest increased wage income by 8.3 percent, business and farm income by 33.9 percent, and investment income by 36.6 percent at the one percent level in 2004. Having a housing unit in the South compared to the Midwest was significant only for business and farm income. Being in the South significantly increased business and farm income by 22.9 percent at the five percent level. Having a housing unit in the West compared to the Midwest significantly increased wage income, business and farm income, and investment income by 3.1, 32, and 37 percent at the one percent level. The region that affected wage income and business income the most in 2004 was the Northeast. However, the region that affected investment income the most was the West.

In 2009, wage income was significantly higher at the one percent level when immigrants had a housing unit in the Northeast and West compared to the Midwest. It was higher by 13.6 percent in the Northeast and 5.7 percent higher in the West. Business and farm income was significantly higher at the one percent level for all three regions compared to the Midwest. When being in the Northeast, South, and West, business and farm income was 20.1, 14, and 23.6 percent higher than being in the Midwest. Investment income was significantly higher by 39.6 percent in the Northeast, 15.3 percent in the South, and 45.2 percent in the West compared to the

Midwest at the one percent level. Like 2004, the Northeast was the region that affected wage income the most. In 2009, the West affected business and farm income and investment income more than the other regions.

In 2014, the Northeast was once again the region that affected wage income and business and farm income the most compared to the Midwest. Having a housing unit in the Northeast, South, and West increased wage income by 12.4, 3.3, and 5.8 percent at the one percent level compared to having a housing unit in the Midwest. Business and farm income for the same three regions was 24.5, 19.3, and 21.5 percent higher at the one percent level than in the Midwest. Finally, investment income was significantly higher in the Northeast and West regions but not in the South. By having a housing unit in the Northeast, investment income was 27 percent higher at the one percent level compared to having a housing unit in the Midwest. Investment income was 39.1 percent higher at the one percent level by having a housing unit in the West than in the Midwest. For 2004, 2009, and 2014, investment income increased the most for having a housing unit in the West rather in one of the other regions.

I was surprised that the results showed investment income was increased the greatest by having a housing unit in the West. I assumed that this would be true for the Northeast region because that is where New York is and a lot of investment activity takes place. Silicon Valley in California may have an effect on this with new companies starting up and investors in the West investing in them and turning around and making high dividends.

Birth Region

For 2004 wage income, all birth region variables were significant except for being born in Europe and being born in the Pacific region. All significant variables had negative coefficients

which was expected because the omitted birth region variable was Canada. The birth region that affected wage income the most in 2004 was U.S. territories and the region that affected wage income the least was Central and South America. Being born in a U.S. territory compared to Canada lowered wage income by 20.6 percent and being born in Central and South America lowered wage income by 9.3 percent. For business and farm income, birth region was only significant for being born in the Middle East. Compared to being born in Canada, being born in the Middle East increased business and farm income by 44.7 percent at the five percent level. For investment income in 2004, being born in a U.S. territory, the Middle East, and the Pacific region was significant. Being born in a U.S. territory lowered investment income by 62.2 percent at the one percent level compared to being born in Canada. Being born in the Middle East or the Pacific region actually significantly raised investment income by 41.9 percent and 58.3 percent at the five percent level. These are the only two birth regions for 2004 that significantly raised income.

Birth region effects for wage income in 2009 were similar to the effects in 2004 but in 2009, being born in Europe was significant. Being born in the Pacific region compared to Canada was the only birth region variable that was insignificant for wage income. Like 2004, being born in a U.S. territory had the greatest negative effects on wage income. In 2009, wage income was 29 percent lower for immigrants born in a U.S. territory compared to immigrants born in Canada. For 2009, being born in Europe had the lowest effect on wage income by lowering wages 7.5 percent. For business and farm income, the effects of being born in a region other than Canada were again only significant for being born in the Middle East. Being born in the Middle East compared to Canada increased business and farm income by 21.9 percent at the ten percent level in 2009, and it increased it by 44.7 percent at the five percent level in 2004. For

investment income, being born in a U.S. territory, the Middle East, and a Caribbean or Atlantic Island was significant at the one percent level. Investment income was significantly lower by 36.1 percent when born in a U.S. territory compared to being born in Canada. The other significant birth regions increased investment income. Being born in the Middle East increased investment income by 32.9 percent compared to being born in Canada and being born on a Caribbean or Atlantic Island increased investment income by 31.4 percent.

In 2014, wage income was again significant for all birth regions. Unlike in 2004 and 2009, being born in the Pacific Region was significant in 2014. Like the prior two years, the significant coefficients were all negative and being born in a U.S. territory had the greatest effects. Being born in a U.S. territory compared to Canada lowered wage income by 32.5 percent. Being born in the Pacific region had the smallest wage effects a lowered wages by 8.2 percent compared to being born in Canada. Business and farm income was significant at the ten percent level for immigrants born in a U.S. territory and in the Middle East. In the previous two years, business and farm income was only significantly affected by being born in the Middle East. Compared to being born in Canada, business and farm income was significantly lower by 25.1 percent when born in a U.S. territory and was significantly higher by 22.8 percent when born in the Middle East. The Middle East was the only birth region that was statistically significant for business and farm income for 2004, 2009, and 2014. Investment income was significantly lower when born in a U.S. territory, Europe, and Asia compared to being born in Canada. It was significantly higher being born in the Middle East. The greatest negative investment income effects were when born in a U.S. territory. Being born in a U.S. territory lowered investment income by 54.1 percent when compared to being born in Canada. For 2004,

2009, and 2014, being born in the Middle East significantly increased income and being born in a U.S. territory significantly lowered investment income compared to being born in Canada.

The coefficients for birth region for wage income were as I expected. For all three years, the coefficients were negative. I predicted they would be negative when compared to being born in Canada because this region is the most like the U.S., so cultural adaptation should be easiest for immigrants from those regions thus making all the birth region coefficients negative. However, I did not predict that the Pacific region would be insignificant for wage income for any year. I was surprised that being born in Asia significantly lowered business and farm income in 2004. I assumed that being born in Asia would significantly raise business and farm income since the variable for being born in Asia includes immigrants born in the Indian subcontinent. It is possible that Asian immigrants are less accustomed than Canadian immigrants for farming crops grown in the U.S. This could lead to Canadian immigrants having higher farm income than Asian immigrants.

Race

Being Asian or Other race compared to being White significantly affected wage income at the five percent level for 2004. Being Asian significantly increased wage income by 5.5 percent and being classified as Other race significantly lowered wage income by 2.8 percent. For business and farm income, race was not significant. Finally, being Black or Asian compared to being White significantly lowered investment income in 2004. Being Black compared to White lowered investment income by 38.6 percent at the five percent level and being Asian significantly lowered investment income by 38.8 percent at the one percent level.

For 2009 wage income, being Black compared to White did not significantly affect wage income. Being an Asian immigrant compared to being White significantly lowered wage income by 7.6 percent at the ten percent level and being classified as Other race significantly lowered wage income by 1.6 percent at the five percent level when compared to being a White immigrant. For 2009 business and farm income, being Black significantly lowered wages by 13.6 percent compared to being White. Like 2004, being Black or Asian significantly lowered investment income. Being Black compared to White significantly lowered investment income by 64.2 percent and being Asian significantly lowered investment income by 36.6 percent.

Unlike in 2004 and 2009, wage income in 2014 was significantly lower for Black immigrants compared to White immigrants. Wage income was again affected for Asian immigrants and immigrants classified as Other race. Being Black compared to White significantly lowered wages by 2.8 percent and being classified as Other race compared to White significantly lowered wages by 3.3 percent. Being Asian once again significantly increased wage income. In 2014, it increased by 8.5 percent at the one percent level compared to being White. The effects of being Asian on business and farm income for 2014 are no longer significant and the effects of being classified as Other race were significant. Being a Black immigrant compared to a White immigrant significantly lowered income by 25.5 percent at the one percent level and being classified as Other race significantly lowered business and farm income by 9.6 percent at the one percent level. For investment income, being Black, being Asian and being classified as Other race significantly lowered income. Being Black compared to White significantly lowered income by 33.6 percent at the five percent level. Being Asian compared to White significantly lowered investment income by 18.5 percent and being classified as Other race significantly lowered investment income by 16.1 percent, both at the one percent level.

I incorrectly assumed that all three types of income would be significantly lower for all race variables because they were being compared to being White. I assumed racial inequality and discrimination would lead to White immigrants receiving higher income for all types for all three years. It is possible that the reason Asian immigrants receive higher wage income than White immigrants is because Asian immigrants, on average, have a higher level of education than the average for people residing in the U.S. For example, half of Asian adults older than 25 had a bachelor's degree or higher in 2014 compared to 29 percent of the immigrant population and 30 percent of adults born in the U.S. (Zong 2016). It is possible that race was not significant in 2004 for business and farm income because immigrant employers are less likely to discriminate against their own race.

Citizenship

For 2004, U.S. citizenship significantly increased wage income and investment income at the one percent level. Wage income was significantly higher by 11.8 percent and investment income was significantly higher by 23 percent for being a U.S. citizen compared to not. Citizenship was not statistically significant for business and farm income in 2004. For 2009, U.S. citizenship was significant for all three types of income at the one percent level. It increased investment income the most by 22.5 percent and business and farm income the least by 8.4 percent. For 2014, being a U.S. citizen again significantly increased all three types of income at the one percent level. Being a citizen compared to not increased wage income by 11.9 percent, business and farm income by 4.1 percent, and investment income by 24.3 percent. I expected U.S. citizenship to significantly increase the three types of income for all three years. I assumed this was important to employers and investment brokers.

VI. Conclusion

In conclusion, previous literature focusing on English proficiency and earnings found a positive relationship between English proficiency and U.S. immigrant earnings (Carnevale et al. 2001, Chiswick and Miller 2002, Schreck 2009, Jongsung 2011, Zhen 2015). My study is different than previous literature because I look at English proficiency's effects on wage, business and farm, and investment income. Previous literature focuses on only wage income. I used data from the American Community Survey for the years 2004, 2009, and 2014 to run a log-linear Ordinary Least Squares econometric model on English proficiency and its effects on immigrants' income. I looked at the effects on immigrants' income from speaking good, bad, and no English compared to speaking very good English.

The results in this study were similar to the findings in the previous literature. Speaking good, bad, or no English in 2004, 2009, and 2014 significantly lowered wage income when compared to speaking very good English. Speaking bad or no English compared to very good English significantly lowered business and farm income for 2004, 2009, and 2014. Finally, speaking bad English compared to very good English only significantly lowered investment income in 2004 and English proficiency did not significantly affect investment income in 2009 and 2014.

Based off these results, U.S. immigrants should be encouraged to enroll in English classes and the U.S. should make an effort to provide easily accessible and affordable English programs so that immigrants can better perform in the labor market and can better help the U.S. economy.

Future studies could take into account an immigrant's occupation as this affects wage income. Future studies could also take into account the country where immigrants get their

education. Some countries' education programs are more rigorous than others. Taking only educational attainment into account, two immigrants with the same level of education may not be perfect substitutes if they get their education in different countries.

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Table 1. Variables

Dependent Variable	***Notation***	***Description****	***Expected Coefficient Sign***
Wage and salary income	INCWAGE	Total pre-tax wage and salary income received as an employee	
Business and farm income	INCBUSFM	Net pre-income-tax self-employment income from a business, professional practice, or farm	
Interest, dividend, and rental income	INCINVST	Total pre-tax money received or lost from an estate or trust, interest, dividends, royalties and rents	
*All income was received in the 12 months before the survey was taken			
Independent Variable			
Speaks English very well	VRGDENG	Respondent speaks English very well	Omitted variable
Speaks English well	GDENG	Respondent speaks English well	-
Does not speak English well	BDENG	Respondent speaks English but not very well	-
Does not speak English at all	NOENG	Respondent does not speak English	-
Female sex	FEM	Respondent classifies with the female sex	-
Age	AGE	Respondent's age as of his last birthday	+
Age squared	AGESQ	Respondent's age, squared	+/-
No schooling received	NOSCHOOL	Respondent received no formal education	-
Grade school dropout	GSDRPOUT	Respondent dropped out of school when in nursery school through 8^{th} grade	-
High school dropout	HSDRPOUT	Respondent dropped out of school when in 9^{th} grade through 12^{th} grade	-

High school diploma	HSDPLM	Highest level of education received is a high school diploma, GED, or other equivalent	-
Some college	SMCOLLEGE	Respondent completed some college but did not receive a degree	-
Associate art's degree	AADGR	Highest level of education received is an associate art's degree	-
Bachelor's degree	BCHDGR	Highest level of education received is a bachelor's degree	Omitted variable
Master's degree	MSTRDGR	Highest level of education received is a master's degree or a professional degree beyond a bachelor's degree	+
Doctoral degree	DOCTDGR	Highest level of education received is a doctoral degree	+
School attendance	SCHOOL	Currently attending school that leads to a high school diploma or college degree	-
Marital status	MARST	Respondent is married	+
Children in the household	NCHILD	Number of the respondent's own children living in the household	-
Children under 5 years old in the household	NCHILDU5	Number of respondent's children age 4 and under living in the household	-
Years since immigration	YRSUSA	Continuous years respondent has lived in the U.S.	+
Canada	CNDA	Respondent was born in Canada	Omitted variable
U.S. Territory	USTERR	Respondent was born in a U.S territory	-
Europe	EURP	Respondent was born in Europe	+/-

U.S. Territory	USTERR	Respondent was born in a U.S territory	-
Middle East	MDEAST	Respondent was born in the Middle East	-
Asia	ASIA	Respondent was born in Asia	+/-
Pacific	PCFC	Respondent was born in Australia, New Zealand, or a Pacific Island	+/-
Africa	AFRICA	Respondent was born in Africa	-
Mexico	MEXICO	Respondent was born in Mexico	-
Central or South America	CNTRLSTHAM	Respondent was born in Central or South America	-
Caribbean or Atlantic Islands	CARIBATL	Respondent was born on a Caribbean or Atlantic Island	-
Midwest Region	MDWEST	Respondent's housing unit was located in the Midwest region of the U.S.	Omitted variable
Northeast Region	NEAST	Respondent's housing unit was located in the Northeast region of the U.S.	+
South Region	SOUTH	Respondent's housing unit was located in the South region of the U.S.	+
West Region	WEST	Respondent's housing unit was located in the West region of the U.S.	+
White	WHITE	Respondent is white	Omitted variable
Black	BLACK	Respondent is black, African American, or Negro	-
Asian	ASIAN	Respondent is Chinese, Japanese, Asian, or Pacific Islander	-

Other	OTHER	Respondent is American Indian, Alaska native, two or more race, other race, did not respond to the question	-
Citizenship	CITIZEN	Respondent is a U.S. citizen	+

Table 2. Variable summary statistics

	2004	*2009*	*2014*
Dependent Variable	***Mean (Standard Deviation)***	***Mean (Standard Deviation)***	***Mean (Standard Deviation)***
LNINCWAGE	10.133 (1.061)	10.241 (1.035)	10.307 (1.077)
LNINCBUSFM	9.433 (1.675)	9.478 (1.503)	9.449 (1.631)
LNINCINVST	6.594 (2.350)	7.145 (2.283)	7.280 (2.610)
Independent Variable			
VRGDENG	0.559 (0.496)	0.537 (0.499)	0.559 (0.497)
GDENG	0.218 (0.413)	0.222 (0.415)	0.215 (0.411)
BDENG	0.162 (0.368)	0.174 (0.379)	0.164 (0.370)
NOENG	0.062 (0.241)	0.067 (0.250)	0.062 (0.241)
FEM	0.467 (0.499)	0.468 (0.499)	0.468 (0.499)
AGE	43.041 (10.780)	43.913 (10.865)	44.904 (11.047)
AGESQ	1969.153 (962.601)	2046.402 (975.718)	2138.391 (1001.224)
NOSCHOOL	0.022 (0.147)	0.032 (0.175)	0.038 (0.192)
GSDRPOUT	0.115 (0.319)	0.120 (0.325)	0.103 (0.304)
HSDRPOUT	0.104 (0.305)	0.101 (0.301)	0.094 (0.291)
HSDPLM	0.208 (0.406)	0.202 (0.402)	0.206 (0.404)
SMCOLLEGE	0.147 (0.355)	0.150 (0.357)	0.148 (0.355)
AADGR	0.066 (0.249)	0.067 (0.249)	0.068 (0.252)
BCHDGR	0.189 (0.392)	0.186 (0.389)	0.192 (0.394)
MSTRDGR	0.121 (0.326)	0.117 (0.322)	0.125 (0.330)
DOCTDGR	0.027 (0.162)	0.024 (0.154)	0.026 (0.159)
SCHOOL	0.072 (0.259)	0.061 (0.239)	0.059 (0.236)
MARST	0.704 (0.457)	0.685 (0.465)	0.663 (0.473)
NCHILD	1.173 (1.275)	1.181 (1.256)	1.129 (1.230)
NCHILDU5	0.221 (0.524)	0.216 (0.515)	0.179 (0.470)
YRSUSA	20.563 (13.232)	21.534 (13.293)	22.892 (13.549)
NEAST	0.232 (0.422)	0.213 (0.409)	0.218 (0.413)
MDWEST	0.124 (0.329)	0.098 (0.297)	0.096 (0.295)
SOUTH	0.290 (0.454)	0.322 (0.467)	0.324 (0.468)
WEST	0.354 (0.478)	0.367 (0.482)	0.362 (0.480)
CNDA	0.033 (0.179)	0.025 (0.156)	0.022 (0.148)

USTERR	0.040 (0.195)	0.038 (0.190)	0.034 (0.181)
EURP	0.181 (0.385)	0.147 (0.354)	0.138 (0.345)
MDEAST	0.019 (0.138)	0.017 (0.130)	0.019 (0.137)
ASIA	0.285 (0.451)	0.273 (0.445)	0.283 (0.450)
PCFC	0.007 (0.080)	0.006 (0.074)	0.006 (0.077)
AFRICA	0.035 (0.184)	0.035 (0.183)	0.040 (0.197)
MEXICO	0.207 (0.405)	0.247 (0.431)	0.241 (0.428)
CNTRLSTHAM	0.144 (0.318)	0.132 (0.338)	0.133 (0.340)
CARIBATL	0.079 (0.270)	0.081 (0.273)	0.083 (0.276)
WHITE	0.480 (0.500)	0.489 (0.500)	0.483 (0.500)
BLACK	0.072 (0.258)	0.078 (0.268)	0.082 (0.274)
ASIAN	0.269 (0.444)	0.258 (0.437)	0.268 (0.443)
OTHER	0.179 (0.383)	0.175 (0.380)	0.167 (0.373)
CITIZEN	0.555 (0.497)	0.559 (0.497)	0.580 (0.494)
Number of Observations (N)	74,673	224,473	238,955
	Total N=538,101		

Table 3A. 2004 OLS Regression Results†

Dependent Earnings Variable Used	***LNINCWAGE***	***LNINCBUSFM***	***LNINCINVST***
GDENG	-0.149*** (0.012)	-0.060 (0.067)	-0.019 (0.074)
BDENG	-0.282*** (0.015)	-0.160* (0.085)	-0.269* (0.141)
NOENG	-0.412*** (0.023)	-0.577*** (0.139)	-0.520 (0.389)
FEM	-0.468*** (0.009)	-0.621*** (0.052)	-0.237*** (0.056)
AGE	0.071*** (0.004)	0.026 (0.022)	0.079*** (0.026)
AGESQ	-0.001*** (0.000)	0.000 (0.000)	0.000 (0.000)
NOSCHOOL	-0.604*** (0.038)	-0.141 (0.183)	0.220 (0.342)
GSDRPOUT	-0.578*** (0.020)	-0.134 (0.122)	0.091 (0.181)
HSDRPOUT	-0.543*** (0.019)	0.031 (0.103)	0.058 (0.148)
HSDPLM	-0.454*** (0.015)	0.075 (0.082)	-0.170* (0.098)
SMCOLLEGE	-0.324*** (0.016)	-0.092 (0.100)	-0.026 (0.095)
AADGR	-0.232*** (0.022)	-0.027 (0.100)	-0.139 (0.125)
MSTRDGR	0.280*** (0.017)	0.292*** (0.095)	0.249*** (0.071)
DOCTDGR	0.419*** (0.034)	0.114 (0.177)	0.070 (0.107)
SCHOOL	-0.334*** (0.021)	-0.621*** (0.110)	-0.148 (0.125)

MARST	0.046*** (0.010)	0.031 (0.060)	-0.020 (0.070)
NCHILD	-0.006 (0.004)	0.021 (0.021)	0.093*** (0.030)
NCHILDU5	0.027*** (0.009)	-0.016 (0.055)	0.063 (0.062)
YRSUSA	0.007*** (0.001)	0.000 (0.003)	0.007** (0.003)
NEAST	0.083*** (0.015)	0.339*** (0.098)	0.366*** (0.087)
SOUTH	-0.019 (0.014)	0.229** (0.099)	0.125 (0.089)
WEST	0.031** (0.014)	0.320*** (0.095)	0.370*** (0.087)
USTERR	-0.206*** (0.042)	-0.206 (0.296)	-0.623*** (0.199)
EURP	0.005 (0.035)	0.035 (0.151)	-0.012 (0.129)
MIDEAST	-0.123*** (0.047)	0.447** (0.187)	0.419** (0.213)
ASIA	-0.094** (0.042)	0.302 (0.187)	0.003 (0.163)
PCFC	0.062 (0.066)	-0.431 (0.528)	0.584** (0.295)
AFRICA	-0.175*** (0.046)	-0.190 (0.196)	-0.302 (0.209)
MEXICO	-0.125*** (0.037)	-0.136 (0.162)	-0.217 (0.193)
CNTRLSTHAM	-0.093** (0.036)	-0.034 (0.159)	0.189 (0.166)
CARIBATL	-0.113*** (0.040)	0.105 (0.170)	0.149 (0.199)
BLACK	0.023 (0.024)	-0.060 (0.144)	-0.386** (0.180)
ASIAN	0.055** (0.026)	-0.198 (0.138)	-0.388*** (0.118)
OTHER	-0.028** (0.013)	-0.023 (0.081)	0.219 (0.142)

CITIZEN	0.118*** (0.011)	0.046 (0.057)	0.230*** (0.071)
Statistical Significance	*= p < 0.1	** p < 0.05	*** p < 0.01
Intercept	9.034	8.753	3.159
R-squared	0.2390	0.0753	0.0979
Root MSE	0.90867	1.6468	2.2721
F-value	378.43	12.39	23.82
Number of Observations (N)	63,026	6,798	10,417
†The standard errors are robust standard errors and the results are weighted			

Table 3B. 2009 OLS Regression Results†

Dependent Earnings Variable Used	***LNINCWAGE***	***LNINCBUSFM***	***LNINCINVST***
GDENG	-0.174*** (0.006)	0.014 (0.031)	-0.069 (0.044)
BDENG	-0.315*** (0.008)	-0.143*** (0.033)	0.029 (0.080)
NOENG	-0.415*** (0.011)	-0.299*** (0.048)	0.181 (0.170)
FEM	-0.412*** (0.005)	-0.515*** (0.024)	-0.203*** (0.033)
AGE	0.065*** (0.002)	0.044*** (0.010)	0.087*** (0.015)
AGESQ	-0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
NOSCHOOL	-0.626*** (0.015)	-0.057 (0.060)	-0.150 (0.167)
GSDRPOUT	-0.589*** (0.010)	-0.089* (0.046)	0.345*** (0.116)
HSDRPOUT	-0.566*** (0.010)	-0.053 (0.045)	0.285*** (0.100)
HSDPLM	-0.501*** (0.008)	0.071* (0.040)	-0.218*** (0.065)
SMCOLLEGE	-0.368*** (0.009)	-0.034 (0.047)	-0.154*** (0.058)
AADGR	-0.234*** (0.010)	0.069 (0.058)	-0.152** (0.074)
MSTRDGR	0.346*** (0.009)	0.273*** (0.051)	0.188*** (0.040)
DOCTDGR	0.522*** (0.014)	-0.172 (0.107)	0.056 (0.056)
SCHOOL	-0.343*** (0.011)	-0.389*** (0.069)	-0.055 (0.075)
MARST	0.058*** (0.005)	0.080*** (0.027)	0.134*** (0.041)
NCHILD	0.004* (0.002)	0.026** (0.011)	0.085*** (0.018)

NCHILDU5	0.008 (0.005)	-0.029 (0.026)	0.014 (0.039)
YRSUSA	0.006*** (0.000)	0.002* (0.001)	0.000 (0.002)
NEAST	0.136*** (0.009)	0.201*** (0.051)	0.396*** (0.056)
SOUTH	-0.003 (0.009)	0.140*** (0.049)	0.153*** (0.056)
WEST	0.057*** (0.009)	0.236*** (0.048)	0.452*** (0.053)
USTERR	-0.290*** (0.022)	-0.210 (0.132)	-0.361*** (0.139)
EURP	-0.075*** (0.018)	0.057 (0.094)	-0.027 (0.076)
MIDEAST	-0.170*** (0.028)	0.219* (0.114)	0.329*** (0.126)
ASIA	-0.154*** (0.021)	0.119 (0.119)	0.060 (0.096)
PCFC	-0.0311 (0.046)	-0.343 (0.221)	0.142 (0.183)
AFRICA	-0.212*** (0.023)	0.023 (0.127)	0.191 (0.125)
MEXICO	-0.170*** (0.018)	-0.090 (0.094)	0.127 (0.104)
CNTRLSTHAM	-0.153*** (0.018)	0.065 (0.096)	0.023 (0.096)
CARIBATL	-0.164*** (0.020)	0.085 (0.101)	0.314*** (0.111)
BLACK	-0.001 (0.012)	-0.136** (0.066)	-0.642*** (0.107)
ASIAN	0.077*** (0.014)	0.015 (0.083)	-0.366*** (0.071)
OTHER	-0.016** (0.006)	-0.019 (0.030)	-0.114 (0.079)
CITIZEN	0.139*** (0.006)	0.084*** (0.028)	0.225*** (0.042)
Statistical Significance	*= $p < 0.1$	** $p < 0.05$	*** $p < 0.01$

Intercept	9.278	8.270	3.614
R-squared	0.2775	0.0715	0.0753
Root MSE	0.8503	1.4029	2.2068
F-value	1576.85	35.18	45.75
Number of Observations (N)	189,223	20,369	26,462
†The standard errors are robust standard errors and the results are weighted			

Table 3C. 2014 OLS Regression Results†

Dependent Earnings Variable Used	***LNINCWAGE***	***LNINCBUSFM***	***LNINCINVST***
GDENG	-0.176*** (0.007)	0.034 (0.032)	-0.090 (0.059)
BDENG	-0.293*** (0.008)	-0.091** (0.038)	-0.013 (0.099)
NOENG	-0.382*** (0.012)	-0.315*** (0.050)	-0.018 (0.185)
FEM	-0.434*** (0.005)	-0.496*** (0.026)	-0.312*** (0.043)
AGE	0.081*** (0.002)	0.049*** (0.011)	0.108*** (0.020)
AGESQ	-0.001*** (0.000)	0.00*** (0.000)	-0.001*** (0.000)
NOSCHOOL	-0.671*** (0.015)	0.029 (0.066)	0.280* (0.169)
GSDRPOUT	-0.629*** (0.011)	0.013 (0.053)	0.249* (0.146)
HSDRPOUT	-0.622*** (0.011)	-0.065 (0.052)	0.470*** (0.114)
HSDPLM	-0.537*** (0.008)	0.098** (0.046)	0.084 (0.083)
SMCOLLEGE	-0.422*** (0.009)	-0.009 (0.049)	-0.102 (0.075)
AADGR	-0.305*** (0.011)	-0.038 (0.061)	-0.210** (0.097)
MSTRDGR	0.331*** (0.009)	0.078 (0.056)	0.224*** (0.054)
DOCTDGR	0.473*** (0.016)	-0.011 (0.117)	-0.036 (0.080)
SCHOOL	-0.333*** (0.013)	-0.437*** (0.091)	0.206* (0.112)
MARST	0.085*** (0.006)	0.00 (0.028)	-0.013 (0.053)
NCHILD	-0.003 (0.002)	0.039*** (0.011)	0.170*** (0.022)

NCHILDU5	0.031*** (0.006)	-0.040 (0.029)	0.099* (0.053)
YRSUSA	0.007*** (0.000)	0.004** (0.001)	-0.002 (0.002)
NEAST	0.124*** (0.010)	0.245*** (0.062)	0.270*** (0.077)
SOUTH	0.033*** (0.009)	0.193*** (0.059)	0.052 (0.076)
WEST	0.058*** (0.009)	0.215*** (0.058)	0.392*** (0.073)
USTERR	-0.325*** (0.025)	-0.251* (0.131)	-0.541*** (0.186)
EURP	-0.119*** (0.021)	0.124 (0.100)	-0.183* (0.105)
MIDEAST	-0.245*** (0.029)	0.228* (0.118)	0.334** (0.163)
ASIA	-0.186*** (0.024)	0.180 (0.117)	-0.244* (0.130)
PCFC	-0.082* (0.042)	-0.031 (0.235)	0.269 (0.248)
AFRICA	-0.237*** (0.025)	0.103 (0.126)	0.083 (0.160)
MEXICO	-0.182*** (0.021)	-0.023 (0.099)	-0.100 (0.130)
CNTRLSTHAM	-0.162*** (0.021)	0.042 (0.099)	0.100 (0.121)
CARIBATL	-0.223*** (0.022)	0.045 (0.105)	0.127 (0.153)
BLACK	-0.028** (0.012)	-0.256*** (0.066)	-0.336** (0.133)
ASIAN	0.085*** (0.015)	-0.024 (0.078)	-0.185* (0.097)
OTHER	-0.033*** (0.007)	-0.095*** (0.035)	-0.161* (0.090)
CITIZEN	0.119*** (0.006)	0.041 (0.032)	0.243*** (0.055)
Statistical Significance	*= $p < 0.1$	** $p < 0.05$	*** $p < 0.01$

Intercept	8.967	8.134	3.405
R-squared	0.2666	0.0510	0.0537
Root MSE	0.89304	1.515	2.5496
F-value	1459.86	26.59	24.01
Number of Observations (N)	200,664	21,312	22,812
†The standard errors are robust standard errors and the results are weighted			