

EMPLOYMENT PATTERNS OF FOREIGN-BORN IMMIGRANTS IN THE UNITED STATES: THE ROLE OF ENGLISH PROFICIENCY

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Abstract

This paper studies the effects of English proficiency on employment of U.S. foreign-born immigrants, using data from the 2001 American Community Survey (ACS). It shows that English proficiency plays an important role in immigrants' employment and its effects on employment patterns across genders are different. Probit regressions show that immigrants with a higher level of English proficiency are more likely to participate in the labor force and find employment. Such likelihood is greater in each category of English proficiency for female immigrants. However, the penalty for being deficient in English in each category is greater in finding employment than in participating in the labor force. Such penalties for female immigrants are much greater than male immigrants at each English proficiency level. There is a complementary relationship between English proficiency and skill levels in terms of employment. High-skilled immigrants benefit more from greater English proficiency than their low-skilled counterparts in finding employment. Such benefits are greater for immigrant women than men at each English proficiency category. However, being proficiency in English is not an important determinant of participation and employment for the low-skilled immigrants. Using Ordered Probit techniques, the results indicate that English proficiency does not seem to be an important contributor for immigrants' work status improvement, especially for male immigrants' work status. The Multinomial Logit analysis is applied to examine how English proficiency affects immigrants' occupational choices. The expected risk of staying in the higher-ranking jobs is higher for those with high English proficiency. In addition, immigrants with more educational attainment are more likely to choose science/academic occupations over managerial/professional/technical occupations. Such a pattern remains for both genders.

JEL Classification: J15, J24

Keywords: English proficiency, foreign-born immigrants, employment, occupational choices

1. Introduction

The Immigration and Nationality Act Amendments of 1965 and the Immigration Act of 1990 have contributed to increased immigration from abroad, due to their abolishing of the national-origin quota system and raising the annual cap on immigration. The statistics from the U.S. Census Bureau tell that the foreign-born population¹ of the United States has been increasing in size and proportion in the total population during the recent four decades: from 9.6 million or 4.7 percent in 1970, to 14.1 million or 6.2 percent in 1980, 19.8 million or 7.9 percent in 1990, and 31.1 million or 11.1 percent in 2000². At the same time, there have been significant changes in the constitution of the foreign-born population in the U.S. since 1970³. From 1850 to 1960, European countries and Canada were the leading countries of birth among the foreign-born population. However, according to the report from 2000 U.S. Census Bureau⁴, between 1970 and 2000, the share of immigrants from European countries dropped sharply from 62 percent to 15 percent; while the share of immigrants from Latin America and Asia rose dramatically from 19 percent to 51 percent and 9 percent to 25 percent, respectively. In particular in the year of 2000, the foreign-born population was dominated by the young and middle-aged (25-44). Moreover, 79 percent of foreign-born residents in the U.S. were in the working age (18-64), compared with 60 percent of their native counterparts.

¹ The foreign-born population refers to people who were not U.S. citizen at birth, including those who have become U.S. citizens through naturalization. The foreign-born population includes immigrants, legal non-immigrants (e.g., refugees and persons on student or work visas), and persons illegally residing in the United States. The native-born population refers to people who were born in the U.S. and its unincorporated territories (Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands), or abroad of a U.S. citizen parent or parents.

² Place of Birth of the Foreign-Born Population:2009, American Community Survey Briefs, October 2010, By Elizabeth M. Grieco and Edward N.Travelyan

³ See Table 1.

⁴ Chapter 17. Adding Diversity from Abroad: The Foreign-Born Population,2000 U.S. Census Bureau Populatio Profile of the United States: 2000 (Internet release) 17-1

Assimilation into U.S. society has been a goal for most immigrants. Becoming fluent in English is an important aspect of the assimilation experience. Proficiency in English is expected to not only help them become assimilated into American culture, but also bring them great economic returns. Examining how English proficiency affects immigrants' labor market outcomes has "implications about the income and poverty levels of immigrant families, and ultimately about the social and cultural integration of those families to the host country society and is thus important for understanding the immigrant's overall socioeconomic well-being" (Gonzalez 799).

Table 1. Leading Countries of Birth of the Foreign-Born Population in Thousands: 1970-2000

| 1970 | 1980 | 1990 | 2000 |
|-----------------------|-----------------------|-----------------------|---------------------------|
| Italy 1,009 | Mexico 2,199 | Mexico 4,298 | Mexico 7,841 |
| Germany 833 | Germany 849 | China 921 | China 1,391 |
| Canada 812 | Canada 843 | Philippines 913 | Philippines 1,222 |
| Mexico 760 | Italy 832 | Canada 745 | India 1,007 |
| United Kingdom 686 | United Kingdom 669 | Cuba 737 | Vietnam 863 |
| Poland 548 | Cuba 608 | Germany 712 | Cuba 952 |
| Soviet Union 463 | Philippines 501 | United Kingdom 640 | El Salvador 765 |
| Cuba 439 | Poland 418 | Italy 581 | Korea 701 |
| Ireland 251 | Soviet Union 406 | Korea 568 | Dominican Republic 692 |
| Austria 214 | Korea 290 | Vietnam 543 | Canada 678 |

Source: U.S. Census Bureau, 2001, Table 3-1 and Figure 3-1.

Immigrants' labor market outcomes can be affected by English-language skills in various ways. First, immigrants with greater proficiency in English are likely to be more productive in the labor market. English-language proficiency has been treated as an important

form of human capital. According to Berndt and Showalter (2009), human capital is the wealth or net worth of capital investments embodied in an individual. The human capital theory indicates that deficient English-language skills lower an immigrant's productivity and as a result decrease the chance of being employed or higher wages. A basic premise of economic analysis is that U.S. immigrants seek to maximize their net English language investment returns. Learning a language can be considered as investment, as it incurs current costs to reap expected higher benefits or returns in future years. Human capital theory suggests that those who seek to improve English- language skills expect the financial gain is greater than their learning costs today. In addition, poor English-language skills may impede human capital accumulation, such as education acquirement, which also leads to lower earnings. Second, foreign-born immigrants with English deficiency are more likely to be confined to ethnic enclaves, and may suffer from reduced chances to participate in the labor market. Third, immigrants with English proficiency would increase efficiency not only in transferring labor market experiences gained in their home countries to the United States, but also in the "acquisition of other destination-specific skills relevant for the labor market" (B.R. Chiswick 254).

Using data from 2001 American Community Survey (ACS), this research investigates the effects of English language proficiency on labor force participation and employment of foreign-born immigrants in the U.S. labor market, with a focus on gender comparison.

2. Literature Review

Immigration has been a popular issue with fundamental economic and political effects. Although there is a substantial historical and theoretical literature on this issue, empirical

analyses are less common in earlier years. In particular, research on the economic impact of language for immigrants has started growing until the late 1970s. This review will start from the typical findings of selected literature about language proficiency's effect on employment, and then subsequently move to the developed empirical economic models that are in light of the findings.

Despite of the great volume of research on language proficiency's effects on earnings among immigrants, the analysis of relating its effects on employment has been relatively less conducted. Kossoudji (1988) is one of the early attempts at investigating the effect of language ability on earnings in the context of occupations among Hispanic and Asian male immigrants in the U.S. labor market, i.e. occupation-specific earnings and occupational mobility. The results indicate that deficiency in oral English is more costly for Hispanic immigrants than their East Asian counterparts, which reduces earnings and alters occupation choices. Hispanic immigrants who are not fluent in English are more likely to be pushed down to lower ranking occupations, such as service and laboring work. However, Asian immigrants are less affected by English proficiency when choosing occupations. Those with deficiency in oral English tend to become self-employed or work in managerial and operative positions. Focusing on Mexican male immigrants only, Planas (2006) shows that without proficiency in English, immigrants are less likely to find higher-ranking jobs such as professional or management positions. On the other hand, Chiswick and Taengnoi (2007) study how English proficiency and country of origin affect the high-skilled (with at least a college degree and being in professional and managerial occupations) male immigrants' occupational choices in the U.S., using data from the 2000 U.S. census and the Occupational

Information Network (O*NET). The results indicate that high-skilled immigrants who can speak English well are more likely to find employment that requires English proficiency; the greater linguistic distance their mother tongue is from English, the greater probability to be in occupations that address English proficiency. Chiswick and Miller (2009) aim to find out whether the earnings premium for immigrants with English proficiency comes from within or beyond the original occupation, as immigrants with greater proficiency in English tend to move to more favorable occupations that better match their English skills. They find a strong complementary matching relationship among English proficiency, occupation choice and earnings. In addition to the major finding of Chiswick and Taengnoi (2007) that Immigrants with greater proficiency in English tend to be in positions that require English fluency more, they further find that the greater proficiency is required, the higher the earnings premium will be.

Similar research has been conducted in other countries as well. Berman et al. (2000) examine the economic return on Hebrew acquisition of Soviet immigrants in Israel. They find a positive interaction between Hebrew acquisition and occupation levels. Greater fluency in Hebrew can significantly contribute to earnings growth for immigrants in higher-ranking occupations (i.e. programmers and computer technicians); however, it has no significant impact on earnings growth for immigrants in lower-ranking jobs (i.e. construction workers and gas station attendants). Using data for the UK, Shields and Price (2002) explore how English language proficiency affects ethnic minority immigrants' occupational success in English metropolitan areas. They find that becoming fluent in English an efficient way for immigrants to move up the occupational ladder from their current lower positions. Dustmann

and Fabbri (2003) examine the effect of English language proficiency on earnings and employment probabilities of non-white immigrants in the UK as well. English proficiency is found to be associated with higher employment probabilities and earnings. Aldashev et al. (2008) study the relationship between male foreigners' German language usage and their labor market outcome (i.e. participation, employment and earnings) in western Germany. The results confirm the contribution a good command of German can make to finding white-collar occupations. However, German proficiency is found not to affect earnings directly once occupations are controlled. Gonzalez (2010) simultaneously modeled earnings and occupational choices for immigrants in Spain. The results indicate that immigrants with a higher level of Spanish proficiency and educational attainment are more likely to find full-time jobs, while such positive effects do not apply for earnings.

When occupations are taken into consideration in examining the language proficiency's effects on immigrants' labor market outcomes, simple regressions such as Ordinary Least Squares (OLS) have been widely used. For example, Gonzalez (2010) takes control of the effects of occupation by incorporating the variables of occupation sectors into the human capital earnings function. OLS regressions have also been applied to explore what factors can increase/decrease the probabilities of finding different types of employment, such as in Kossoudji (1988), Berman et al. (2000), Planas (2006) and Gonzalez (2010).

With respect to sophisticated regressions, Chiswick and Miller (2009), for example, employ the two-step approach from Dickens and Katz (1987) to explore a more reliable relationship between earnings and English proficiency requirements of occupations. Their basic earnings model $\ln Y_i = \alpha + \text{PROF}_i + X_i \gamma + \text{ER}_i \delta + \varepsilon_i$ includes the respondent's

self-reported English proficiency ($PROF_i$), the requirement of English proficiency in the occupation (ER_i) and a set of other human capital and demographic variables (X_i) like in the previous studies. They extend the benchmark model in three ways. The first extension includes occupational fixed effects; the second one involves an interaction term between English requirement variable and self-reported English proficiency variable; and the third one is to examine whether there is a nonlinear relationship between earnings and the English requirement of occupations. First, the earnings equation $\ln Y_i = \alpha + X_i \gamma + PROF_i \delta + OCC_i \phi + \varepsilon_i$ is estimated. Then the occupation fixed effects are regressed on the English requirements variables: $\phi_j = \alpha_0 + \alpha_1 ER_j + \varphi_j$. In addition, Dustmann and Fabbri (2003) combine the propensity score matching approach and two-stage approach to address the potential endogeneity and measurement error problems of language proficiency variables that may bias immigrants' employment outcomes. Aldashev et al. (2008) use bivariate probit models to deal with the problem of the self-selection in participation as well as employment.

In sum, previous studies have established the key result that language proficiency is an important component of human capital that contributes to earnings and employment. However, most studies have been limited to male immigrants only. A comparable analysis for female immigrants is needed to enrich the literature by displaying a complete picture. Also, incorporating women into study generally involves further analysis of their labor participation and family effects on language practice, which make research more fruitful. At the same time, very limited studies in the context of the United States are based on data collected after 2000. Therefore, this research helps fill such gaps by providing a more complete picture by including female immigrants, and using relatively newer data.

3. Data

The data come from the 2001 American Community Survey (ACS) sample in the Integrated Public Use Microsample Series USA (IPUMS USA)⁵ database. The ACS is a project of the U.S. Census Bureau that has replaced the decennial census as the key source of information about American population and housing characteristics. It is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data for the nation, states, congressional districts, counties, places, and other localities every year. It has an annual sample size of about 3 million addresses across the United States and Puerto Rico and includes both housing units and group quarters (e.g., nursing facilities and prisons). The 2001 dataset is compiled from a 0.4% sample of the population enumerated in the census, which includes abundant information on immigrants. Other than the usual demographic and economic variables such as age, gender, race, education, and wages, detailed information such as immigration status, year of arrival, source country, and most importantly, information about the ability to converse in English is also collected. For this study, only the foreign subsample will be used.

The population of interest is the foreign-born immigrants aged 25 to 60 and thus of prime labor force age. Those who were born in unincorporated territories of the United States are considered foreign-born as well, considering the fact that English is not the dominant language in many of those areas.

⁵ Steven Ruggles, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. Integrated Public Use Microdata Series: Version 4.0 [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor], 2008.

Measurement

The key dependent variable “earnings” is defined as the total wage and salary income of the immigrant in the previous year of the survey. The variable is log transformed in order to reduce skewness. For independent variables, this research includes some demographic variables that have been commonly incorporated in the study of this area, such as Chiswick and Miller (2002). For example, factors such as educational attainment, labor market experiences, duration in the United States, birthplaces, gender, ethnicity, marital status, U.S. citizenship and English-language proficiency are controlled. English-language proficiency is the variable of primary interest, in which the degree of proficiency is defined as the self-reported ability to speak English. In the surveys, respondents were first asked whether they spoke only English at home. Those who spoke a language other than English at home were required to report how well they spoke English. The answers could be speaking only English, speaking very well, speaking well, not speaking well and not at all. To reduce the number of thresholds, English-language proficiency is in fewer categories with several forms for different purposes. Specifically, it is transformed into three dummy variables (proficient, intermediate and poor) that divide the whole sample into four categories, with “fluent” being the benchmark group. Alternatively, a variable “English” is constructed to denote English proficiency in its ordinal scale (fluent>proficient>intermediate>poor). In addition, it is also useful to collapse the four-category English-language proficiency variable into two categories in other empirical analysis: those who speak only English or speak it very well (being fluent) versus all other groups (being non-fluent).

Other key variables for this analysis are constructed and explained as below⁶.

Key Dependent Variables

Earnings (LNWAGE): The natural logarithm of the sum of pre-tax wage and salary income received as an employee in the previous year of the survey.

Participation (PART): A dichotomous variable set equal to one if the individual is in the labor force and zero otherwise

Employed (EMP): A dichotomous variable set equal to one if the individual is in the labor force and zero otherwise

Key Explanatory Variables

Education(ED): Respondent's educational attainment, as measured by the highest year of school or degree completed. As it is reported in categories rather than specific years from the survey and some categories just provide the intervals of education levels. For such categories being unable to convey the accurate years of education, midpoints are assigned and reasonable guesses are applied for each range as the value of years of education. For other categories with more accurate information, the corresponding values are assigned.

Table 2. Educational Attainment for Foreign-Born U.S. Immigrants

| Educational Attainment Categories | Years of Education |
|--|---------------------------|
| No Schooling Completed | 0 |
| Nursery School to Grade 4 | 2 |
| Grade 5 or 6 | 5.5 |
| Grade 7 or 8 | 7.5 |
| Grade 9 | 9 |
| Grade 10 | 10 |
| Grade 11 | 11 |
| 12th Grade, No Diploma | 11 |

⁶ Descriptions are from, in whole or in part, the 2001 ACS of IPUMS USA.

| | |
|--|------|
| High School Graduate or GED | 12 |
| 1 or More Years of College Credit, No Degree | 13.5 |
| Associate's Degree, Occupational Program | 14 |
| Associate's Degree, Academic Program | 14 |
| Bachelor's Degree | 16 |
| Master's Degree | 18 |
| Professional Degree Beyond a Bachelor's Degree | 19 |
| Doctoral Degree | 21 |

Source: American Community Survey, 2001, IPUMS; 1980, 1990, 2000 U.S. Census of Population and Housing, 5% Sample, IPUMS.

Experience (EX): This refers to the total potential labor market experience (as the survey provides no direct measure), and the number of years that an individual is assumed to be working after his/her school completion. It is computed as age minus years of education minus 6 (i.e. = AGE-ED-6 or zero, whichever is bigger). Its quadratic specification (EXSQ) is also used.

Years since Migration (YSM): Length of stay in the United States since immigration. It is calculated by the year of survey minus the year of immigration.

Marital Status (MARRIED): This is a binary variable that separates individuals who are never married/single (equal to 0) from all other marital statuses (married, spouse present; married absent; separated; divorced; widowed).

Number of Children under Age 5 (NCHLD5): The number of own children (including biological, adopted and step-children) under age 5.

Ethnicity (BLACK): This is a binary variable, which is set to one if the individual is Black and set to zero for all other ethnic groups (White; Hispanics; Asian).

Citizenship (CITIZEN): This is a dichotomous variable, which is equal to one if the individual is awarded U.S. citizenship, and is equal to zero for those who have not yet

become U.S. citizens.

Birthplace: A number of regions of birth where English is not prevalently spoken (i.e. English is neither the official nor the dominant languages in most of the regions), are included to control the unmeasured differences of immigrants, such as their differences in the culture and background. There are eleven dummies: East Asia, Southeast Asia, South Asia, Other Asia, Eastern and Southern Europe, Western Europe, Northern Europe, Africa, Central and South America, Middle East, and Oceania. In particular, Asia and Europe are further divided, considering a great diversity exists among different parts of them. The subdivisions of Asia and Europe are proved to be reasonable for regressions (either English proficiency is controlled or not controlled) via F tests. Two forms of F tests are conducted. One takes the form of $H_0: \beta_{\text{eastasia}} = \beta_{\text{southeastasia}} = \beta_{\text{southasia}} = \beta_{\text{othersia}}$ against $H_a: \beta_{\text{eastasia}} \neq \beta_{\text{southeastasia}} \neq \beta_{\text{southasia}} \neq \beta_{\text{othersia}}$, which tests the equality of coefficients, i.e. whether these subdivided Asian birthplaces have the same impact on earnings of immigrants. The other is to test the joint statistical significance of a subset of birthplaces of Asia, which takes the form of $H_0: \beta_{\text{eastasia}} = 0, \beta_{\text{southeastasia}} = 0, \beta_{\text{southasia}} = 0$ against $H_a: \text{at least one is nonzero}$. Similar tests apply to Europe. Namely, $H_0: \beta_{\text{eastern\&southerneurope}} = \beta_{\text{westerneurope}} = \beta_{\text{northerneurope}}$ against $H_a: \beta_{\text{eastern\&southerneurope}} \neq \beta_{\text{westerneurope}} \neq \beta_{\text{northerneurope}}$; and $\beta_{\text{eastern\&southerneurope}} = 0, \beta_{\text{westerneurope}} = 0$ against $H_a: \text{at least one is nonzero}$. Because the values of p from both terms above across all the earnings regressions in the analysis are much smaller than 0.05, so their null hypothesis at the 5% significance level is rejected. In other words, there are statistically significant differences among the coefficients of Asian birthplaces or European birthplaces, and the coefficients of

the subsets of birthplaces of Asia or Europe are jointly statistically significant at the 0.05 level. Therefore, it proves to be reasonable to further divide Asia and Europe into different parts for the empirical analysis. In addition, immigrants from English-speaking countries (where English is both the official and dominant language) are considered as the benchmark group. In other words, individuals from the benchmark group must speak fluent English.

Age at Arrival (AGE_ARRIVE): Calculated by [age-(the year of survey-year of arrival)].

Experience in Home Countries (EX1): Calculated by {the year of migration-[(2001-age) + years of education + 6]}

South (SOUTH)⁷: A dichotomous variable, equal to one if the primary location of workplace is in a Southern state and zero otherwise.

West (WEST)⁸: A dichotomous variable, equal to one if the primary location of workplace is in a Western state and zero otherwise.

Midwest (MIDWEST)⁹: A dichotomous variable, equal to one if the primary location of workplace is in a Midwestern state and zero otherwise.

Managerial/Professional/Technical (MGNT_PROF_TECH): A dichotomous variable, equal to one if the individual is in managerial, professional or technical occupations.

Science/Academics (SCI_ACA): A dichotomous variable, equal to one if the individual is in occupations that are science or academics related.

Service (SERVICE): A dichotomous variable, equal to one if the individual is in service occupations.

⁷ Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas

⁸ Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington

⁹ Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota

Sales/Administration (SALES_ADMIN): A dichotomous variable, equal to one if the individual is in occupations that are sales or administration related.

Laborer (LABORER): A dichotomous variable, equal to one if the individual is in blue-collar occupations, such as manufacturing, mining, building, construction, mechanical work, maintenance, operation and repair.

The sample consists of 68,206 foreign-born immigrants (32,989 males and 35,217 females) between the ages of 25 and 60, who are employed, unemployed or non-participants at the time the survey was taken. Non-participants refer to immigrants who are not in the labor force, such as stay-at-home mothers and discouraged workers. Those who are employed in current workplaces outside of the U.S. are excluded from the sample.

Tables 3-5 provide the summary statistics of selected characteristics for the whole sample, male immigrants and female immigrants, respectively, with a distinction between non-participants and people who are unemployed and employed. The three tables tell that employed immigrants are overwhelmed both in the whole and separate samples and the share of employed for women (59.3%) is less than men (82.7%). Moreover, immigrants being in managerial/ professional/technical occupations are dominant (31.1%), followed by service, laborer, sales/administration and science/academics. Male immigrants are more likely to be in managerial /professional /technical and laborer occupations. Contrastingly, females tend to be in positions that are sales/administration, service and science/academics related. In addition, 35.5% of the immigrants are working in the West, followed by 26.7% in the South, 25.7% in the Northeast and 12.1% in the Midwest. A similar pattern holds for male workers but is slightly different for female workers—most female workers work in the West (35.4%),

followed by the Northeast (26.9%), South (26.1%) and Midwest (11.6%).

The statistics also show that immigrants who are employed are more likely to be fluent in English, no matter whether the focus is on the whole sample or the separate gender groups. For the whole sample, about 55.6% (i.e.1-0.226-0.16-0.058) of the employed immigrants speak fluent English, such shares in the unemployed and non-participants are about 42%. Among the male immigrants, about 53.5% of the employed are fluent in English, compared with 43.6% for the unemployed and 44.63% for the non-participants. The same trend holds for the female immigrants. Female immigrants with jobs are even more likely to speak fluent English, compared with their male counterparts. Whereas about 58.4% of the employed are fluent in English, such shares are 40.5% for the unemployed and 41.3% for the non-participants.

Table 3. Means and Standard Deviations of Selected Variables (Whole Sample)

| Variable | Non-Part. | Unemp. | Emp. |
|-----------------|--------------------|--------------------|--------------------|
| PROFICIENT | 0.235 (0.424) | 0.237 (0.425) | 0.226 (0.418) |
| INTERMEDIATE | 0.224 (0.417) | 0.227 (0.419) | 0.16 (0.366) |
| POOR | 0.120 (0.325) | 0.116 (0.321) | 0.058 (0.234) |
| AGE | 41.18 (10.46) | 39.71 (9.63) | 40.60 (9.46) |
| AGE_ARRIVE | 25.46 (11.21) | 24.14 (11.04) | 23.31 (10.83) |
| ED | 11.80 (4.61) | 11.52 (4.75) | 13.04 (4.33) |
| EX | 23.38 (11.96) | 22.19 (10.96) | 21.57 (10.41) |
| EXSQ | 689.74 (618.41) | 612.67 (547.85) | 573.5 (494.03) |
| YSM | 15.72 (12.41) | 15.57 (11.30) | 17.30 (11.50) |
| YSMSQ | 394.69 (532.61) | 370.19 (472.59) | 431.52 (511.99) |

| | | | |
|-----------------|------------------|------------------|------------------|
| FE | 0.749 (0.434) | 0.520 (0.50) | 0.433 (0.495) |
| MARRIED | 0.877 (0.328) | 0.812 (0.391) | 0.835 (0.371) |
| NCHLT5 | 0.299 (0.590) | 0.240 (0.535) | 0.225 (0.515) |
| CITIZEN | 0.398 (0.489) | 0.371 (0.483) | 0.476 (0.499) |
| BLACK | 0.047 (0.211) | 0.096 (0.295) | 0.079 (0.270) |
| HISPANIC | 0.394 (0.489) | 0.454 (0.498) | 0.369 (0.482) |
| ASIAN | 0.311 (0.463) | 0.247 (0.432) | 0.294 (0.456) |
| E.ASIA | 0.120 (0.325) | 0.091 (0.288) | 0.106 (0.307) |
| S-E. ASIA | 0.124 (0.330) | 0.104 (0.305) | 0.121 (0.326) |
| S. ASIA | 0.066 (0.248) | 0.050 (0.218) | 0.063 (0.243) |
| OTHER ASIA | 0.005 (0.068) | 0.006 (0.078) | 0.003 (0.056) |
| E. & S. EUROPE | 0.088 (0.283) | 0.086 (0.281) | 0.091 (0.288) |
| W. EUROPE | 0.041 (0.199) | 0.024 (0.015) | 0.040 (0.195) |
| N. EUROPE | 0.004 (0.065) | 0.004 (0.064) | 0.005 (0.070) |
| AFRICA | 0.026 (0.159) | 0.047 (0.211) | 0.037 (0.19) |
| C. & S. AMERICA | 0.432 (0.495) | 0.523 (0.50) | 0.431 (0.495) |
| MIDDLE EAST | 0.031 (0.174) | 0.025 (0.156) | 0.029 (0.168) |
| OCEANIA | 0.007 (0.086) | 0.005 (0.074) | 0.008 (0.091) |
| SOUTH | | | 0.267 (0.443) |
| WEST | | | 0.355 (0.479) |
| MIDWEST | | | 0.121 (0.327) |
| MGNT_PROF_TECH | | | 0.310 (0.463) |

| | | | |
|--------------|--------|-------|---------|
| SCI_ACA | | | 0.061 |
| | | | (0.239) |
| SERVICE | | | 0.272 |
| | | | (0.445) |
| SALES_ADMIN | | | 0.126 |
| | | | (0.331) |
| LABORER | | | 0.231 |
| | | | (0.422) |
| Observations | 17,123 | 2,930 | 48,153 |

Source: American Community Survey, 2001, IPUMS.

Table 4. Means and Standard Deviations of Selected Variables (Male)

| Variable | Non-Part. | Unemp. | Emp. |
|--------------|-----------|----------|----------|
| PROFICIENT | 0.269 | 0.249 | 0.235 |
| | (0.443) | (0.433) | (0.424) |
| INTERMEDIATE | 0.207 | 0.219 | 0.169 |
| | (0.405) | (0.414) | (0.375) |
| POOR | 0.0777 | 0.096 | 0.0614 |
| | (0.268) | (0.295) | (0.240) |
| AGE | 41.94 | 40.03 | 40.14 |
| | (10.63) | (9.83) | (9.44) |
| AGE_ARRIVE | 25.15 | 23.64 | 23.46 |
| | (11.48) | (11.24) | (10.71) |
| ED | 12.04 | 11.53 | 12.95 |
| | (4.82) | (4.91) | (4.55) |
| EX | 23.91 | 22.50 | 21.19 |
| | (12.27) | (11.02) | (10.31) |
| EXSQ | 722.08 | 627.38 | 555.20 |
| | (635.26) | (554.78) | (488.15) |
| YSM | 16.79 | 16.39 | 16.68 |
| | (12.52) | (11.49) | (11.34) |
| YSMSQ | 438.63 | 400.61 | 406.79 |
| | (558.19) | (488.74) | (496.05) |
| MARRIED | 0.785 | 0.767 | 0.824 |
| | (0.41) | (0.423) | (0.381) |
| NCHLT5 | 0.20 | 0.241 | 0.263 |
| | (0.483) | (0.545) | (0.557) |
| CITIZEN | 0.436 | 0.39 | 0.438 |
| | (0.496) | (0.488) | (0.496) |
| BLACK | 0.0618 | 0.087 | 0.071 |
| | (0.241) | (0.283) | (0.256) |
| HISPANIC | 0.373 | 0.450 | 0.402 |
| | (0.484) | (0.498) | (0.490) |

| | | | |
|-----------------|---------|---------|---------|
| ASIAN | 0.333 | 0.240 | 0.272 |
| | (0.471) | (0.427) | (0.445) |
| E.ASIA | 0.105 | 0.082 | 0.093 |
| | (0.307) | (0.274) | (0.291) |
| S-E. ASIA | 0.164 | 0.108 | 0.099 |
| | (0.371) | (0.311) | (0.299) |
| S. ASIA | 0.059 | 0.050 | 0.075 |
| | (0.235) | (0.218) | (0.263) |
| OTHER ASIA | 0.007 | 0.005 | 0.003 |
| | (0.080) | (0.070) | (0.052) |
| E. & S. EUROPE | 0.099 | 0.095 | 0.090 |
| | (0.298) | (0.293) | (0.286) |
| W. EUROPE | 0.033 | 0.022 | 0.035 |
| | (0.179) | (0.147) | (0.183) |
| N. EUROPE | 0.004 | 0.005 | 0.005 |
| | (0.063) | (0.070) | (0.070) |
| AFRICA | 0.032 | 0.050 | 0.040 |
| | (0.176) | (0.219) | (0.195) |
| C. & S. AMERICA | 0.414 | 0.507 | 0.454 |
| | (0.493) | (0.50) | (0.50) |
| MIDDLE EAST | 0.0335 | 0.028 | 0.036 |
| | (0.180) | (0.164) | (0.186) |
| OCEANIA | 0.007 | 0.0085 | 0.0081 |
| | (0.082) | (0.092) | (0.089) |
| SOUTH | | | 0.273 |
| | | | (0.445) |
| WEST | | | 0.356 |
| | | | (0.479) |
| MIDWEST | | | 0.126 |
| | | | (0.331) |
| MGNT_PROF_TECH | | | 0.328 |
| | | | (0.469) |
| SCL_ACA | | | 0.045 |
| | | | (0.207) |
| SERVICE | | | 0.254 |
| | | | (0.435) |
| SALES_ADMIN | | | 0.071 |
| | | | (0.257) |
| LABORER | | | 0.302 |
| | | | (0.459) |
| Observations | 4,301 | 1,406 | 27,282 |

Source: American Community Survey, 2001, IPUMS.

Table 5. Means and Standard Deviations of Selected Variables (Female)

| Variable | Non-Part. | Unemp. | Emp. |
|-----------------|--------------------|--------------------|---------------------|
| PROFICIENT | 0.223 (0.416) | 0.226 (0.419) | 0.214 (0.410) |
| INTERMEDIATE | 0.230 (0.421) | 0.234 (0.423) | 0.148 (0.355) |
| POOR | 0.134 (0.341) | 0.135 (0.342) | 0.054 (0.226) |
| AGE | 40.93 (10.39) | 39.42 (9.45) | 41.21 (9.44) |
| AGE_ARRIVE | 25.57 (11.12) | 24.60 (10.84) | 23.10 (10.98) |
| ED | 11.73 (4.53) | 11.50 (4.60) | 13.15 (4.01) |
| EX | 23.20 (11.85) | 21.91 (10.91) | 22.06 (10.53) |
| EXSQ | 678.89 (612.30) | 599.11 (541.21) | 597.42 (500.617) |
| YSM | 15.36 (12.0) | 14.82 (11.06) | 18.11 (11.65) |
| YSMSQ | 379.95 (510.66) | 342.12 (455.54) | 463.85 (530.39) |
| MARRIED | 0.908 (0.289) | 0.854 (0.354) | 0.850 (0.357) |
| NCHLT5 | 0.336 (0.618) | 0.240 (0.525) | 0.174 (0.449) |
| CITIZEN | 0.385 (0.487) | 0.353 (0.478) | 0.526 (0.499) |
| BLACK | 0.042 (0.20) | 0.104 (0.306) | 0.090 (0.287) |
| HISPANIC | 0.401 (0.49) | 0.458 (0.498) | 0.326 (0.469) |
| ASIAN | 0.303 (0.460) | 0.255 (0.436) | 0.323 (0.468) |
| E.ASIA | 0.125 (0.331) | 0.10 (0.30) | 0.122 (0.327) |
| S-E. ASIA | 0.111 (0.314) | 0.10 (0.30) | 0.149 (0.356) |
| S. ASIA | 0.068 (0.252) | 0.051 (0.219) | 0.048 (0.213) |
| OTHER ASIA | 0.004 (0.064) | 0.007 (0.085) | 0.004 (0.061) |
| E. & S. EUROPE | 0.084 (0.278) | 0.079 (0.269) | 0.093 (0.291) |

| | | | |
|-----------------|---------|---------|---------|
| W. EUROPE | 0.044 | 0.026 | 0.046 |
| | (0.206) | (0.158) | (0.209) |
| N. EUROPE | 0.004 | 0.003 | 0.005 |
| | (0.065) | (0.057) | (0.070) |
| AFRICA | 0.024 | 0.043 | 0.034 |
| | (0.153) | (0.204) | (0.182) |
| C. & S. AMERICA | 0.438 | 0.537 | 0.40 |
| | (0.496) | (0.50) | (0.49) |
| MIDDLE EAST | 0.0305 | 0.0223 | 0.021 |
| | (0.172) | (0.148) | (0.142) |
| OCEANIA | 0.0076 | 0.0026 | 0.009 |
| | (0.087) | (0.051) | (0.093) |
| SOUTH | | | 0.261 |
| | | | (0.439) |
| WEST | | | 0.354 |
| | | | (0.478) |
| MIDWEST | | | 0.116 |
| | | | (0.32) |
| MGNT_PROF_TECH | | | 0.287 |
| | | | (0.452) |
| SCI_ACA | | | 0.081 |
| | | | (0.273) |
| SERVICE | | | 0.297 |
| | | | (0.457) |
| SALES_ADMIN | | | 0.197 |
| | | | (0.398) |
| LABORER | | | 0.139 |
| | | | (0.345) |
| <hr/> | | | |
| Observations | 12,822 | 1,524 | 20,871 |
| <hr/> | | | |

Source: American Community Survey, 2001, IPUMS.

Tables 6-9 present the distributions of English proficiency across occupations and races. Interestingly, the occupation patterns vary across Hispanics, Asians, Blacks and Whites within the same levels of English proficiency. Among immigrants who speak fluent English, Hispanics mainly dominate in service (27.5%), followed by managerial/professional/technical occupations (26.8%) and laborer (23.4%); Blacks have a similar trend except that the third dominant occupation is sales and administration related. However, Asians and Whites who

are fluent in English have different occupational patterns from the above two groups both dominate in managerial/professional/technical occupations (54.4% and 45.9%, respectively).

Asians and Whites differ in their following dominant occupations. Among Asians with English fluency, the second dominant occupations are service related and the third science/academics- related; among Whites with English fluency, the second dominant occupations are sales/administration-related and the third service-related.

Among immigrants who speak proficient English, Hispanics heavily dominate in service and laborer occupations (37.9% and 37.6%, respectively), while Blacks mainly concentrate in service occupations (46.5%). However, Asians and Whites still dominate in managerial/professional/technical occupations (36.1% and 29.3%, respectively).

More unified distributions of occupation exist among immigrants who speak intermediate and poor English. All the four ethnicities dominate in service and laborer occupations, although their ranks slightly differ when immigrants with an intermediate level of English are taken into consideration. Interestingly, immigrants who are poor in English across the four ethnicities follow the same pattern of occupations: laborer occupations are dominant, followed by service occupations.

Table 6. Distribution of English Proficiency across Occupations and Race: Hispanics

| | MGNT_PROF_TECH | SCI_ACA | SERVICE | SALES_ADMIN | LABORER | OBS |
|---------------------|------------------|------------------|------------------|------------------|------------------|-------|
| FLUENT | 0.268 (0.443) | 0.066 (0.248) | 0.275 (0.447) | 0.157 (0.364) | 0.234 (0.424) | 6,009 |
| PROFICIENT | 0.126 (0.332) | 0.028 (0.165) | 0.379 (0.485) | 0.092 (0.288) | 0.376 (0.484) | 4,447 |
| INTERMEDIATE | 0.056 (0.23) | 0.007 (0.085) | 0.431 (0.495) | 0.049 (0.217) | 0.456 (0.498) | 4,904 |
| POOR | 0.031 (0.74) | 0.003 (0.05) | 0.453 (0.498) | 0.033 (0.18) | 0.48 (0.50) | 2,400 |

Source: American Community Survey, 2001, IPUMS. Note: Standard deviations in parentheses.

Table 7. Distribution of English Proficiency across Occupations and Races: Asian

| | MGNT_PROF_TECH | SCI_ACA | SERVICE | SALES_ADMIN | LABORER | OBS |
|---------------------|------------------|------------------|------------------|------------------|------------------|-------|
| FLUENT | 0.544 (0.498) | 0.083 (0.275) | 0.143 (0.35) | 0.141 (0.348) | 0.089 (0.285) | 8,083 |
| PROFICIENT | 0.361 (0.48) | 0.064 (0.245) | 0.245 (0.43) | 0.147 (0.354) | 0.184 (0.387) | 3,929 |
| INTERMEDIATE | 0.199 (0.399) | 0.026 (0.158) | 0.345 (0.476) | 0.112 (0.316) | 0.318 (0.466) | 1,868 |
| POOR | 0.139 (0.347) | 0.018 (0.134) | 0.366 (0.483) | 0.062 (0.242) | 0.414 (0.493) | 273 |

Source: American Community Survey, 2001, IPUMS. Note: Standard deviations in parentheses.

Table 8. Distribution of English Proficiency across Occupations and Races: Black

| | MGNT_PROF_TECH | SCI_ACA | SERVICE | SALES_ADMIN | LABORER | OBS |
|---------------------|------------------|-------------------|------------------|------------------|------------------|-------|
| FLUENT | 0.304 (0.46) | 0.072 (0.259) | 0.353 (0.478) | 0.148 (0.355) | 0.123 (0.329) | 3,078 |
| PROFICIENT | 0.198 (0.399) | 0.038 (0.191) | 0.465 (0.499) | 0.131 (0.337) | 0.168 (0.375) | 475 |
| INTERMEDIATE | 0.052 (0.222) | 0.0142 (0.118) | 0.585 (0.494) | 0.071 (0.257) | 0.278 (0.449) | 212 |
| POOR | 0.085 (0.282) | 0.043 (0.204) | 0.340 (0.479) | 0.064 (0.247) | 0.468 (0.504) | 47 |

Source: American Community Survey, 2001, IPUMS. Note: Standard deviations in parentheses.

Table 9. Distribution of English Proficiency across Occupations and Races: White

| | MGNT_PROF_TECH | SCI_ACA | SERVICE | SALES_ADMIN | LABORER | OBS |
|---------------------|------------------|------------------|------------------|------------------|------------------|-------|
| FLUENT | 0.459 (0.498) | 0.104 (0.305) | 0.157 (0.363) | 0.162 (0.368) | 0.119 (0.324) | 9,832 |
| PROFICIENT | 0.293 (0.455) | 0.060 (0.237) | 0.261 (0.439) | 0.129 (0.336) | 0.257 (0.437) | 2,118 |
| INTERMEDIATE | 0.126 (0.332) | 0.020 (0.138) | 0.353 (0.478) | 0.092 (0.29) | 0.409 (0.492) | 768 |
| POOR | 0.116 (0.322) | 0.027 (0.162) | 0.321 (0.469) | 0.063 (0.243) | 0.473 (0.050) | 112 |

Source: American Community Survey, 2001, IPUMS.

Note: Standard deviations in parentheses.

4. Methods and Results

1) *Participation and Employment Regression Analysis*

Table 10 presents the outcomes (marginal effects) of probit analysis in order to show

the major determinants of labor force participation among immigrants. Separate probit regressions for male and female immigrants are conducted for comparison.

When immigrants' English proficiency is not controlled (i.e. columns 1,3 and 5), the results show that immigrants awarded U.S. citizenship, with a higher educational attainment, longer labor market experiences and length of stay in the U.S. are more likely to participate in the labor force. In particular, an additional year of education increases the probability of female's labor participation by 1.2%, which is higher than that of male immigrants (by 0.2%). At the same time, obtaining U.S. citizenship makes female immigrants more likely to participate in the labor force (by 4.6%); however, citizenship is not an important determinant of male immigrants' labor participation. Interestingly, marriage is positively associated with participation in the labor force for male immigrants while negatively (3.6% more likely); however, it is negatively associated with labor participation for female (8.3% less likely). Having children under age 5 does not have an impact on male immigrants' participation. In contrast, having one more child under age 5 makes female immigrants 13.4% less likely to enter the labor force.

When English proficiency is controlled (i.e. columns 2, 4 and 6), the impacts of the above factors on labor force participation tend to decrease except for marriage and number of children under age 5. This indicates that English proficiency plays an important role in labor force participation. In particular, immigrants with a higher level of English proficiency are more likely to participate in the labor force. Among immigrant women, those who are proficient, intermediate and poor in English are respectively 5.9%, 10.1% and 14.5%, less likely than their fluent counterparts to participate in the labor force. However, immigrant men

who speak intermediate English are more likely to participate than those who speak proficient English.

Table 11 presents the outcomes (marginal effects) of probit analysis in order to show the major determinants of employment among immigrants. Again, separate probit regressions for male and female immigrants are conducted for comparison. U.S. citizenship, educational attainment, labor market experiences and length of stay in the U.S. contribute to the likelihood of finding employment. Other patterns are similar to those from Table 10 as well.

Most importantly, the penalty for being deficient in English in each category is greater in finding employment than in participating in the labor force. In particular, such penalties for female immigrants are much greater than male immigrants in each English proficiency level, compared with their fluent counterparts. Among immigrant women, those who are proficient, intermediate and poor in English are respectively 6.6%, 11.1% and 16.1%, less likely than their fluent counterparts to find employment. The corresponding statistics among male immigrants are 3%, 2.7% and 1.9%.

Table 10. Labor Force Participation Probit Regressions

| Variables | All | All | Male | Male | Female | Female |
|--------------|----------|----------|----------|----------|----------|----------|
| PROFICIENT | | -0.047* | | -0.024* | | -0.059* |
| | | (-10.14) | | (-4.93) | | (-8.13) |
| INTERMEDIATE | | -0.067* | | -0.018* | | -0.101* |
| | | (-12.18) | | (-2.93) | | (-11.83) |
| POOR | | -0.096* | | -0.006 | | -0.145* |
| | | (-12.02) | | (-0.68) | | (-12.08) |
| ED | 0.007* | 0.005* | 0.002* | 0.002* | 0.012* | 0.008* |
| | (14.49) | (9.60) | (3.87) | (3.23) | (14.84) | (9.56) |
| EX | 0.007* | 0.008* | 0.005* | 0.005* | 0.006* | 0.008* |
| | (10.25) | (11.77) | (6.83) | (7.26) | (6.03) | (9.56) |
| EXSQ | -0.0002* | -0.0002* | -0.0002* | -0.0002* | -0.0002* | -0.0002* |
| | (-16.60) | (-17.36) | (-11.71) | (-12.00) | (-10.73) | (-11.51) |
| YSM | 0.010* | 0.009* | 0.006* | 0.005* | 0.014* | 0.012* |
| | (20.81) | (18.21) | (10.67) | (10.25) | (17.45) | (15.05) |

| | | | | | | |
|--------------|----------|----------|----------|----------|----------|----------|
| YMSQ | -0.0002* | -0.0002* | -0.0001* | -0.0001* | -0.0002* | -0.0002* |
| | (-17.54) | (-16.69) | (-10.07) | (-10.13) | (-13.86) | (-13.05) |
| FE | -0.230* | -0.230* | | | | |
| | (-68.54) | (-68.21) | | | | |
| MARRIED | -0.015* | -0.015* | 0.036* | 0.036* | -0.083* | -0.083* |
| | (-3.02) | (-2.95) | (6.53) | (6.60) | (-10.02) | (-9.99) |
| NCHLT5 | -0.061* | -0.060* | 0.005 | 0.005 | -0.134* | -0.133* |
| | (-18.56) | (-18.31) | (1.23) | (1.31) | (-24.71) | (-24.35) |
| CITIZEN | 0.022* | 0.016* | -0.004 | -0.004 | 0.046* | 0.037* |
| | (5.19) | (3.94) | (-0.83) | (-0.87) | (7.00) | (5.56) |
| BLACK | 0.074* | 0.057* | -0.005 | -0.010 | 0.150* | 0.123* |
| | (10.55) | (7.75) | (-0.56) | (-1.17) | (13.57) | (10.69) |
| E.ASIA | -0.062* | -0.030* | -0.077* | -0.064* | -0.048* | -0.006 |
| | (-6.82) | (-3.34) | (-10.88) | (-5.40) | (-3.57) | (-0.43) |
| S-E. ASIA | -0.044* | -0.022* | -0.134* | -0.120* | 0.035* | 0.060* |
| | (-4.92) | (-2.53) | (-10.88) | (-9.83) | (2.69) | (4.59) |
| S. ASIA | -0.063* | -0.048* | -0.031* | -0.026* | -0.096* | -0.072* |
| | (-6.10) | (-4.65) | (-2.65) | (-2.23) | (-6.02) | (-4.53) |
| OTHER ASIA | -0.090* | -0.057* | -0.196* | -0.180* | -0.010 | 0.033 |
| | (-3.07) | (-2.00) | (-5.00) | (-4.65) | (-0.24) | (0.78) |
| E.&S. EUROPE | -0.023* | -0.002 | -0.053* | -0.043* | 0.009 | 0.035* |
| | (-2.49) | (-0.25) | (-4.66) | (-3.83) | (0.64) | (2.58) |
| W.EUROPE | -0.028* | -0.023* | -0.026 | -0.023 | -0.028 | -0.022 |
| | (-2.57) | (-2.12) | (-1.91) | (-1.71) | (-1.72) | (-1.37) |
| N. EUROPE | -0.001 | 0.002 | -0.011 | -0.012 | 0.008 | 0.014 |
| | (-0.02) | (0.08) | (-0.38) | (-0.39) | (0.20) | (0.36) |
| AFRICA | -0.025 | -0.005 | -0.027 | -0.020 | -0.009 | 0.019 |
| | (-1.95) | (-0.43) | (-1.83) | (-1.35) | (-0.46) | (0.94) |
| C.&S.AMERICA | -0.017* | 0.012 | -0.028* | -0.020* | -0.009 | 0.035* |
| | (-2.19) | 1.55 | (-3.08) | (-2.11) | (-0.75) | (2.86) |
| MIDDLE EAST | -0.088* | -0.068* | -0.057* | -0.050* | -0.119* | -0.092* |
| | (-6.74) | (-5.31) | (-3.87) | (-3.43) | (-5.81) | (-4.46) |
| OCEANIA | -0.009 | -0.009 | -0.025 | -0.024 | -0.000 | 0.0001 |
| | (-0.45) | (-0.43) | (-1.00) | (-0.98) | (-0.02) | (0.00) |
| OBSERVATIONS | 68,206 | 68,206 | 32,989 | 32,989 | 35,217 | 35,217 |
| R-SQUARED | 0.1016 | 0.1045 | 0.0350 | 0.0361 | 0.0657 | 0.0701 |

Note: Dependent Variable: Participation; z-statistics in parentheses; significant at 5% level.

Source: American Community Survey, 2001, IPUMS

Table 11. Employment Probit Regressions

Dependent Variable: Employed

| Variables | All | All | Male | Male | Female | Female |
|--------------|----------|----------|----------|----------|----------|----------|
| PROFICIENT | | -0.053* | | -0.030* | | -0.066* |
| | | (-10.96) | | (-5.39) | | (-8.86) |
| INTERMEDIATE | | -0.078* | | -0.027* | | -0.111* |
| | | (-13.27) | | (-3.89) | | (-12.69) |
| POOR | | -0.113* | | -0.019 | | -0.161* |
| | | (-13.35) | | (-1.92) | | (-13.12) |
| ED | 0.010* | 0.007* | 0.004* | 0.004* | 0.015* | 0.011* |
| | (18.92) | (13.41) | (7.45) | (6.32) | (17.90) | (12.09) |
| EX | 0.007* | 0.008* | 0.005* | 0.005* | 0.006* | 0.008* |
| | (9.73) | (11.38) | (6.01) | (6.55) | (5.92) | (7.52) |
| EXSQ | -0.0002* | -0.0002* | -0.0002* | -0.0002* | -0.0002* | -0.0002* |
| | (-15.23) | (-16.03) | (-10.40) | (-10.72) | (-9.90) | (-10.72) |
| YSM | 0.010* | 0.009* | 0.006 | 0.006* | 0.014* | 0.012* |
| | (20.82) | (17.94) | (10.28) | (9.61) | (18.01) | (15.41) |
| YSMSQ | -0.0002* | -0.0002* | -0.0001 | -0.0001* | -0.0002* | -0.0002* |
| | (-17.72) | (-16.75) | (-9.94) | (-9.88) | (-14.40) | (-13.51) |
| FE | -0.234* | -0.232* | | | | |
| | (-65.86) | (-65.51) | | | | |
| MARRIED | -0.007 | -0.007 | 0.051* | 0.051* | -0.082* | -0.082* |
| | (-1.39) | (-1.30) | (8.13) | (8.20) | (-9.62) | (-9.57) |
| NCHLT5 | -0.061* | -0.060* | 0.003 | 0.004 | -0.132* | -0.130* |
| | (-17.16) | (-16.91) | (0.80) | (0.86) | (-23.39) | (-23.01) |
| CITIZEN | 0.031* | 0.025* | 0.0009 | -0.00005 | 0.058* | 0.048* |
| | (6.94) | (5.52) | (0.17) | (-0.01) | (8.65) | (7.10) |
| BLACK | 0.062* | 0.040* | -0.015 | -0.023* | 0.133* | 0.101* |
| | (8.19) | (5.09) | (-1.53) | (-2.35) | (11.70) | (8.54) |
| E.ASIA | -0.078* | -0.042* | -0.090* | -0.073* | -0.065* | -0.019 |
| | (-8.09) | (-4.34) | (-6.95) | (-5.60) | (-4.79) | (-1.39) |
| S-E. ASIA | -0.058* | -0.033* | -0.147* | -0.132* | 0.022 | 0.050* |
| | (-6.06) | (-3.47) | (-11.08) | (-9.87) | (1.66) | (3.71) |
| S. ASIA | -0.079* | -0.062* | -0.037* | -0.031* | -0.119* | -0.093* |
| | (-7.17) | (-5.63) | (-2.82) | (-2.34) | (-7.29) | (-5.70) |
| OTHER ASIA | -0.142* | -0.105* | -0.235* | -0.214* | -0.069 | -0.020 |
| | (-4.52) | (-3.38) | (-5.42) | (-5.02) | (-1.57) | (-0.46) |
| E.&S. EUROPE | -0.042* | -0.018* | -0.069* | -0.057* | -0.010 | -0.020 |
| | (-4.26) | (-1.84) | (-5.49) | (-4.52) | (-0.70) | (1.38) |
| W.EUROPE | -0.032* | -0.026* | -0.025 | -0.021 | -0.036* | -0.029 |
| | (-2.69) | (-2.22) | (-1.58) | (-1.37) | (-2.13) | (-1.75) |
| N. EUROPE | -0.016 | -0.014 | -0.029 | -0.030 | -0.005 | 0.002 |
| | (-0.59) | (-0.50) | (-0.86) | (-0.88) | (-0.13) | (0.04) |
| AFRICA | -0.057* | -0.033* | -0.055* | -0.044* | -0.039 | -0.007 |

| | | | | | | |
|--------------|---------|---------|---------|---------|---------|---------|
| | (-4.14) | (-2.42) | (-3.28) | (-2.66) | (-1.90) | (-0.35) |
| C.&S.AMERICA | -0.035* | -0.001 | -0.038* | -0.026* | -0.035* | 0.013 |
| | (-4.26) | (-0.16) | (-3.67) | (-2.43) | (-2.92) | (1.01) |
| MIDDLE EAST | -0.105* | -0.084* | -0.064* | -0.056* | -0.147* | -0.113* |
| | (-7.62) | (-6.11) | (-3.97) | (-3.47) | (-6.82) | (-5.39) |
| OCEANIA | -0.012 | -0.012 | -0.043* | -0.042 | 0.011 | 0.011 |
| | (-0.57) | (-0.55) | (-1.55) | (-1.52) | (0.34) | (0.36) |
| OBSERVATIONS | 68,206 | 68,206 | 32,989 | 32,989 | 35,217 | 35,217 |
| R-SQUARED | 0.0901 | 0.0933 | 0.0309 | 0.0320 | 0.0675 | 0.0725 |

Note: z-statistics in parentheses; significant at 5% level.

Source: American Community Survey, 2001, IPUMS.

As low-skilled immigrants are considered to be a special group of people who are unlikely to work, this section explores their major determinants of participating and finding employment in the labor market, with a focus on English proficiency. The low-skilled are defined as people with no more than 12 years of education.

Table 12 presents the Probit regression results for low-skilled immigrants in terms of their participation and employment. The results indicate that being proficient in English is not an important determinant of participation or employment for both low-skill male and female immigrants. However, low-skilled immigrant women suffer from being intermediate and poor in English in both participation and employment. Among low-skilled female immigrants, those who are intermediate/poor in English are 5.7%/13% less likely to participate in the labor force, and 6.6%/14.4% less likely to find employment, compared with their fluent counterparts. On the contrary, English proficiency does not have any impact on the probability of participation and employment for low-skilled immigrant men, most likely that it is much easier for men than women to find laborer occupations that do not require English proficiency.

At the same time, educational attainment is positively associated with finding

employment only for low-skilled immigrants. However, labor market experience and length of stay in the U.S. are important for both participation and employment. Married low-skilled immigrant men are more likely to participate in the labor force (3% more) and find employment (4.2% more), while their female counterparts have a reverse trend—8.8% less and 7.9% less, respectively. In addition, one more child under age 5 decreases the probability of participation and employment by 13.7% for low-skilled female immigrants.

In order to further show whether English proficiency affect low-skilled and high-skilled immigrants differently in employment, three dummy variables are constructed by interacting English proficiency dummy variables (i.e. proficient, intermediate and poor) with being low-skilled (i.e. PROF_LOW, INTER_LOW AND POOR_LOW). Table 13 presents the employment probit regressions results. The coefficients of the three interaction dummy variables indicate that there is a complementary relationship between English proficiency and skill levels in terms of employment¹⁰. In other words, high-skilled immigrants benefit more from greater English proficiency than their low-skilled counterparts in finding employment. Such benefits are greater for immigrant women than men at each English proficiency category. A Chow test is used to see whether the employment determinants have the same effects between male and female immigrants after adding the interaction dummy variables, and the alternative hypothesis is accepted.

¹⁰ For simplicity, assume:
 “a*proficient+b*intermediate+c*poor+d*prof_low+e*inter_low+f*poor_low+g*low_skilled”, then
 $d=(prof_low-prof_high)-(fluent_low-fluent_high)=(fluent_high-prof_high)-(fluent_low-prof_low)$

Table 12. Participation and Employment Probit Regressions for Low-Skilled Immigrants

| Variable | Participation | | | Employment | | |
|--------------|----------------------|---------------------|----------------------|----------------------|---------------------|----------------------|
| | All | Male | Female | All | Male | Female |
| PROFICIENT | -0.013 (-1.79) | -0.014 (-1.77) | -0.007 (-0.61) | -0.017* (-2.22) | -0.014 (-1.58) | -0.015 (-1.32) |
| INTERMEDIATE | -0.039* (-5.12) | -0.010 (-1.25) | -0.057* (-4.97) | -0.046* (-5.71) | -0.013 (-1.42) | -0.066* (-5.75) |
| POOR | -0.091* (-9.09) | -0.010 (-0.95) | -0.130* (-8.96) | -0.104* (-9.98) | -0.019 (-1.54) | -0.144* (-9.95) |
| ED | 0.001 (1.35) | 0.0001 (0.11) | 0.002 (1.52) | 0.004* (3.90) | 0.002* (2.29) | 0.004* (3.02) |
| EX | 0.012* (10.25) | 0.006* (4.40) | 0.015* (8.03) | 0.013* (10.06) | 0.006* (3.94) | 0.016* (8.19) |
| EXSQ | -0.0003* (-13.95) | -0.0002* (-7.46) | -0.0003* (-10.70) | -0.0003* (-13.18) | -0.0002* (-6.65) | -0.0003* (-10.39) |
| YSM | 0.006* (7.28) | 0.003* (4.23) | 0.001* (5.86) | 0.007* (7.95) | 0.005* (5.10) | 0.007* (6.25) |
| YSMSQ | -0.0001* (-7.40) | -0.0001* (-5.61) | 0.00003* (-4.94) | -0.0002* (-8.34) | -0.0001* (-6.77) | -0.0001* (-5.42) |
| FE | 0.005* (-53.65) | | | -0.281* (-51.91) | | |
| MARRIED | 0.008* (-2.59) | 0.030* (3.67) | -0.088* (-6.96) | -0.011 (-1.30) | 0.042* (4.51) | -0.079* (-6.22) |
| NCHLT5 | 0.005* (-11.49) | 0.010 (1.64) | -0.137* (-16.11) | -0.059* (-10.71) | 0.009 (1.34) | -0.137* (-15.64) |
| CITIZEN | 0.006 (0.39) | -0.011 (-1.67) | 0.016 (1.61) | 0.018* (2.68) | -0.001 (-0.18) | 0.033* (3.38) |
| BLACK | 0.011* (6.46) | -0.020 (-1.48) | 0.161* (9.25) | 0.053* (4.28) | -0.041* (-2.63) | 0.136* (7.67) |
| E.ASIA | 0.017 (1.53) | -0.024 (-1.03) | 0.058* (2.31) | 0.007 (0.36) | -0.050 (-1.80) | 0.039 (1.52) |
| S-E. ASIA | 0.017 (-0.69) | -0.116* (-4.77) | 0.070* (2.91) | -0.025 (-1.35) | -0.137* (-5.03) | 0.060* (2.44) |
| S. ASIA | 0.025* (-4.72) | -0.093* (-3.19) | -0.118* (-3.55) | -0.116* (-4.68) | -0.090* (-2.75) | -0.126* (-3.80) |
| OTHER ASIA | 0.058 (-1.75) | -0.220* (-3.40) | 0.049 (0.57) | -0.114 (-1.96) | -0.238* (-3.34) | 0.025 (0.29) |
| E.&S. EUROPE | 0.017 (0.13) | -0.037 (-1.75) | 0.035 (1.42) | -0.023 (-0.64) | -0.056* (-2.27) | 0.025 (0.99) |
| W.EUROPE | 0.021 (-1.02) | -0.024 (-0.86) | -0.026 (-0.90) | -0.023 (-1.02) | -0.024 (-0.74) | -0.028 (-0.96) |
| N. EUROPE | 0.068 (-0.24) | -0.034 (-0.43) | -0.0001 (-0.00) | -0.098 (-1.34) | -0.134 (-1.41) | -0.056 (-0.55) |
| AFRICA | 0.027* (-0.027) | -0.071* (-0.071) | -0.028 (-0.028) | -0.090 (-0.090) | -0.126* (-0.126) | -0.054 (-0.054) |

| | | | | | | |
|--------------|---------|---------|---------|----------|---------|---------|
| | (-1.97) | (-2.22) | (-0.78) | (-3.31)* | (-3.40) | (-1.50) |
| C.&S.AMERICA | 0.016 | -0.008 | 0.036 | 0.002 | -0.024 | 0.013 |
| | (1.40) | (-0.42) | (1.63) | (0.12) | (-1.11) | (0.60) |
| MIDDLE EAST | -0.137* | -0.087* | -0.170* | -0.155* | -0.101* | -0.156* |
| | (-5.47) | (-2.88) | (-4.82) | (-5.91) | (-2.94) | (-5.34) |
| OCEANIA | -0.004 | -0.063 | 0.038 | -0.008 | -0.097 | 0.059 |
| | (-0.11) | (-1.45) | (0.73) | (0.21) | (-1.95) | (1.12) |
| OBSERVATIONS | 32,510 | 15,601 | 16,909 | 32,510 | 15,601 | 16,909 |
| R-SQUARED | 0.1104 | 0.0394 | 0.0520 | 0.0960 | 0.0308 | 0.0533 |

Note: z-statistics in parentheses; significant at 5% level.

Source: American Community Survey, 2001, IPUMS.

Table 13. Employment Probit Regressions: English Proficiency and Skill Levels

Dependent Variable: Employment

| Variables | All | Male | Female |
|--------------|----------|----------|----------|
| PROFICIENT | -0.079* | -0.047* | -0.094* |
| | (-12.14) | (-6.14) | (-9.58) |
| INTERMEDIATE | -0.162* | -0.090* | -0.196* |
| | (-16.21) | (-7.43) | (-13.63) |
| POOR | -0.244* | -0.141* | -0.283* |
| | (-10.42) | (-4.74) | (-8.81) |
| PROF_LOW | 0.065* | 0.039* | 0.078* |
| | (7.45) | (3.97) | (5.66) |
| INTER_LOW | 0.118* | 0.079* | 0.140* |
| | (11.71) | (6.98) | (8.70) |
| POOR_LOW | 0.134* | 0.102* | 0.159* |
| | (6.99) | (4.91) | (5.07) |
| LOW_SKILL | -0.073* | -0.04* | -0.094* |
| | (-11.25) | (-5.14) | (-9.64) |
| ED | 0.006* | 0.004* | 0.008* |
| | (8.34) | (4.60) | (7.05) |
| EX | 0.009* | 0.006* | 0.009* |
| | (12.44) | (7.07) | (8.45) |
| EXSQ | -0.0002* | -0.0002* | -0.0002* |
| | (-16.91) | (-11.12) | (-11.51) |
| YSM | 0.009* | 0.006* | 0.012* |
| | (16.99) | (9.19) | (14.55) |
| YSMSQ | -0.0002* | -0.0001* | -0.0002* |
| | (-15.88) | (-9.55) | (-12.67) |
| FE | -0.233* | | |
| | (-65.46) | | |
| MARRIED | -0.006 | 0.051* | -0.081* |
| | (-1.19) | (8.22) | (-9.45) |

| | | | |
|--------------|----------|---------|----------|
| NCHLT5 | -0.060* | 0.003 | -0.130* |
| | (-17.01) | (0.75) | (-23.02) |
| CITIZEN | 0.024* | -0.0005 | 0.047* |
| | (5.31) | (-0.10) | (6.91) |
| BLACK | 0.046* | -0.018 | 0.108* |
| | (5.85) | (-1.87) | (9.10) |
| E.ASIA | -0.035* | -0.066* | -0.013 |
| | (-3.57) | (-5.10) | (-0.90) |
| S-E. ASIA | -0.031* | -0.128* | 0.051* |
| | (-3.27) | (-9.62) | (3.72) |
| S. ASIA | -0.064* | -0.032* | -0.097* |
| | (-5.86) | (-2.44) | (-5.91) |
| OTHER ASIA | -0.093* | -0.204* | -0.009 |
| | (-3.01) | (-4.79) | (-0.21) |
| E.&S. EUROPE | -0.011 | -0.051* | 0.027 |
| | (-1.10) | (-4.08) | (1.89) |
| W.EUROPE | -0.022 | -0.019 | -0.024 |
| | (-1.87) | (-1.26) | (-1.42) |
| N. EUROPE | -0.021 | -0.033 | -0.008 |
| | (-0.74) | (-0.97) | (-0.19) |
| AFRICA | -0.036* | -0.047* | -0.009 |
| | (-2.65) | (-2.85) | (-0.46) |
| C.&S.AMERICA | 0.005 | -0.021 | 0.018 |
| | (0.57) | (-1.95) | (1.48) |
| MIDDLE EAST | -0.083* | -0.055* | -0.112* |
| | (-6.01) | (-3.41) | (-5.31) |
| OCEANIA | -0.007 | -0.036 | 0.015 |
| | (-0.30) | (-1.33) | (0.48) |
| OBSERVATIONS | 68,206 | 32,989 | 35,217 |
| R-SQUARED | 0.0959 | 0.0343 | 0.0753 |

Note: z-statistics in parentheses; significant at 5% level.

Source: American Community Survey, 2001, IPUMS.

2) *Determinants of Work Status*

The former discussion has established a positive link between English proficiency and labor market outcomes in terms of participation and employment. This section explores the determinants of work status among foreign-born immigrants in the labor force, with particular attention being paid on English proficiency. The work status of immigrants in the labor force can be considered ordered outcomes. A variable “Status” is constructed to denote work status

in its ordinal scale, that is, respectively, unemployed (Status=1), part-time (Status=2), and full time (Status=3).

Table 14 shows that around 1.47% of the immigrants in the labor force are unemployed, 18.73% are part-time workers and 79.8% are full-time workers. For immigrant women, the proportion of those who are unemployed is greater than their male counterparts (2.41% and 0.93%, respectively). Furthermore, employed female immigrants are more likely to work part-time than employed male immigrants (29.11% and 10.28%), most likely due to the usual fact that women tend to spend more time on household activities and child care.

Table 14. Work Status (Ordinal Scale)

| Work Status | All | | | Male | | | Female | | |
|--------------|--------|---------|------|--------|---------|-------|--------|---------|-------|
| | Freq. | Percent | Cum. | Freq. | Percent | Cum. | Freq. | Percent | Cum. |
| 1 | 823 | 1.47 | 1.47 | 286 | 0.93 | 0.93 | 537 | 2.14 | 2.14 |
| 2 | 10,464 | 18.73 | 20.2 | 3,166 | 10.28 | 11.21 | 7,298 | 29.11 | 31.26 |
| 3 | 44,580 | 79.8 | 100 | 27,348 | 88.79 | 100 | 17,232 | 68.74 | 100 |
| Total | 55,867 | 100 | | 30,800 | 100 | | 25,067 | 100 | |

Source: American Community Survey, 2001, IPUMS.

An ordered probit model is well-suited for the naturally ordered categorical data. The results are presented in Table 15. The first specification shows that a higher level of educational attainment, richer labor market experiences, longer length of stay in the U.S., attainment of U.S. citizenship and marriage help immigrants move from unemployed status to employed status. In addition, Immigrants from Southeast Asia, Central and South America (Latin America), and Oceania are most likely to make the same move. Interestingly, female immigrants are far more unlikely to make such move than male immigrants (71% less likely).

When the sample is divided by gender, the impact of schooling on work status is significantly higher for female immigrants. At the same time, attainment of U.S. citizenship

plays an important role in moving female immigrants' work status to the upper level; however, citizenship does not have any significant impact on the move of male immigrants.

Furthermore, marriage and the number of children under age 5 are negatively associated with women's work status, but positively associated to employment for men. The possible reason might be male immigrants with marriage and children face more pressure of making a living, and thus more likely to find full-time jobs.

English proficiency does not seem to be an important contributor for immigrants' work status improvement, except the fact that immigrants who are proficient in English are 5.3% less likely than their fluent counterparts to move from unemployment to employment on average. When the sample is divided by gender, the results show that female immigrants who speak proficient English are 7.1% less likely to make such move than their fluent counterparts; however, English proficiency does not have any significant impact on male immigrants work status.

In addition, the threshold parameters appear to be significantly different from each other when the focus is on all the immigrants, indicating the three categories of work status should not be merged into two. When the full sample is separated by gender, the threshold parameters remain significantly different from each other for male immigrants; however, this does not apply for female immigrants. There are no significant differences between working part-time and full-time for immigrant women.

Table 15. Estimates of Ordered Probit

Dependent Variable: Status

| Variables | All | Male | Female |
|--------------|-----------------------|-----------------------|-----------------------|
| PROFICIENT | -0.053* (0.016) | -0.021 (0.025) | -0.071* (0.022) |
| INTERMEDIATE | -0.040 (0.020) | -0.027 (0.031) | -0.035 (0.027) |
| POOR | -0.052 (0.030) | -0.001 (0.046) | -0.058 (0.040) |
| ED | 0.011* (0.002) | 0.006* (0.003) | 0.0158* (0.003) |
| EX | 0.009* (0.002) | 0.013* (0.004) | 0.002 (0.003) |
| EXSQ | -0.0002* (0.00005) | -0.0004* (0.00006) | -0.00004 (0.00007) |
| YSM | 0.014* (0.002) | 0.018* (0.003) | 0.0128* (0.002) |
| YSMSQ | -0.0003* (0.00004) | -0.0004* (0.00006) | -0.0003* (0.0005) |
| FE | -0.711* (0.013) | | |
| MARRIED | 0.050* (0.018) | 0.241* (0.026) | -0.128* (0.025) |
| NCHLT5 | -0.015 (0.013) | 0.061* (0.02) | -0.116* (0.018) |
| CITIZEN | 0.053* (0.015) | 0.035 (0.024) | 0.068* (0.02) |
| BLACK | -0.136* (0.025) | -0.302* (0.039) | -0.018 (0.033) |
| E.ASIA | 0.046 (0.032) | -0.224* (0.052) | 0.213* (0.041) |
| S-E. ASIA | 0.136* (0.031) | -0.196* (0.052) | 0.344* (0.04) |
| S. ASIA | 0.063 (0.036) | -0.039 (0.056) | 0.113* (0.049) |
| OTHER ASIA | -0.274* (0.096) | -0.65* (0.147) | -0.025 (0.126) |
| E.&S. EUROPE | 0.015 (0.032) | -0.133* (0.052) | 0.111* (0.041) |
| W.EUROPE | 0.048 (0.039) | 0.031 (0.068) | 0.074 (0.048) |
| N. EUROPE | -0.098 (0.087) | -0.125 (0.141) | -0.091 (0.114) |
| AFRICA | 0.008 | -0.152* | 0.147* |

| | | | |
|--------------|---------|---------|---------|
| | (0.042) | (0.065) | (0.057) |
| C.&S.AMERICA | 0.090* | -0.058 | 0.169* |
| | (0.028) | (-1.25) | (0.036) |
| MIDDLE EAST | -0.160* | -0.27* | -0.128* |
| | (0.043) | (0.064) | (0.061) |
| OCEANIA | 0.161* | 0.006 | 0.252* |
| | (0.074) | (0.12) | (0.095) |
| CUT 1 | -2.21* | -2.02* | -1.68* |
| | (0.051) | (0.076) | (0.068) |
| CUT 2 | -0.795* | -0.861* | -0.117 |
| | (0.049) | (0.074) | (0.066) |
| OBSERVATIONS | 55,867 | 30,800 | 25,067 |
| R-SQUARED | 0.0591 | 0.0171 | 0.0116 |

Note: Standard deviations in parentheses; significant at 5% level.

Source: American Community Survey, 2001, IPUMS.

3) *Determinants of Occupational Choices among Employed Immigrants*

In order to find out how English proficiency affects occupational choices among employed immigrants, a multinomial logit analysis is applied. The dependent variable is occupation that includes five categories: managerial/professional/technical, science/academics, sales/administration and laborer. The first category is considered as the comparison category.

Tables 16-18 present the estimates from multinomial logit regressions. The coefficients of explanatory variables are the relative-risk ratios¹¹, indicating the relative odds of choosing a certain category of occupation relative to the benchmark category—managerial, professional and technical occupations. A positive (negative) coefficient means that the independent variable increases (decreases) the probability of an immigrant working in the specified occupation, as compared to the benchmark occupation (Chiswick and Taengnoi 2007).

¹¹ The ratio of the probability of choosing one outcome category over the probability of choosing the reference category is referred as relative risk or odds (<http://www.ats.ucla.edu/stat/stata/dae/mlogit.htm>).

The estimates of English proficiency variables indicate that the relative risk ratios switching from high English proficiency to low English proficiency get higher for being in lower-ranking occupations, such as service, sales and administration and laborer positions. In other words, the expected risk of staying in the higher-ranking positions is higher for those with high English proficiency. The results also show that an additional year of education is associated with a 1.355 increase in the relative log odds of being in science/academic occupations vs. managerial/professional/technical occupations. This suggests that immigrants with more educational attainment are more likely to choose science/academic occupations over managerial/professional/technical occupations. Such a pattern remains for both genders.

Table 16. Estimates of Multinomial Logit Model of Occupational Choices (All)

| | SCI_ACA | SERVICE | SALES_ADMIN | LABORER |
|--------------|----------------|----------------|--------------------|----------------|
| PROFICIENT | 1.132* | 1.871* | 1.204* | 2.158* |
| | (2.07) | (17.03) | (4.34) | (19.43) |
| INTERMEDIATE | 0.884 | 3.048* | 1.264* | 3.996* |
| | (-1.05) | (20.94) | (3.50) | (25.09) |
| POOR | 0.804 | 3.112* | 0.968 | 4.361* |
| | (-0.74) | (10.73) | (-0.23) | (13.74) |
| ED | 1.355* | 0.688* | 0.794* | 0.674* |
| | (32.30) | (-62.61) | (-33.91) | (-63.64) |
| EX | 0.973* | 1.043* | 1.017* | 1.063* |
| | (-3.00) | (6.48) | (2.32) | (8.61) |
| EXSQ | 1.001* | 0.999* | 1.000* | 0.999* |
| | (3.47) | (-5.32) | (-2.48) | (-7.58) |
| YSM | 0.986* | 0.984* | 0.993 | 0.994 |
| | (-2.14) | (-3.63) | (-1.40) | (-1.16) |
| YSMSQ | 1.000* | 1.000 | 1.000* | 1.000 |
| | (2.89) | (1.72) | (2.58) | (-0.32) |
| FE | 2.617* | 1.174* | 2.819* | 0.462* |
| | (21.78) | (5.57) | (30.87) | (-23.80) |
| MARRIED | 0.908 | 0.936 | 0.953 | 1.005 |
| | (-1.53) | (-1.55) | (-0.97) | (0.12) |
| NCHLT5 | 0.895* | 0.980 | 0.872* | 1.010 |
| | (-2.37) | (-0.66) | (-3.73) | (0.32) |

| | | | | |
|--------------|---------|---------|---------|---------|
| CITIZEN | 0.821* | 0.912* | 1.061 | 0.878* |
| | (-3.58) | (-2.67) | (1.49) | (-3.50) |
| BLACK | 1.197* | 1.606* | 1.021 | 0.848* |
| | (1.97) | (8.43) | (0.30) | (-2.43) |
| E.ASIA | 0.854 | 0.863 | 0.896 | 0.659* |
| | (-1.86) | (-1.95) | (-1.50) | (-4.74) |
| S-E. ASIA | 0.569* | 1.749* | 1.072 | 2.019* |
| | (-5.55) | (7.80) | (0.96) | (8.75) |
| S. ASIA | 0.512* | 0.876 | 1.044 | 0.758* |
| | (-6.87) | (-1.52) | (0.52) | (-2.80) |
| OTHER ASIA | 0.724 | 1.444 | 2.024* | 1.785* |
| | (-0.81) | (1.45) | (2.92) | (2.16) |
| E.&S. EUROPE | 1.098 | 1.628* | 1.060 | 2.094* |
| | (1.03) | (6.52) | (0.76) | (9.06) |
| W.EUROPE | 1.071 | 1.4777* | 1.135 | 1.396* |
| | (0.66) | (4.34) | (1.46) | (3.22) |
| N. EUROPE | 0.708 | 0.902 | 0.934 | 0.938 |
| | (-1.43) | (-0.45) | (-0.33) | (-0.25) |
| AFRICA | 0.790 | 1.996* | 1.450* | 1.294* |
| | (-1.84) | (7.39) | (3.71) | (2.20) |
| C.&S.AMERICA | 1.394* | 2.445* | 1.309* | 2.507* |
| | (4.07) | (13.75) | (4.17) | (12.54) |
| MIDDLE EAST | 1.001 | 1.082 | 1.350* | 0.998 |
| | (0.01) | (0.76) | (3.04) | (-0.01) |
| OCEANIA | 0.870 | 1.490* | 0.878 | 1.204 |
| | (-0.63) | (2.65) | (-0.75) | (1.03) |
| SOUTH | 0.983 | 0.857* | 1.021 | 0.983 |
| | (-0.30) | (-3.91) | (0.47) | (-0.39) |
| WEST | 0.918 | 1.090* | 1.042 | 0.953 |
| | (-1.48) | (2.28) | (0.96) | (-1.16) |
| MIDWEST | 1.198* | 0.997 | 0.902 | 1.476* |
| | (2.70) | (-0.06) | (-1.79) | (7.47) |

Note: z-statistics in parentheses; significant at 5% level.

Sample size is 48,153. Pseudo R-Squared is 0.1993.

Source: American Community Survey, 2001, IPUMS.

Table 17. Estimates of Multinomial Logit Model of Occupational Choice (Male)

| | SCI_ACA | SERVICE | SALES_ADMIN | LABORER |
|--------------|---------|---------|-------------|---------|
| PROFICIENT | 1.118 | 1.820* | 1.314* | 2.056* |
| | (1.21) | (12.08) | (4.04) | (14.77) |
| INTERMEDIATE | 0.895 | 3.186* | 1.452* | 3.551* |
| | (-0.59) | (16.47) | (3.59) | (18.25) |
| POOR | 0.904 | 3.552* | 1.510* | 3.701* |
| | (-0.20) | (9.32) | (2.05) | (9.71) |

| | | | | |
|--------------|---------|----------|----------|----------|
| ED | 1.546* | 0.693* | 0.826* | 0.690* |
| | (28.43) | (-47.50) | (-18.72) | (-48.54) |
| EX | 0.960* | 1.055* | 1.030* | 1.073* |
| | (-2.75) | (6.08) | (2.55) | (7.94) |
| EXSQ | 1.001* | 0.999* | 0.999* | 0.999* |
| | (2.23) | (-6.28) | (-2.56) | (-7.82) |
| YSM | 0.992 | 0.997 | 1.004 | 0.997 |
| | (-0.79) | (-0.42) | (0.53) | (-0.55) |
| YSMSQ | 1.000 | 1.000 | 1.000 | 1.000 |
| | (1.14) | (0.21) | (0.04) | (0.11) |
| MARRIED | 0.775* | 0.902 | 0.772* | 0.947 |
| | (-2.62) | (-1.80) | (-3.43) | (-0.96) |
| NCHLT5 | 0.845* | 0.961 | 0.895* | 1.009 |
| | (-2.48) | (-1.05) | (-2.06) | (0.23) |
| CITIZEN | 0.711* | 1.047 | 1.083 | 0.930 |
| | (-3.80) | (0.97) | (1.25) | (-1.57) |
| BLACK | 1.985* | 1.816* | 1.363* | 1.092 |
| | (4.52) | (7.53) | (2.83) | (1.04) |
| E.ASIA | 0.975 | 0.974 | 0.845 | 0.451* |
| | (-0.20) | (-0.24) | (-1.40) | (-7.28) |
| S-E. ASIA | 0.830 | 2.198* | 1.138 | 1.731* |
| | (-1.11) | (7.61) | (1.08) | (5.67) |
| S. ASIA | 0.480* | 1.035 | 0.858 | 0.587* |
| | (-5.42) | (0.30) | (-1.25) | (-4.65) |
| OTHER ASIA | 0.672 | 1.608 | 2.269* | 2.087* |
| | (-0.51) | (1.26) | (2.11) | (2.19) |
| E.&S. EUROPE | 1.108 | 1.643* | 0.736* | 1.915* |
| | (0.75) | (4.70) | (-2.38) | (6.83) |
| W.EUROPE | 0.954 | 1.565* | 0.924 | 1.366* |
| | (-0.29) | (3.40) | (-0.53) | (2.56) |
| N. EUROPE | 0.510 | 0.854 | 0.894 | 0.752 |
| | (-1.77) | (-0.47) | (-0.35) | (-0.94) |
| AFRICA | 0.667* | 2.430* | 1.234 | 1.120 |
| | (-2.15) | (7.01) | (1.38) | (0.84)* |
| C.&S.AMERICA | 1.094 | 2.815* | 1.170 | 2.485 |
| | (0.68) | (11.16) | (1.52) | (10.72) |
| MIDDLE EAST | 0.868 | 1.027 | 1.250 | 0.902 |
| | (-0.80) | (0.20) | (1.63) | (-0.82) |
| OCEANIA | 0.667 | 1.933* | 0.913 | 1.287 |
| | (-1.13) | (3.18) | (-0.33) | (1.19) |
| SOUTH | 1.094 | 0.819* | 0.977 | 1.083 |
| | (1.02) | (-3.70) | (-0.33) | (1.50) |
| WEST | 0.795* | 1.072 | 0.980 | 0.996 |
| | (-2.50) | (1.35) | (-0.29) | (-0.08) |

| | | | | |
|---------|--------|--------|---------|--------|
| MIDWEST | 1.295* | 1.036 | 0.797* | 1.322* |
| | (2.64) | (0.53) | (-2.41) | (4.29) |

Note: z-statistics in parentheses; significant at 5% level.

Sample size is 27,282. Pseudo R-Squared is 0.2023.

Source: American Community Survey, 2001, IPUMS.

Table 18. Estimates of Multinomial Logit Model of Occupational Choice (Female)

| | SCI_ACA | SERVICE | SALES_ADMIN | LABORER |
|--------------|---------|----------|-------------|----------|
| PROFICIENT | 1.125 | 1.922* | 1.153* | 2.495* |
| | (1.47) | (11.75) | (2.48) | (12.88) |
| INTERMEDIATE | 0.902 | 2.933* | 1.221* | 5.43* |
| | (-0.68) | (12.98) | (2.16) | (18.07) |
| POOR | 0.733 | 2.670* | 0.759 | 6.486* |
| | (-0.84) | (5.76) | (-1.33) | (10.47) |
| ED | 1.223* | 0.671* | 0.761* | 0.642* |
| | (16.09) | (-41.38) | (-28.40) | (-41.08) |
| EX | 0.988 | 1.028* | 1.006 | 1.054* |
| | (-0.97) | (2.85) | (0.67) | (4.29) |
| EXSQ | 1.001 | 1.000 | 1.000 | 0.999* |
| | (1.92) | (-0.96) | (-0.41) | (-2.93) |
| YSM | 0.979* | 0.964* | 0.981* | 0.993 |
| | (-2.49) | (-5.33) | (-2.88) | (-0.74) |
| YSMSQ | 1.001* | 1.000 | 1.000* | 1.000 |
| | (3.00) | (2.76) | (3.45) | (-0.99) |
| MARRIED | 0.981 | 0.982 | 1.092 | 1.081 |
| | (-0.23) | (-0.28) | (1.35) | (0.94) |
| NCHLT5 | 0.967 | 1.013 | 0.878* | 1.000 |
| | (-0.50) | (0.26) | (-2.50) | (-0.00) |
| CITIZEN | 0.898 | 0.790* | 1.024 | 0.828* |
| | (-1.50) | (-4.56) | (0.45) | (-2.91) |
| BLACK | 0.857 | 1.362* | 0.815* | 0.510* |
| | (-1.33) | (3.81) | (-2.35) | (-5.11) |
| E.ASIA | 0.755* | 0.798* | 0.942 | 1.289 |
| | (-2.40) | (-2.11) | (-0.63) | (1.50) |
| S-E. ASIA | 0.499* | 1.452* | 1.056 | 3.129* |
| | (-5.35) | (3.69) | (0.58) | (7.06) |
| S. ASIA | 0.588* | 0.845 | 1.285* | 1.766* |
| | (-3.68) | (-1.21) | (2.21) | (2.83) |
| OTHER ASIA | 0.757 | 1.323 | 1.902* | 1.469 |
| | (-0.60) | (0.81) | (2.08) | (0.75) |
| E.&S. EUROPE | 1.174 | 1.691* | 1.306* | 2.712* |
| | (1.31) | (4.84) | (2.66) | (5.92) |
| W.EUROPE | 1.143 | 1.393* | 1.242 | 1.595* |
| | (0.97) | (2.64) | (1.96) | (2.22) |

| | | | | |
|--------------|---------|---------|---------|---------|
| N. EUROPE | 0.930 | 1.035 | 1.039 | 1.845 |
| | (-0.23) | (0.11) | (0.14) | (1.31) |
| AFRICA | 0.816 | 1.617* | 1.507* | 1.870* |
| | (-1.10) | (3.36) | (2.99) | (2.52) |
| C.&S.AMERICA | 1.599* | 2.212* | 1.403* | 2.954* |
| | (4.39) | (8.50) | (3.97) | (6.95) |
| MIDDLE EAST | 1.392 | 1.391 | 1.531* | 1.262 |
| | (1.81) | (1.93) | (2.80) | (0.86) |
| OCEANIA | 0.959 | 1.131 | 0.807 | 1.178 |
| | (-0.15) | (0.56) | (-0.95) | (0.44) |
| SOUTH | 0.899 | 0.870* | 1.007 | 0.727* |
| | (-1.39) | (-2.37) | (0.12) | (-4.19) |
| WEST | 1.004 | 1.109 | 1.072 | 0.851* |
| | (0.05) | (1.83) | (1.22) | (-2.25) |
| MIDWEST | 1.105 | 0.943 | 0.962 | 1.806* |
| | (1.07) | (-0.76) | (-0.50) | (6.71) |

Note: z-statistics in parentheses; significant at 5% level.

Sample size is 20,871. Pseudo R-Squared is 0.1690.

Source: American Community Survey, 2001, IPUMS.

5. Conclusions

This paper examines the effects of English proficiency on the employment pattern of foreign-born immigrants in the United States, using data from the 2001 American Community Survey (ACS). The findings confirm the important role that English proficiency plays an important role in immigrants' labor force participation and employment. In particular, its importance is greater for female immigrants than male immigrants. The penalty for being deficient in English in each category is greater in finding employment than in participating in the labor force. In particular, such penalties for females are much greater than males in each level of English proficiency.

A complementary relationship between English proficiency and skill levels in terms of employment is found. High-skilled immigrants benefit more from greater English proficiency than their low-skilled counterparts do in finding employment. Such benefits are

greater for immigrant women than men at each English proficiency category. On the other hand, being proficient in English is not an important determinant of participation or employment for low-skill immigrants.

English proficiency does not seem to be an important contributor for immigrants' work status improvement either, especially for male immigrants. In addition, the findings confirm the fact that greater English proficiency and a higher level of education attainment are associated with being in high-skilled occupations.

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