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Are Refugees Different from Economic Immigrants?
Some Empirical Evidence on the Heterogeneity of Immigrant Groups in the United States

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Abstract

This paper analyzes how the implicit difference in time horizons between refugees and economic immigrants affects subsequent human capital investments and wage assimilation. The analysis uses the 1980/1990 Public Use Samples of the Census. I find that recent refugee immigrants in 1980 earned 11 percent less and worked 19 percent fewer hours than economic immigrants. Both had about the same level of English skills. By 1990, the two immigrant groups had made substantial gains; however, refugees had made greater gains. Refugees in 1990 earned 24 percent more, worked 8 percent more hours, and improved their English skills by 11 percent more than economic immigrants. Evidence suggests refugees have higher rates of human capital accumulation.

JEL Classifications: C81, F22, J24, J31

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1. Introduction

People choose to immigrate to the United States for a variety of reasons and under different circumstances, and consequently, immigrants cannot be treated as a homogenous group of individuals. Immigrants can be separated into at least two distinct groups: *refugee immigrants*, individuals fleeing persecution in their home country, and *economic immigrants*, individuals searching for better jobs and economic security. One important characteristic that distinguishes these two immigrant groups is their ability to return to their native country. Refugee immigrants are unable or unwilling to return home for fear or threat of prosecution, and thus, must make a life in the country that gives them refuge. Economic immigrants, on the other hand, are free from this constraint and can return home whenever they so desire. In fact, for many economic immigrants the purpose of their stay is simply to earn money and then return home to buy land, build a house, support immediate and extended family members, and retire in their motherland. A second observable difference between these two immigrant groups is that refugee immigrants are likely to have fewer social contacts with their home country through return visits. In contrast, economic immigrants are able to make trips to see family members, relatives, and friends they left behind.

Given the distinct characteristics of refugee and economic immigrants, a natural question to ask is whether these differences have any economic implications. Lacking the option of emigrating back to their homeland, refugee immigrants have a longer time horizon in the host country, and hence, may be more inclined to invest in country-specific human capital. This may take the form of improving language skills, becoming naturalized citizens, and enrolling in the host nation's educational system. This line of reasoning suggests that refugee immigrants are

more likely to assimilate to the earnings growth path of the native-born population. Previous research that averages all immigrants may overlook this important distinction (Carliner 1980, Stewart and Hyclak 1984, Borjas 1985).

The innovation of this paper is to introduce into the analysis the distinction between refugee and economic immigrants. This study analyzes how the implicit difference in time horizons between newly-arrived refugees and newly-arrived economic immigrants affects subsequent human capital investments and wage assimilation. Based on Immigration and Naturalization Service definitions, I develop a schema for distinguishing refugees from economic immigrants. Using data from the 1980 and 1990 U.S. Census Public Use Micro Samples, I then construct a synthetic cohort to compare the accumulation of human capital as well as earnings growth over the decade for refugees and economic immigrants. In addition, I present a detailed statistical comparison of the two groups in order to assess whether the demographic composition in terms of age, gender, and family composition conforms to what one might expect a priori.

I find that refugee immigrants on average start at lower annual earnings; however, over time their annual earnings grow faster than those of economic immigrants. Furthermore, refugees over time tend to have higher Country-Specific Human Capital (CSHC) investment than economic immigrants.

This paper is organized as follows. Section 2 provides a brief literature review, Section 3 illustrates a conceptual model, Section 4 discusses the empirical methodology and describes the data, Section 5 provides a detailed comparison of the characteristics of refugees and economic immigrants, Section 6 presents the main results of this study, and lastly, Section 7 concludes.

2. Literature Review

The seminal work by Chiswick (1978) on the earnings assimilation of immigrants has generated much research on the topic of economic adjustment of immigrants in the United States. Chiswick estimates cross-sectional earnings regressions for immigrants and finds that the initial earnings of newly-arrived immigrants were about 17 percent less than native-born workers. However, he goes on to show that the age profiles of earnings are steeper for immigrants than natives. Explaining his findings in terms of human capital theory, Chiswick hypothesizes that at the time of arrival immigrants earn less than natives because of their lack of specific skills such as language proficiency. As they acquire the necessary skills and accumulate country-specific human capital, immigrants experience faster wage growth than native-born workers. Chiswick reports that immigrant earnings surpass native earnings within 15 years after immigration; after 30 years of living in the United States, a typical immigrant earns about 11 percent more than a native-born worker.

An important series of subsequent papers by Borjas (1985, 1987) re-examines Chiswick's conclusions using a cohort of immigrants observed in 1970 and 1980. Borjas finds that the earnings of the cohort grew at a much slower rate than was predicted by cross-section analyses. Indeed, Borjas concludes that the cross-section regressions overestimate the true rate of growth experienced by immigrants by as much as 20 percent for some immigrant cohorts. Borjas argues that his findings are consistent with the hypothesis of a decline in the characteristics of immigrants admitted to the United States. His empirical study of specific immigrant cohorts shows that the relative earnings of many of these cohorts experienced little change, or even slight decline, over the 1970-1980 period even though the cross-section regression shows a steeper age

profile for immigrants. His results imply that the across-cohort change in immigrant earnings is quite significant, with earlier cohorts earning more at every point of their U.S. labor market experience than more recent cohorts.

Recent research that takes a second look at Chiswick's hypothesis concerning country-specific human capital has focused on a specific component of country-specific human capital of immigrants, namely English language acquisition (Carliner 1995; White and Kaufman 1997; Cohen et al. 1997; Duleep and Regets 1999). Others have analyzed how language skills affect the earnings of immigrants (Chiswick 1993; McDowell and Singell 1993; Chiswick and Miller 1994). Analyzing data from the 1980 and 1990 U.S. Census of Population which asked respondents about their English ability, Carliner (1995) discovers that the vast majority of immigrants claim to speak English well. However, more than 50 percent of Mexicans and about 30 percent of the immigrants from other non-English speaking countries did not speak English well. Interestingly, even after controlling for differences in education, years since migration, gender composition, country of origin, age at entry, and year of entry, he finds that differences in English skills by region still remain large. He concludes that these differences in English skills seem to be inversely related to geographic distance from the United States rather than related to per capita income in the source country. Carliner also notes that since the 1950s there has been a trend decline in the probability of "speaking only English or speaking English well" among newly-arrived immigrants.

Moreover, various studies have found a positive relationship between language skills and immigrant success (Grenier 1984; Chiswick 1986a, 1986b, 1991). Grenier (1984) finds that Hispanics who speak mainly Spanish earn about 23 percent less than comparable Hispanics who

speak mainly English. Chiswick (1991) argues that reading comprehension is more important than speaking fluency in determining earnings. Using data from a survey of immigrants, Chiswick shows that both reading ability and spoken English fluency increase with duration of stay. He also finds that the increase in reading ability and spoken English fluency is much greater for aliens who have higher schooling and for aliens who are not Hispanic.

To date, however, nearly all empirical research have failed to consider the important differences between refugees and economic immigrants. A contributing factor is that data on the different status of immigrants is not readily available. A study by Aliya Khan (1997) is the only empirical work that has analyzed both refugee and economic immigrants. Using data from the 1976 Survey of Income and Education and the 1980 Census of Population, she finds that refugees have a higher probability of investing in schooling than other foreign-born residents.[1]

3. Conceptual Framework

A Model of Human Capital Investment

This section presents a simple model of country-specific human capital investment when immigrants have the potential option of returning home.[2] Assume that immigrants work for two periods, and that their utility function is simply equal to their net earnings. Immigrants maximize intertemporal expected utility, given by earnings in the first period plus earnings in the second period multiplied by a discount factor, β:

$$\text{Max}_{\{\theta\}} \quad E[U_i] = E[\, E_1(w_H, H_0, \theta) + \beta E_{2,j}(w_j, H_0, \theta)\,] \tag{1}$$

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[1] Khan analyzes only Cuban and Vietnamese refugees. Also, her analysis is limited to a static comparison due to the nature of the data.
[2] This model specification is similar to that presented by Duleep and Regets (1999).

In the first period their net earnings are $E_1(w_H, H_0, \theta)$, where w_H is the market rate of return on a unit of human capital in the host country (H), H_0 represents an initial level of human capital, and θ is a choice variable that represents the proportion of time spent investing in human capital (versus working). In the second period, immigrants either remain in the host country (H) or return to their source country (S) and receive net earnings $E_{2,j}$ (w_j, H_0, θ), where $j=H, S$. Let E_1 and $E_{2,j}$ have the following functional forms:

$$E_1 = w_H H_0 (1 - \theta) \tag{2}$$

$$E_{2,j} = w_j[H_0 + f(H_0, \theta)], \qquad j = H, S \tag{3}$$

where $f(H_0, \theta)$ is the human capital production function and it is assumed to be strictly concave, $f(.)' > 0$ and $f(.)'' < 0 \ \forall \theta \in (0,1)$.

The initial level of human capital of immigrants is assumed to be only partially transferable to the host country. Acquisition of additional country-specific human capital, such as language skills, gives immigrants the competitive edge needed to succeed in the host labor market. Hence, in the first period immigrants invest some fraction of time θ in acquiring added human capital. Finally, let p represent the probability of staying in the host country, and ($1-p$) the probability of emigrating back to the source country in the second period.[3]

Substituting these expressions for earnings into the maximization problem, the optimal choice of human capital investment for immigrant i, θ^*, is determined by:

$$\underset{\{\theta\}}{\text{Max}} \quad w_H H_0(1-\theta) + \beta p[w_H H_0 + w_H f(H_0,\theta)] + \beta(1-p)[w_S H_0 + w_S f(H_0,\theta)] \tag{4}$$

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[3] For simplicity, return migration is assumed to be exogenously given. A more detailed model presenting this probability as endogenous does not alter the qualitative nature of the results.

The optimal choice of θ^* is determined by the first order condition:

$$-H_0 + \beta p \frac{\partial f(H_0, \theta^*)}{\partial \theta} + \beta(1-p) \frac{w_S}{w_H} \frac{\partial f(H_0, \theta^*)}{\partial \theta} = 0 \qquad (5)$$

Recalling that p is the probability of staying in the host country, we can derive the effect of p on the optimal choice of human capital investment from the above first order condition:

$$\frac{d\theta^*(p)}{dp} = D \cdot \left[\frac{w_S}{w_H} - 1 \right] > 0, \qquad (6)$$

where $D = \dfrac{\dfrac{\partial f(H_0, \theta^*(p))}{\partial \theta}}{\dfrac{\partial^2 f(H_0, \theta^*(p))}{\partial \theta^2} \left[\dfrac{w_S}{w_H} + p(1 - \dfrac{w_S}{w_H}) \right]} < 0$. Since $w_S < w_H$ and $0 < p < 1$, the positivity

of this expression follows, noting the strict concavity of the human capital production function.

Equation (6) reveals that the higher the probability of remaining in the host country, the greater the amount of human capital investment immigrants will undertake. This result implies that refugee immigrants will invest more in country-specific human capital than economic immigrants. Such additional investment may take the form of English improvement, becoming a citizen, or enrolling in the educational system of the host nation.

4. Empirical Methodology and Data Description

The analysis uses the five percent Public Use Samples of the 1980 and 1990 U.S. Censuses. Ideally, we would like a panel of earnings and human capital data for immigrants who are clearly identified as having either refugee or economic immigrant status. Unfortunately, this type of data does not currently exist. However, it is possible to simulate a panel with subsequent decennial censuses if one has information on year of arrival and age. This study analyzes a fixed

cohort of immigrants who entered the United States in the years 1975 through 1980. From the 1980 Census, I include foreign-born individuals ages 16 to 45 who arrived in the U.S. in 1975-1980. From the 1990 Census, I include foreign-born individuals ages 26 to 55 who arrived in the same period.

To date, most empirical papers do not make any distinction between refugee and economic immigrants. Moreover, the Censuses do not distinguish between refugee and economic immigrants either. This paper identifies refugees by country of origin and year of immigration.[4] Although coming from very different cultures and social norms, refugees have one very important commonality between them – they are all immigrants that must *"make it"* in the country that gives them refuge. Immigrants from the following countries are classified as refugees: Afghanistan, Cuba, Russia, Ethiopia, Haiti, Cambodia, Laos, and Vietnam. Individuals from the following countries and regions constitute the economic immigrants: Mexico, Central America, the Caribbean, South America, Northern Europe, Western Europe, Southern Europe, Central Eastern Europe, East Asia, Southeast Asia, the Middle East/Asia Minor, the Philippines, and Northern Africa. Table 1 describes the refugee and economic immigrant groups and the corresponding samples sizes in the 1980 and 1990 Censuses. Note that all the groups are restricted to having arrived in the U.S. in the years 1975 through 1980.

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[4] An excellent source for data on the timing of refugee inflows is Haines (1996). In addition, the INS publishes a yearly volume of immigration statistics which includes the total number of refugees, asylum seekers, and immigrants from each country admitted during the fiscal year. After compiling the refugee groups for this paper using information from Haines (1996), I then compared them to the INS statistics. The dates and countries correspond very closely.

Measurement error exists for some of the refugee groups. Since "year of immigration" is coded in intervals in the Census data, some economic immigrants may have been captured as part of refugee waves coming from the same countries. For example, although the refugee wave from a certain country began in 1977, all foreign-born individuals immigrating from that country to the United States in the years 1975 through 1980 would be labeled as refugees. How then are the estimates affected by the aggregation of the variable "year of immigration"? The estimates of differences between refugee and economic immigrants are expected to be downward biased, because the slippage in defining arrival groups will make the refugee groups look more like the economic immigrants. Fortunately, most of the refugee waves started before 1975 and had a constant inflow through at least 1980. Nevertheless, we should expect the coefficients for refugees to be downward biased.

5. Characteristics of Refugees and Economic Immigrants

In order to evaluate whether this classification system is picking up meaningful differences, I present some demographic and human capital characteristics. A priori we would expect that refugee immigrants are closer to a random sample from the source country than economic immigrants. Therefore, we would expect refugees to be more evenly distributed around all ages. On the other hand, we would expect economic immigrants to be disproportionately of working age when they arrive. Figure 1 shows the age distributions of both refugee and economic immigrants by age at the time of arrival for this fixed cohort with year of immigration 1975 through 1980. Consistent with predictions, economic immigrants are more likely to come between the ages of 18 and 35 in contrast to refugee immigrants. Interestingly, for

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economic immigrants we have a bimodal distribution, with the first distribution clustered around very young ages and the second distribution clustered around the working age.

Figures 2, 3, and 4 show the average enrollment rates, English ability, and citizenship status by years in the U.S. for refugee and economic immigrants, using pooled 1980 and 1990 Census data.[5] Looking at Figure 2, we see that refugee immigrants have a higher probability of being enrolled in school than economic immigrants. For instance, the probability of being in school given that a refugee immigrant has resided in the U.S. between 0 to 5 years is 16 percent in contrast to a 9 percent probability for an economic immigrant. These differences are similar for both male and female.

Figure 3 shows the average probabilities of low English ability given that a refugee or an economic immigrant has lived in the U.S. between 0 to 5 and 6 to 10 years. We observe that the English ability of both groups improves over time, with refugees experiencing faster rates of improvement. Indeed, although both groups start off with approximately the same level of English ability, within six years the probability of low English for refugees decreases to 30 percent whereas for economic immigrants it falls to only 43 percent.

Finally, Figure 4 shows the average probabilities of attaining citizenship status conditional on time in the U.S. For the pooled sample we observe that refugee and economic immigrants with five years of residency in the U.S. have fairly similar low probabilities of becoming a citizen. However, after six or more years in the U.S., refugees are much more likely than economic immigrants to become citizens, 63 percent versus 39 percent, respectively.

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[5] These probabilities were estimated using a logistic regression model that controlled for years in the U.S. (interacted with refugee status) and age. The samples include all foreign-born individuals ages 16 to 45 from the 1980 Census and ages 26-55 from the 1990 Census with year of immigration 1975-1980 from the countries listed in Table 1.

Data and Summary

Table 2 shows several characteristic statistics from the 1980 and 1990 Censuses for this fixed cohort of 1975-1980 immigrant arrivals. Interestingly, the gender composition of each group at time of immigration is similar regardless of refugee status. We might have expected that economic immigrants are more likely to be male, if we assume that men are more likely to come to the U.S. to earn money. The percentage of married individuals is also roughly the same for refugee and economic immigrants. Moreover, both groups appear to have emigrated with about the same number of children and also have about the same number of children born in the U.S. Similarly, the majority of refugee and economic immigrants live in the west region of the U.S. in both census years for this fixed cohort.

However, while the above family characteristics of refugee and economic immigrants are similar, their educational attainments are not. From Table 2, we observe that economic immigrants were more concentrated in the lower levels of education than refugees in 1980. Furthermore, the education distribution for economic immigrants shows little or no improvement over time, whereas for refugees there is some evidence of rising educational attainment. Finally, although both groups had similar levels of low English ability and citizenship status in 1980, refugees show greater improvement by 1990, as illustrated by the logistic regressions results in Figures 3 and 4.

Table 3 shows data on the annual earnings, annual weekly earnings, and average hourly earnings of refugee and economic immigrants in 1980 and 1990. Looking at the first column of Table 3, we observe that in 1980 the typical refugee immigrant earned 11 log points less than an economic immigrant. By 1990, however, the annual earnings of refugees were 24 log points

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above those of economic immigrants. The relative gain of refugee immigrants from 1980 to 1990 (shown in bold) is 35 percent. The same pattern is observed if we separate the sample by gender. In 1980 we observe that a typical male refugee earned 15 log points less than a male economic immigrant. By 1990, the annual earnings of male refugees were 21 log points higher than those of male economic immigrants, resulting in a relative gain of 36 percent from 1980 to 1990. Similarly, the relative gain of female refugees is 32 percent over this same period. Additionally, it is worth noting that we can infer from the comparisons of means given in Table 3 that the relative gain of refugees in annual earnings is mainly coming from a relative increase in the total annual hours worked. The relative gain in average hourly earnings is only 8 percentage points or about one quarter of the total gain in annual earnings.

6. Empirical Results

6.1 Model Specification and Regression Analysis

In this section, a more formal analysis of the determinants of earnings growth is presented in order to further examine and explain the reasons why refugees have outperformed economic immigrants. The results are generally similar to those based on the simple comparisons of means given in Table 3. That is, the relatively faster growth of annual earnings of refugees is mainly attributed to a relative increase in annual hours worked.

A series of alternative model specifications of the human capital function was estimated of the form:

$$Ln(annearn)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng +$$

$$\beta_1 Low\_Eng^{1990} + Educ_{i,t}\theta + \mu_{it}, \qquad (7)$$

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where $Ln(annearn)_{i,t}$ is log annual wage and salary earnings, D^{1990} is a dummy variable indicating the 1990 census year, $D^{Refugee}$ is a dummy variable indicating a refugee immigrant, and $D^{1990}D^{Refugee}$ is an interaction of refugee status and the 1990 Census dummy. The vector $X_{i,t}$ is a set of control variables (i.e., age, age^2, age^3, age^4, region, and marital status). The variables Low_Eng and Low_Eng^{1990} indicate low English ability and low English Ability in 1990, respectively, and the two represent country-specific human capital (CSHC). $Educ_{i,t}$ is a vector of educational attainment variables (i.e., kindergarten, 1st-4th grade, 5th-8th grade, 9th grade, 10th grade, 11th grade, 12th grade, 1 to 3 years of college, and 4 plus years of college). Lastly, μ_{it} is an error term.

The regression specification yields several results of interest: The coefficient α_1 gives the growth in earnings of economic immigrants from 1980 to 1990, the sum of the coefficients ($\alpha_1 + \alpha_3$) gives the growth in earnings of refugee immigrants from 1980 to 1990, the coefficient α_3 gives the earnings growth of refugee immigrants relative to economic immigrants from 1980 to 1990, and lastly the sum of the coefficients ($\alpha_2 + \alpha_3$) gives the level of earnings of refugee immigrants relative to economic immigrants in 1990.

Table 4 reports male and female log annual earning regressions results for several model specifications. Model 1 estimates the basic model without controls, Model 2 estimates the basic model with the standard set of controls (i.e., age, age^2, age^3, age^4, region, and marital status), Model 3 includes controls for low English, and Model 4 includes controls for low English as well as educational attainment. The regression results of Model 1 show that the annual earnings of male and female economic immigrants grew by 52 and 55 percent, respectively (coefficient α_1). For refugees, annual earnings growth was much higher – 80 percent for males and 75 percent for

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females (the sum of coefficients $\alpha_1 + \alpha_3$). Even with the inclusion of all the control variables, annual earnings of refugees still significantly outperformed those of economic immigrants. From the regression results of Model 4, we observe that the annual earnings of refugees grew by 56 percent for males and 59 percent for females, still much higher than the 31 and 43 percent growth, respectively, for male and female economic immigrants.

How Did Refugees Do Compared to Economic Immigrants?

Regardless of the regression specification, both male and female refugees initially start off at a lower earnings level than economic immigrants. Looking at Model 4 with the full set of controls, we observe that male refugees earned 19 percent less than male economic immigrants in 1980, while female refugees earned 1 percent less than female economic immigrants in 1980. However, by the next census, refugees of both genders had caught up and in fact surpassed the earnings levels of economic immigrants.

From the model specification without any controls, the estimates in column 1 of Table 4 show that a typical refugee male in 1990 earned about 21 percent more than an economic immigrant male. Even after the inclusion of the standard controls in Model 2, a typical refugee male still earned about 21 percent more than a comparable economic immigrant male in 1990. Although somewhat lower after the inclusion of human capital variables, the earnings level of refugee males in 1990 relative to that of economic immigrants males is still substantially higher. After controlling for English ability and educational attainment, we observe from Models 3 and 4 that refugee males in 1990 earned about 14 and 6 percent more than economic immigrant males, respectively.

Also, note that English ability has the expected sign on annual earnings. From Table 4, the regression results for Model 3 reveal that a male immigrant with low English in 1980 earned about 31 percent less than a male immigrant with higher English skills. In 1990, the penalty for low English grew to 48 percent. Looking at Model 4, we observe that this penalty decreases to 28 percent after controlling for educational attainment. Nevertheless, it remains large.

The same general results are observed for the female regressions. Regardless of model specification, Table 4 shows refugee females having higher levels of earnings relative to economic immigrant females.[6]

As noted earlier, Table 3 reveals that total annual hours worked was a major contributor to the growth of annual earnings for both male and female refugee immigrants. Since annual earnings is the product of hourly earnings and annual hours, the growth in annual earnings can be decomposed into growth in the hourly wage and growth in annual hours. Tables 5 and 6 present the regression models for these two dependent variables. The main finding from these tables is that the relatively faster growth of annual earnings for refugees is primarily due to an increase in annual hours worked – about two-thirds of the growth in annual earnings is attributable to the increase in annual hours worked, while one-third is attributable to hourly earnings growth. These results are generally similar for both males and females.

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[5] For example, Model 1 shows that a typical refugee female in 1990 earned about 21 percent more than an economic immigrant female. After including the basic standard controls in Model 2, I still find that a typical refugee female earned about 22 percent more than an economic immigrant female in 1990. Lastly, Models 3 and 4 show that refugee females earned about 18 percent and about 15 percent more than economic immigrants females, respectively, in 1990.

6.2 Robustness Tests: Illusion or Reality

This section presents two robustness tests in order to probe the *refugee effect* results of Section 6.1. The first robustness test takes a simple approach – it examines the earnings growth rates of several refugee and economic immigrant groups separated by country/region of origin. The second robustness test takes into account the large fraction of Asians in the refugee category.

The first robustness test assesses the validity of the assumption made in the previous section regarding the sufficiency of separating immigrants into just two categories, refugee and economic immigrants. To test this, I separate the refugee and economic immigrant samples by country/region of origin, and then analyze the individual earnings growth coefficients for each group. Table 7 shows the 1980-90 earnings growth for each group, and we observe that refugee groups on average have higher earnings growth. Figures 5 and 6 illustrate the data shown in Table 7 by plotting the earning growth rate densities corresponding to these groups. These two densities were constructed by smoothing the histograms of the earnings growth rates of refugee groups versus economic immigrant groups. For both the male and female samples, we observe two overlapping distributions for refugee and economic immigrants groups. As previously noted in Table 7, a larger fraction of refugee groups have high earnings growth. The distributions for both refugee male and females are skewed to the left, while the distribution for economic immigrant males and females are skewed to the right. These results are consistent with the findings in the previous section.

The second robustness test is conducted in order to investigate whether the difference between refugees and economic immigrants is due solely to the large number of Asian

(predominantly Vietnamese) refugees.[7] This is important since it has been argued that Asian immigrants are more successful in the U.S. than other immigrant groups. To begin the analysis, consider the following decomposition in which the difference in mean outcomes between refugee and economic immigrants is in terms of four groups of interest: Asian refugees, non-Asian refugees, Asian economic immigrants, and non-Asian economic immigrants,

$$y^R - y^E = s_R(y^{A,R} - y^{A,E}) + (1-s_R)(y^{NA,R} - y^{NA,E}) + (y^{A,E} - y^{NA,E})(s_R - s_E) \qquad (8)$$

where y^R and y^E are the mean outcomes for refugee and economic immigrants, respectively; s_R is the fraction of refugees who are Asian; $(1-s_R)$ is the fraction of refugees who are non-Asian; s_E is the fraction of economic immigrants who are Asian; $(1-s_E)$ is the fraction of economic immigrants who are non-Asian; $y^{A,R}$ is the mean earnings of Asian refugees; $y^{NA,R}$ is the mean earnings of non-Asian refugees; $y^{A,E}$ is the mean earnings of Asian economic immigrants; and lastly, $y^{NA,E}$ is the mean earnings of non-Asian economic immigrants.[8]

Recall that the left hand side of equation (8), y^R-y^E, is our estimated coefficient α_3, which gave the earnings growth of refugees relative to economic immigrants from 1980 to 1990. Equation (8) shows that the estimated coefficient α_3 is composed of three terms: the *first* term is the difference in mean earnings between Asian refugees and Asian economic immigrants weighted by the fraction of refugees who are Asian, the *second* term is the difference in mean earnings between non-Asian refugees and non-Asian economic immigrants weighted by the fraction of refugees who are non-Asian, and lastly, the *third* term is the difference in mean

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[7] As can been seen in Table 1, the Vietnamese are by far the largest group in the refugee sample.

[8] This algebraic expression was attained as follows: Let y^R and y^E represent mean outcomes for these two groups,
$$y^R = s_R y^{A,R} + (1-s_R)y^{NA,R} \quad (1) \text{ and } y^E = s_E y^{A,E} + (1-s_E)y^{NA,E} \quad (2)$$
Subtracting equation (2) from equation (1), and then adding and subtracting the terms $s_R y^{NA,E}$ and $s_R y^{A,E}$, we have
$$y^R - y^E = [s_R y^{A,R} + (1-s_R)y^{NA,R}] - [s_E y^{A,E} + (1-s_E)y^{NA,E}] + (s_R y^{NA,E} - s_R y^{NA,E}) + (s_R y^{A,E} - s_R y^{A,E}) \quad (3)$$
Expanding and collecting terms from equation (3) we get our above algebraic expression:
$$y^R - y^E = s_R(y^{A,R} - y^{A,E}) + (1-s_R)(y^{NA,R} - y^{NA,E}) + (y^{A,E} - y^{NA,E})(s_R - s_E)$$

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earnings between Asian economic immigrants and non-Asian economic immigrants weighted by

the difference of the fraction of refugees who are Asian and the fraction of economic immigrants

who are Asian.

In other words, this estimated coefficient is composed of an Asian refugee term, a non-

Asian refugee term, and an Asian effect term,

$$\underbrace{y^R - y^E}_{\alpha_3} = s_R \underbrace{(y^{A,R} - y^{A,E})}_{\text{Asian Refugee Term}} + (1-s_R) \underbrace{(y^{NA,R} - y^{NA,E})}_{\text{Non-Asian Refugee Term}} + \underbrace{(y^{A,E} - y^{NA,E})(s_R - s_E)}_{\text{"Asian Effect Term"}}$$

$$\underbrace{\phantom{s_R (y^{A,R} - y^{A,E}) + (1-s_R)(y^{NA,R} - y^{NA,E})}}_{\text{"Refugee Effect Term"}}$$

$$\Leftrightarrow \quad \alpha_3 = s_R \alpha_3^A + (1-s_R)\alpha_3^N + (y^{A,E} - y^{NA,E})(s_R - s_E)$$

where α_3^A is the earnings growth of Asian refugees relative to Asian economic immigrants from

1980 to 1990 and α_3^N is the earnings growth of non-Asian refugees relative to non-Asian

economic immigrants from 1980 to 1990.

To test whether the difference between refugees and economic immigrants is due solely

to the large number of Asians, I calculate the contributions (in percent) of the Asian refugee term

and the Asian effect term to the coefficient α_3. If there is a *refugee effect*, then the contributions

of the Asian refugee term and the Asian term to the coefficient α_3 will be small relative to the

contribution of the non-Asian refugee term. Table 8 presents the percentage breakdown of the

coefficient α_3.[9]

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[9] The coefficients α_3^A and α_3^N are obtained from the following regression estimation: $Ln(annearn)_{i,t} = \alpha_0 + \alpha_0^A D^A + X_{i,t}\gamma + \alpha_1^A D^{1990}D^A + \alpha_1^N D^{1990}D^N + \alpha_2^A D^{Ref}D^A + \alpha_2^N D^{Ref}D^N + \alpha_3^A D^{1990}D^{Ref}D^A + \alpha_3^N D^{1990}D^{Ref}D^N + \mu_{it}$, where the dependent variable is once again log annual earnings. The explanatory variables are: a vector of control variables, $X_{i,t}$ (i.e., age, age^2, age^3, age^4, region, marital status, low English, low English in 1990, and educational attainment), D^A is a dummy variable for any Asian immigrant, $D^{1990}D^A$ is a dummy variable for any Asian immigrant in 1990, $D^{1990}D^N$ is a dummy variable for any non-Asian immigrant in 1990, $D^{Ref}D^A$ is a dummy variable indicating Asian refugee, $D^{Ref}D^N$ is a dummy variable indicating non-Asian refugee, $D^{1990}D^{Ref}D^A$ is a dummy variable indicating Asian refugee in 1990, $D^{1990}D^{Ref}D^N$ is a dummy variable indicating non-Asian refugee in 1990, and μ_{it} is an error term. For

From Table 8, we see that the overall contribution of the Asian refugee term and the Asian effect term is a relatively small component of the estimated coefficient α_3. In fact, the non-Asian refugee term is the component that is driving the growth in the estimated coefficient α_3. Regardless of the regression specification, we observe that the non-Asian refugee term is the main contributor to the estimated coefficient α_3 for both male and female regressions. In fact, the Asian refugee and Asian effect terms are decreasing the overall magnitude of this coefficient for both males and females.

6.3 The Effects of Improving English Fluency

From the results in Section 6, we observe that immigrants with low English ability earn less. We would expect, however, that from one census year to the next there would be some improvement in English skills for both immigrant groups. From the theoretical framework presented in Section 4, we infer that refugee immigrants would invest more in country-specific human capital, such as English language skills, due to their higher probability of remaining in the country.

Table 9 reports the means of low English for the two immigrants groups and their changes over the period 1980-1990. As predicted, we observe that refugees experience a greater decline in low English ability relative to economic immigrants. Specifically, low English ability decreases by 24 percent for refugee males, but only 15 percent for economic immigrant males. Similarly, low English ability decreases by 22 percent for refugee females, but only 12 percent

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the interested reader, Table A.1 of the Appendix reports the full set of estimated coefficients from this regression. Generally, we observe the same results as reported in Table 8.

s_R was calculated from the raw data, and the coefficients α_3, α_3^A, and α_3^N were given by the regressions results. Having calculated α_3, α_3^A, α_3^N, and s_R, the corresponding Asian effect term was easily obtained.

for economic immigrant females. These declines translate into a relative gain of 9 and 10 percent, respectively, for refugee males and females.

Given the above findings reported in Table 9, a natural follow-up question to ask is: What is the monetary value of English improvement? For this analysis, I decompose the dependent variables in order to determine the effect of improved English fluency on annual earnings and annual hourly earnings.[10] Table 10 reports the percentage of annual earnings, annual hourly earnings, and annual hours growth attributable to improving English skills from 1980 to 1990.

As expected, the greater improvement in English skills translates into greater gains in earnings for refugees. We observe that the 24 and 22 percent declines in low English for male and female refugees account for 7 and 6 percent gains in earnings, respectively. For male and female immigrants, on the other hand, the lesser 15 and 13 percent declines in low English account for only 4 and 3 percent gains in earnings, respectively. Looking at the effect of English improvement on annual hourly earnings, we observe the same pattern. For both male and female refugees, it accounts for a 4 percent gain in hourly earnings. In contrast, for both economic immigrant males and females, it accounts for a gain of only 2 percent in hourly earnings. Similarly, improvement in English skills translates into 3 percent more annual hours worked for refugees, but only 2 percent more annual hours work for economic immigrants.

7. Conclusion

This paper analyzes how the implicit difference in the time horizons of immigrants affects their subsequent human capital investments and wage assimilations. In this paper, I identify refugee and non-refugee groups who entered the United States in the years 1975 through 1980.

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[10] This is the standard Oaxaca decomposition.

Based on Immigration and Naturalization Service (INS) definitions, I develop a schema for distinguishing refugees from economic immigrants. The major refugee waves analyzed are from Afghanistan, Cuba, Russia, Ethiopia, Haiti, Cambodia, Laos, and Vietnam. Non-refugees which I classify as economic immigrants are from Mexico, Central America, the Caribbean, South America, Northern Europe, Western Europe, Southern Europe, Central Eastern Europe, East Asia, Southeast Asia, the Middle East/Asia Minor, the Philippines, and Northern Africa. The study uses the 1980 and 1990 five percent Public Use Samples, which allows for the analysis of a synthetic panel of refugee and economic immigrants that entered the US in the years 1975 through 1980.

I find that refugee immigrants in 1980 earned 11 percent less and worked 19 percent fewer hours than economic immigrants. Both had about the same level of English skills. By 1990, the two groups had made substantial gains; however, refugee immigrants had made greater gains. Refugees in 1990 earned 24 percent more, worked 8 percent more hours, and improved their English skills by 11 percent more than economic immigrants. In addition, English improvement accounts for a 7 percent gain in earnings for refugees. The relative gain of refugee immigrants is 35 percent in annual earnings and 10 percent in the improvement of English skills. In addition, from the regression results, I observe that about two-thirds of the faster growth in annual earnings of refugees is attributable to faster growth in annual hours and about one-third is attributable to faster growth in hourly wages. Also, evidence suggests that refugees tend to have higher rates of human capital accumulation than economic immigrants.

This study demonstrates how the implicit difference in time horizons of immigrants does, in fact, have a significant effect on their labor market performance. I find that *refugee*

immigrants on average start at lower annual earnings, but over time their annual earnings grow faster than *economic immigrants*. Even though this study only distinguishes between two immigrant groups, given the data constraints I am still able to pick up some striking differences between them. Empirical research of heterogeneity among immigrants is often difficult due to the lack of data or detailed information on immigrant status needed to carry out such studies. This paper, however, has begun research in this area by successfully analyzing the differences between refugee and economic immigrants. Given the results of this study, I can only stress the importance of not aggregating immigrants into one general category because this fails to take into account the enormous variation that exists among immigrants in the United States.

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FIGURE 1. AGE DISTRIBUTIONS OF ENTERING REFUGEE AND ECONOMIC IMMIGRANTS, 1975-1980 (AGE AT TIME OF ARRIVAL)
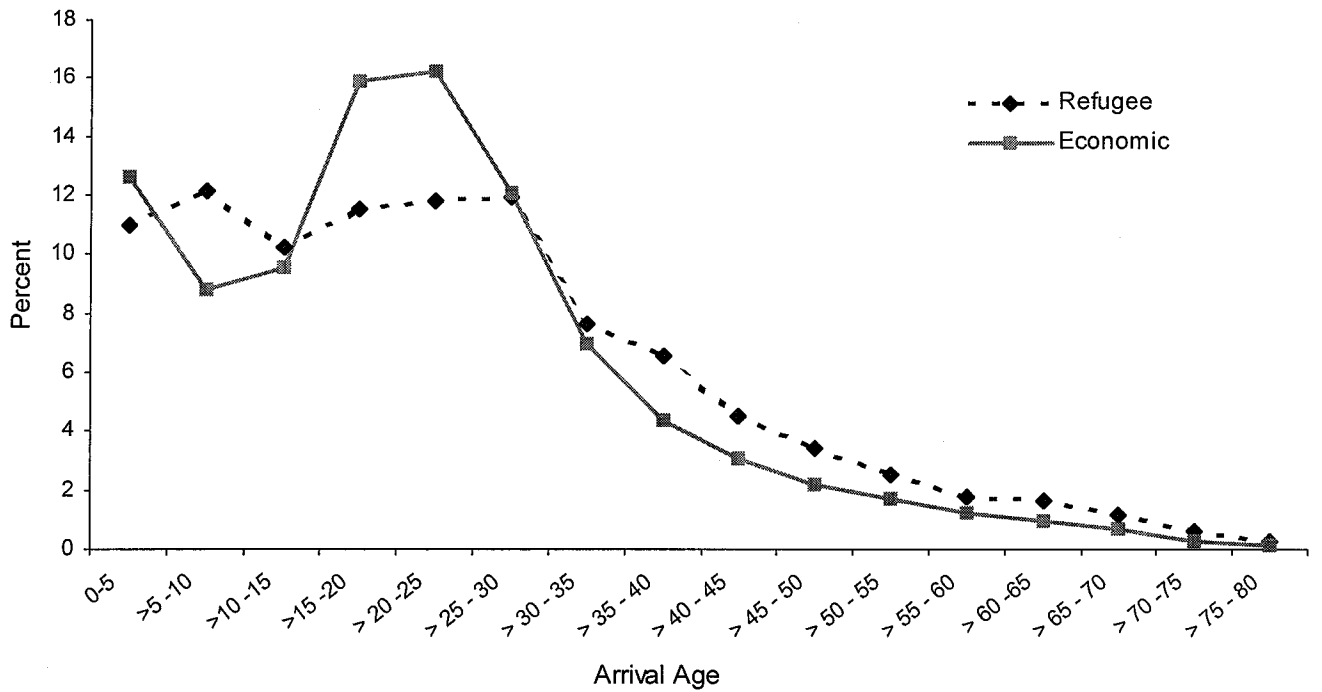
Source: Public Use Micro Samples (PUMS) 1990, tabulations by author.

FIGURE 2. SCHOOL ENROLLMENT PROFILES FOR THE POOLED SAMPLE
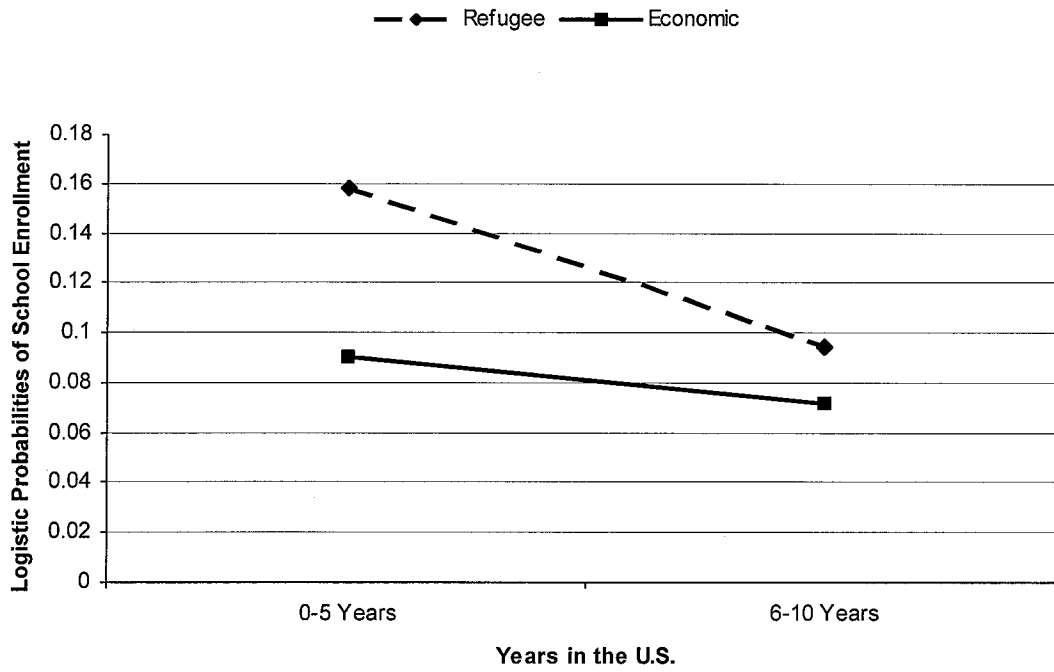
Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990.
Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1980 and 1990, tabulations by author.

FIGURE 3. LOW ENGLISH PROFILES FOR THE POOLED SAMPLE
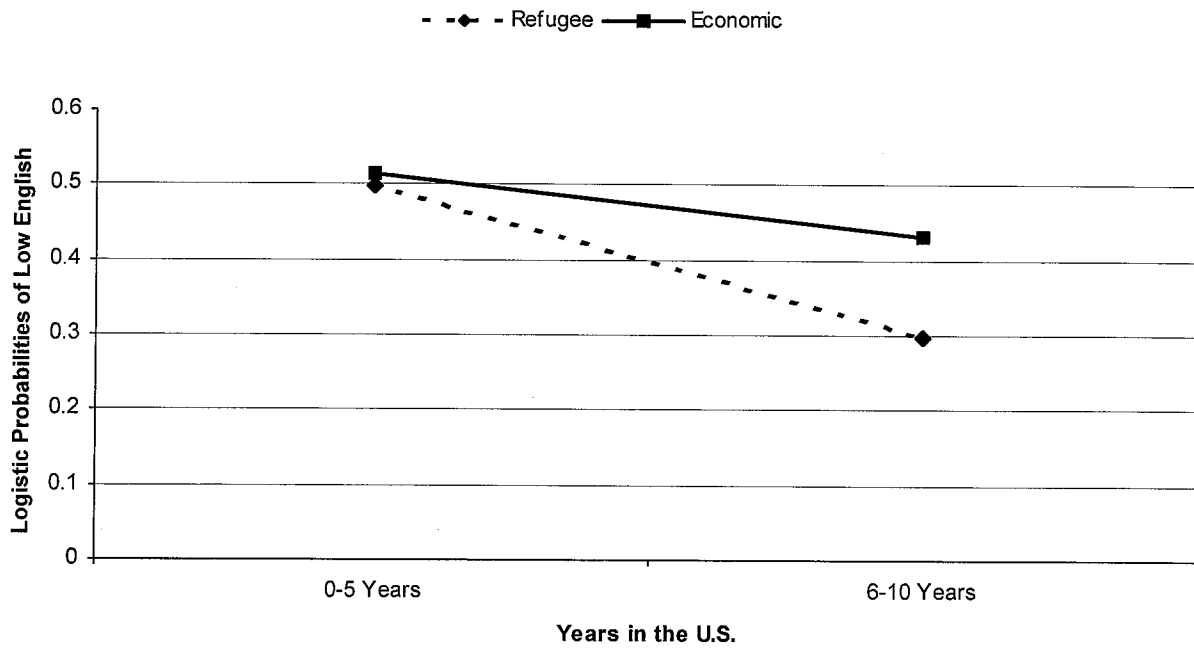
Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990.
Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1980 and 1990, tabulations by author.

FIGURE 4. CITIZENSHIP STATUS PROFILES FOR THE POOLED SAMPLE
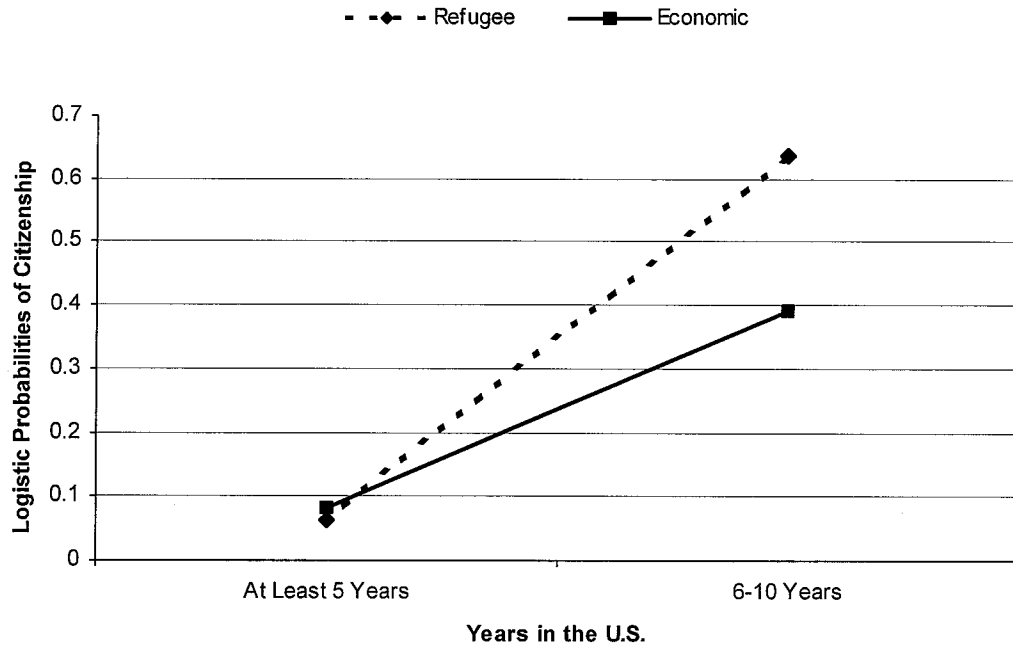
Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990.
Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1980 and 1990, tabulations by author.

FIGURE 5. MALE SAMPLE

Smoothed Histograms of Country-Specific Growth Rates of Males: Refugee versus Economic Immigrant Sending Countries
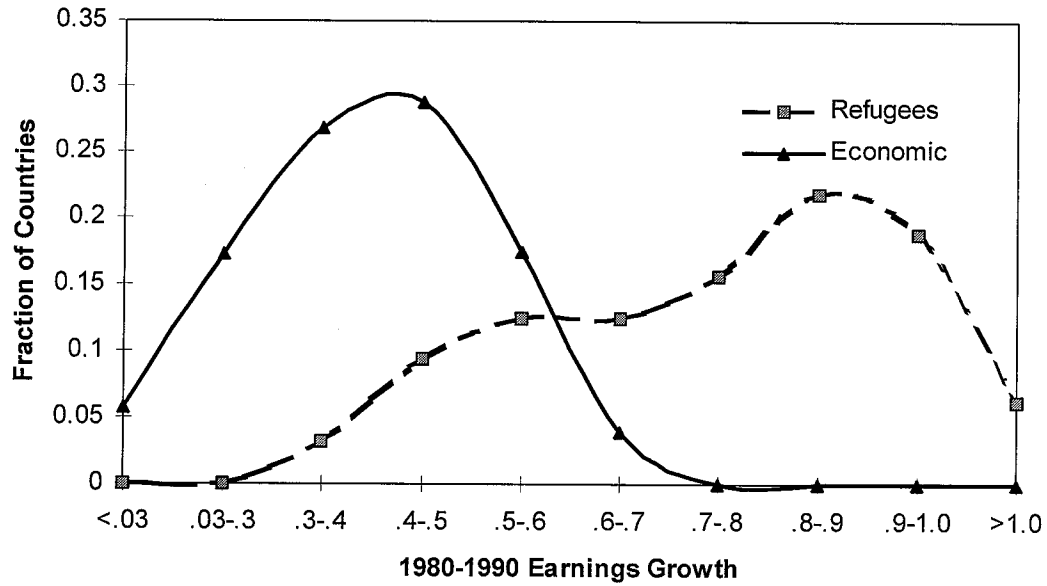
Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1980 and 1990, tabulations by author.

FIGURE 6. FEMALE SAMPLE

Smoothed Histograms of Country-Specific Growth Rates of Females: Refugee versus Economic Immigrant Sending Countries
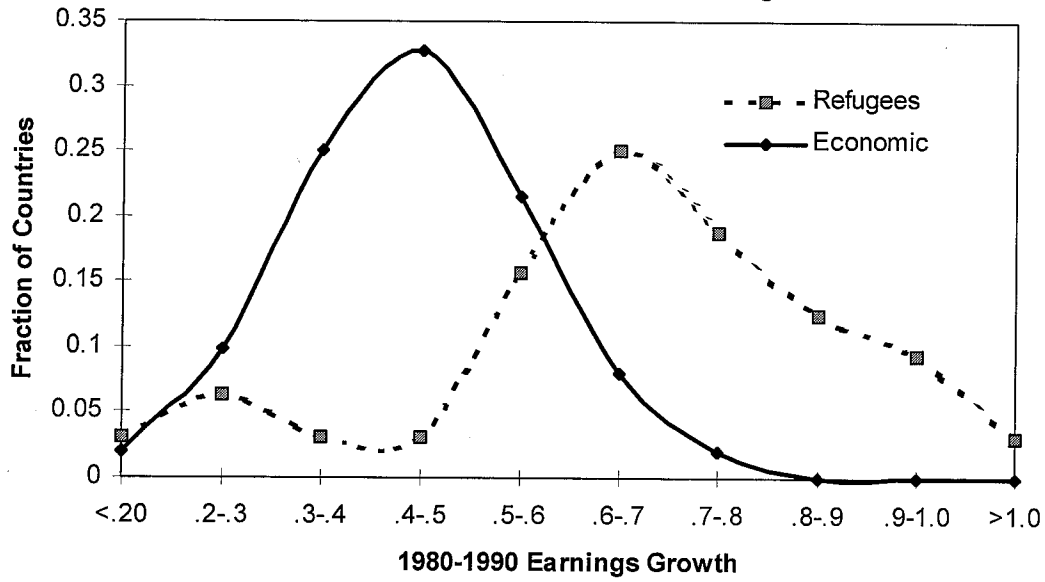
Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990.
Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1980 and 1990, tabulations by author.

TABLE 1. SAMPLE SIZES OF REFUGEE AND ECONOMIC IMMIGRANTS – FIXED COHORT YEAR OF IMMIGRATION 1975-1980

	1980 Census	1990 Census
Refugees	12,086	9,614
Country of Origin		
Afghanistan	95	83
Cuba	843	588
Russia	2119	1,411
Ethiopia	131	110
Haiti	1,134	924
Cambodia	505	488
Laos	1,239	939
Vietnam	6,020	5,071

|	1980 Census	1990 Census
Economic Immigrants	67,135	58,621
Country/Region of Origin		
Mexico	23,435	25,276
Central America	4,430	4,797
Caribbean	1,674	1,330
South America	5,328	3,613
Northern Europe	613	255
Western Europe	1,242	602
Southern Europe	3,607	2,830
Central Eastern Europe	3,512	2,700
East Asia	11,542	8,362
Southeast Asia	1,558	891
Middle East & Asia Minor	4,018	2,289
Philippines	5,215	5,101
Northern Africa	961	575

Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Year of immigration 1975-1980.

Sources: Public Use Micro Samples (PUMS) 1980 and 1990.

Table 2. CHARACTERISTICS OF REFUGEES AND ECONOMIC IMMIGRANTS FOR THE FIXED COHORT YEAR OF IMMIGRATION 1975-1980 (PERCENT)

| (in percent)	Refugee Immigrants		Economic Immigrants	
	1980 Census	1990 Census	1980 Census	1990 Census
Gender				
Male	54	48	52	49
Female	46	52	48	51
Marital Status				
Married	53	73	56	76
Number of Children [a]				
None	55	32	60	28
One	17	18	16	16
Two	13	24	13	27
Three	6	13	6	16
Four	4	7	2	7
Five - Nine	5	6	2	5
Regional Enclaves				
Northeast	21	19	20	16
Midwest	14	8	13	9
South	27	29	20	22
West	37	44	47	53
Educational Attainment				
None, Kinder, Grade 1-4	9	9	12	16
Grade 5-8	13	6	21	20
Grade 9	7	2	6	5
Grade 10	7	3	5	3
Grade 11	7	2	5	2
Grade 12	26	26	20	21
1-3 Years of College	18	28	15	16
4+ Years of College	13	24	16	17
Other				
Low English	45	22	46	33
School Enrollment	31	13	21	11
Citizenship Status	6	63	8	38

Notes: [a] Refers to number of own children in the household. Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Year of immigration 1975-1980.
Sources: Public Use Micro Samples (PUMS) 1980 and 1990.

TABLE 3. DATA AND SUMMARY STATISTICS – MEANS OF LOG ANNUAL EARNINGS, LOG WEEKLY EARNINGS, AND LOG HOURLY EARNINGS

Immigrant Groups	Log Annual Earnings				Log Weekly Earnings				Log Hourly Earnings			
	1980		1990		1980		1990		1980		1990	
Pooled Sample												
Refugee	8.87	(0.015)	9.76	(0.010)	5.48	(0.011)	5.99	(0.009)	1.97	(0.012)	2.33	(0.009)
Economic	8.98	(0.005)	9.52	(0.005)	5.48	(0.004)	5.82	(0.004)	1.89	(0.004)	2.17	(0.004)
Change for Refugees			0.89				0.51				0.36	
Change for Economic			0.54				0.34				0.28	
Relative Gain of Refugees			**0.35**				**0.17**				**0.08**	
Male Sample												
Refugee	9.03	(0.019)	9.93	(0.013)	5.61	(0.015)	6.13	(0.011)	2.06	(0.014)	2.43	(0.012)
Economic	9.18	(0.007)	9.72	(0.005)	5.60	(0.005)	5.96	(0.004)	1.96	(0.006)	2.24	(0.005)
Change for Refugees			0.90				0.52				0.37	
Change for Economic			0.54				0.36				0.28	
Relative Gain of Refugees Males			**0.36**				**0.16**				**0.09**	
Female Sample												
Refugee	8.64	(0.023)	9.54	(0.016)	5.30	(0.018)	5.81	(0.013)	1.83	(0.018)	2.19	(0.012)
Economic	8.67	(0.008)	9.25	(0.007)	5.28	(0.006)	5.62	(0.006)	1.77	(0.007)	2.07	(0.006)
Change for Refugees			0.90				0.51				0.36	
Change for Economic			0.58				0.34				0.30	
Relative Gain of Refugee Females			**0.32**				**0.17**				**0.06**	

Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Standard deviations are in parentheses. Year of immigration 1975-1980.
Sources: Public Use Micro Samples (PUMS) 1980 and 1990.

TABLE 4. LOG ANNUAL EARNINGS REGRESSION RESULTS FOR MALES AND FEMALES

Model Specification	Model 1 (no controls)		Model 2 (with controls)		Model 3 (w/ controls + CSHC)		Model 4 (w/ controls + CSHC + educational attainment)	
	Male	Female	Male	Female	Male	Female	Male	Female
Constant	9.2806***	8.8760***	2.4166***	-0.9391	2.5673***	-0.6489	2.6415***	1.0118
	(0.0061)	(0.0084)	(0.5524)	(0.7330)	(0.5395)	(0.7190)	(0.5282)	(0.7079)
Dummy90	0.5163***	0.5475***	0.2478***	0.3913***	0.2370***	0.4126***	0.3119***	0.4310***
	(0.0085)	(0.0112)	(0.0095)	(0.0130)	(0.0109)	(0.0149)	(0.0108)	(0.0145)
Refugee	-0.0762***	0.0030	-0.1271***	0.0008	-0.1797***	-0.0221	-0.1863***	-0.0057
	(0.0169)	(0.0222)	(0.0162)	(0.0219)	(0.0160)	(0.0215)	(0.0157)	(0.0211)
Refugee90	0.2842***	0.2054***	0.3374***	0.2239***	0.3163***	0.1987***	0.2463***	0.1571***
	(0.0231)	(0.0291)	(0.0221)	(0.0285)	(0.0217)	(0.0280)	(0.0212)	(0.0274)
Low English	--	--	--	--	-0.3098***	-0.2283***	-0.1246***	-0.0372**
					(0.0109)	(0.0154)	(0.0114)	(0.0161)
Low Eng90	--	--	--	--	-0.1698***	-0.2692***	-0.1549***	-0.2372***
					(0.0158)	(0.0215)	(0.0155)	(0.0210)
Adjusted R²	0.0902	0.0933	0.1760	0.1318	0.2143	0.1661	0.2543	0.2071

Notes: Refugee dummy variable takes a value of 1 if individual i is from one of the following countries: Afghanistan, Cuba, Russia, Ethiopia, Haiti, Cambodia, Laos, and Vietnam (as listed in Table 1), and 0 otherwise. The omitted comparison groups are male and female economic immigrants. Number of observations: 51,509 for male regressions and 31,724 for female regressions. ***, **, * are statistically significant at the 1, 5, 10 percent level, respectively. Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Standard errors are in parentheses. Year of immigration 1975-1980.

Model Specifications:

Model 1: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + \mu_{i,t}$

Model 2: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \mu_{i,t}$

Model 3: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng + \beta_1 Low\_Eng^{1990} + \mu_{i,t}$

Model 4: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng + \beta_1 Low\_Eng^{1990} + Educ_{i,t}\theta + \mu_{i,t}$

where $Ln(y)_{i,t}$ is log annual earnings which is defined as wages plus salary. D^{1990} is a dummy variable indicating the 1990 census year, $D^{Refugee}$ is a dummy variable indicating a refugee immigrant, $D^{1990} D^{Refugee}$ is a dummy variable indicating a refugee immigrant from the 1990 census. $X_{i,t}$ is a vector of control variables (i.e., age, age², age³, age⁴, region, and marital status). The variables Low_Eng and Low_Eng^{1990} indicate low English ability and low English ability in 1990, respectively, and the two represent country-specific human capital (CSHC). $Educ_{i,t}$ is a vector of educational attainment variables (i.e., kindergarten, grades 1-4, grade 5-8, grade 9, grade 10, grade 11, grade 12, 1 to 3 years of college, and 4 plus years of college). Lastly, $\mu_{i,t}$ is an error term.

Source: Public Use Micro Samples (PUMS) 1990 and 1980.

TABLE 5. LOG HOURLY EARNINGS REGRESSION RESULTS FOR MALES AND FEMALES

Model Specification	Model 1 (no controls)		Model 2 (with controls)		Model 3 (w/ controls + CSHC)		Model 4 (w/ controls + CSHC + educational attainment)	
	Male	Female	Male	Female	Male	Female	Male	Female
Constant	1.9583***	1.7737***	2.2453***	-0.5342	2.4153***	-0.1901	2.4545***	1.3865***
	(0.0052)	(0.0067)	(0.4838)	(0.5915)	(0.4742)	(0.5789)	(0.4626)	(0.5655)
Dummy90	0.2829***	0.2969***	0.1347***	0.2451***	0.0988***	0.2376***	0.1704***	0.2528***
	(0.0073)	(0.0089)	(0.0083)	(0.0105)	(0.0096)	(0.0120)	(0.0094)	(0.0116)
Refugee	0.0975***	0.0573***	0.0698***	0.0634***	0.0205	0.0319**	0.0111	0.0495***
	(0.0145)	(0.0177)	(0.0142)	(0.0177)	(0.0140)	(0.0173)	(0.0137)	(0.0168)
Refugee90	0.0919***	0.0664***	0.1202***	0.0755***	0.1150***	0.0610***	0.0499***	0.0234
	(0.0197)	(0.0232)	(0.0193)	(0.0230)	(0.0191)	(0.0226)	(0.0186)	(0.0219)
Low English	--	--	--	--	-0.2906***	-0.2401***	-0.1125***	-0.0573***
					(0.0095)	(0.0124)	(0.0099)	(0.0129)
Low Eng90	--	--	--	--	-0.0639***	-0.1599***	-0.0533***	-0.1302***
					(0.0139)	(0.0173)	(0.0135)	(0.0168)
Adjusted R^2	0.0404	0.0444	0.0835	0.0624	0.1198	0.1035	0.1708	0.1609

Notes: Refugee dummy variable takes a value of 1 if individual i is from one of the following countries: Afghanistan, Cuba, Russia, Ethiopia, Haiti, Cambodia, Laos, and Vietnam (as listed in Table 1), and 0 otherwise. The omitted comparison groups are male and female economic immigrants. Number of observations: 51,509 for male regressions and 31,724 for female regressions. ***, **, * are statistically significant at the 1, 5, 10 percent level, respectively. Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Standard errors are in parentheses. Year of immigration 1975-1980.

Model Specifications:

Model 1: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + \mu_{i,t}$

Model 2: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \mu_{i,t}$

Model 3: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng + \beta_1 Low\_Eng^{1990} + \mu_{i,t}$

Model 4: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng + \beta_1 Low\_Eng^{1990} + Educ_{i,t}\theta + \mu_{i,t}$

where $Ln(y)_{i,t}$ is log annual earnings which is defined as wages plus salary. D^{1990} is a dummy variable indicating the 1990 census year, $D^{Refugee}$ is a dummy variable indicating a refugee immigrant, $D^{1990} D^{Refugee}$ is a dummy variable indicating a refugee immigrant from the 1990 census. $X_{i,t}$ is a vector of control variables (i.e., age, age^2, age^3, age^4, region, and marital status). The variables Low_Eng and Low_Eng^{1990} indicate low English ability and low English ability in 1990, respectively, and the two represent country-specific human capital (CSHC). $Educ_{i,t}$ is a vector of educational attainment variables (i.e., kindergarten, grades 1-4, grade 5-8, grade 9, grade 10, grade 11, grade 12, 1 to 3 years of college, and 4 plus years of college). Lastly, $\mu_{i,t}$ is an error term.

Source: Public Use Micro Samples (PUMS) 1990 and 1980.

TABLE 6. LOG ANNUAL HOURS REGRESSION RESULTS FOR MALES AND FEMALES

Model Specification	Model 1 (no controls)		Model 2 (with controls)		Model 3 (w/ controls + CSHC)		Model 4 (w/ controls + CSHC + educational attainment)	
	Male	Female	Male	Female	Male	Female	Male	Female
Constant	7.3224***	7.1024***	0.1713	-0.4049	0.1520	-0.4587	0.1870	-0.3747
	(0.0042)	(0.0064)	(0.3881)	(0.5662)	(0.3873)	(0.5661)	(0.3890)	(0.5718)
Dummy90	0.2336***	0.2506***	0.1130***	0.1462***	0.1382***	0.1750***	0.1415***	0.1782***
	(0.0058)	(0.0086)	(0.0066)	(0.0100)	(0.0078)	(0.0117)	(0.0079)	(0.0117)
Refugee	-0.1737***	-0.0543***	-0.1969***	-0.0625***	- 0.2001***	-0.0612***	-0.1974***	-0.0553***
	(0.0116)	(0.0170)	(0.0114)	(0.0169)	(0.0115)	(0.0169)	(0.0115)	(0.0170)
Refugee90	0.1924***	0.1390***	0.2173***	0.1484***	0.2013***	0.1377***	0.1966***	0.1338***
	(0.0158)	(0.0222)	(0.0155)	(0.0220)	(0.0156)	(0.0221)	(0.0156)	(0.0221)
Low English	--	--	--	--	-0.0192***	0.0118	-0.0120	0.0200
					(0.0078)	(0.0121)	(0.0084)	(0.0130)
Low Eng90	--	--	--	--	-0.1060***	-0.1094***	-0.1016***	-0.1070***
					(0.0114)	(0.0169)	(0.0114)	(0.0170)
Adjusted R^2	0.0463	0.0371	0.0907	0.0605	0.0948	0.0625	0.0959	0.0637

Notes: Refugee dummy variable takes a value of 1 if individual i is from one of the following countries: Afghanistan, Cuba, Russia, Ethiopia, Haiti, Cambodia, Laos, and Vietnam (as listed in Table 1), and 0 otherwise. The omitted comparison groups are male and female economic immigrants. Number of observations: 51,509 for male regressions and 31,724 for female regressions. ***, **, * are statistically significant at the 1, 5, 10 percent level, respectively. Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Standard errors are in parentheses. Year of immigration 1975-1980.

Model Specifications:

Model 1: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + \mu_{i,t}$

Model 2: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \mu_{i,t}$

Model 3: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng + \beta_1 Low\_Eng^{1990} + \mu_{i,t}$

Model 4: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + \alpha_2 D^{Refugee} + \alpha_3 D^{1990} D^{Refugee} + X_{i,t}\gamma + \beta_0 Low\_Eng + \beta_1 Low\_Eng^{1990} + Educ_{i,t}\theta + \mu_{i,t}$

where $Ln(y)_{i,t}$ is log annual earnings which is defined as wages plus salary. D^{1990} is a dummy variable indicating the 1990 census year, $D^{Refugee}$ is a dummy variable indicating a refugee immigrant, $D^{1990}D^{Refugee}$ is a dummy variable indicating a refugee immigrant from the 1990 census. $X_{i,t}$ is a vector of control variables (i.e., age, age^2, age^3, age^4, region, and marital status). The variables Low_Eng and Low_Eng^{1990} indicate low English ability and low English ability in 1990, respectively, and the two represent country-specific human capital (CSHC). $Educ_{i,t}$ is a vector of educational attainment variables (i.e., kindergarten, grades 1-4, grade 5-8, grade 9, grade 10, grade 11, grade 12, 1 to 3 years of college, and 4 plus years of college). Lastly, $\mu_{i,t}$ is an error term.

Source: Public Use Micro Samples (PUMS) 1990 and 1980.

TABLE 7. 1980-1990 EARNINGS GROWTH FOR COUNTRY/REGION-SPECIFIC REFUGEE AND ECONOMIC IMMIGRANTS GROUPS

	Coefficients and Standard Errors	
Refugees from	**Male**	**Female**
Afghanistan	0.95*** (0.29411)	0.67 (0.43922)
Cuba	0.71*** (0.10728)	0.83*** (0.15126)
Russia	0.85*** (0.06820)	0.94*** (0.07395)
Ethiopia	0.92*** (0.26079)	0.66*** (0.23924)
Haiti	0.60*** (0.07923)	0.69*** (0.09570)
Cambodia (Khmer)	0.88*** (0.12439)	0.73*** (0.18006)
Lao	0.59*** (0.08798)	0.21 (0.13969)
Vietnam	0.47*** (0.03173)	0.53*** (0.03835)

Economic Immigrants from	**Male**	**Female**
Mexico	0.28*** (0.01408)	0.24*** (0.02515)
Central America	0.43*** (0.03745)	0.48*** (0.04118)
Caribbean	0.58*** (0.06761)	0.52*** (0.07575)
South America	0.37*** (0.03541)	0.48*** (0.04740)
Northern Europe	0.03 (0.11992)	0.36* (0.21083)
Western Europe	0.03 (0.07552)	0.45*** (0.13735)
Southern Europe	0.39*** (0.03808)	0.39*** (0.05339)
Central Eastern Europe	0.33*** (0.04380)	0.42*** (0.05282)
East Asia	0.43*** (0.02636)	0.67*** (0.03122)
Southeast Asia	0.53*** (0.08671)	0.38*** (0.08810)
Middle East & Asia Minor	0.47*** (0.04932)	0.42*** (0.08672)
Philippines	0.42*** (0.03112)	0.57*** (0.03347)
Northern Africa	0.47*** (0.09057)	0.43** (0.19706)

Notes: ***,**, * are statistically significant at the 1, 5, 10 percent level, respectively. Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Standard errors are in parentheses. Model specification: $Ln(y)_{i,t} = \alpha_0 + \alpha_1 D^{1990} + X_{i,t}\gamma + \mu_{it}$, where $Ln(y)_{i,t}$ is log annual earnings, the variable D^{1990} is a dummy variable indicating the 1990 census year, $X_{i,t}$ is a vector of control variables (i.e., age, age^2, age^3, age^4, region, marital status), and $\mu_{i,t}$ is an error term.
Source: Public Use Micro Samples (PUMS) 1990 and 1980.

TABLE 8. DECOMPOSITION OF EARNINGS GROWTH FROM TABLE 4

	Model 1		Model 2		Model 3		Model 4	
	Male	Female	Male	Female	Male	Female	Male	Female
Earnings growth of refugees relative to economic immigrants from 1980 to 1990, α_3	**0.28**	**0.21**	**0.34**	**0.22**	**0.32**	**0.20**	**0.25**	**0.16**
Asian Refugee term, $s_R\alpha_3^A$	0.03	-0.03	0.01	-0.05	0.01	-0.04	-0.007	-0.05
Non-Asian Refugee term, $(1 - s_R)\alpha_3^N$	0.23	0.27	0.33	0.33	0.31	0.29	0.28	0.27
Asian effect term, $(y^{A,E} - y^{NA,E})(s_R - s_E)$	0.02	-0.03	0	-0.06	0	-0.05	-0.024	-0.06

Notes: Asian refugees include immigrants from Cambodia, Laos, and Vietnam. Asian economic immigrants include immigrants from East Asia, Southeast Asia, and the Philippines. s_R^{Male} (share of male refugees who are Asian) = 0.37 and s_R^{Fem} (share of female refugees who are Asian) = 0.38. Recall that $\alpha_3 = s_R\alpha_3^A + (1-s_R)\alpha_3^N + (y^{A,E} - y^{NA,E})(s_R - s_E)$. Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1990 and 1980.

TABLE 9. MEANS OF LOW ENGLISH

	Low English			
Immigrant Groups	**1980**		**1990**	
Pooled				
Refugee	0.45	(0.005)	0.22	(0.004)
Economic	0.46	(0.002)	0.33	(0.002)
Change for Refugees			-0.23	
Change for Economic			-0.13	
Relative Gain of Refugees			**0.10**	
Male				
Refugee	0.43	(0.006)	0.19	(0.006)
Economic	0.46	(0.003)	0.31	(0.003)
Change for Refugees			-0.24	
Change for Economic			-0.15	
Relative Gain of Refugees Males			**0.09**	
Female				
Refugee	0.48	(0.007)	0.26	(0.006)
Economic	0.47	(0.003)	0.35	(0.003)
Change for Refugees			-0.22	
Change for Economic			-0.12	
Relative Gain of Refugee Females			**0.10**	

Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for the 1990. Standard deviations are in parentheses. Year of immigration 1975-1980.
Sources: Public Use Micro Samples (PUMS) 1980 and 1990.

TABLE 10. PERCENT OF ANNUAL EARNINGS, ANNUAL HOURLY EARNINGS, AND ANNUAL HOURS GROWTH VIA ENGLISH IMPROVEMENT (PERCENT)

	Refugee Immigrants		*Economic Immigrants*	
	Males	Females	Males	Females
Annual Earnings	7	6	4	3
Annual Hourly Earnings	4	4	2	2
Annual Hours	3	3	2	2

Notes: Sample selection of foreign-born individuals ages 16 to 45 for 1980 and ages 26 to 55 for 1990. Year of immigration 1975-1980.
Source: Public Use Micro Samples (PUMS) 1990 and 1980.

Appendix

TABLE A1. REGRESSION RESULTS FROM FOOTNOTE 9

Dependent Variable Log Annual Earnings

Male Sample	Model 1 (no controls)		Model 2 (with controls)		Model 3 (w/ cntrls + CSHC)		Model 4 (w/ cntrls + CSHC + educ. attainment)
	Coef	Std err	Coef	Std err	Coef	Std err	
Asian Constant	9.4530***	(0.0128)	2.3342***	(0.5477)	2.4860***	(0.5370)	2.5509***(0.5269)
Non-Asian Constant	9.2299***	(0.0069)	2.2568***	(0.5477)	2.5052***	(0.5370)	2.7255***(0.5270)
Asian90	0.6982***	(0.0182)	0.5184***	(0.0179)	0.4773***	(0.0178)	0.4917***(0.0174)
Non-Asian90	0.4761***	(0.0095)	0.1969***	(0.0105)	0.1637***	(0.0124)	0.2293***(0.0122)
Asian Refugee	-0.2225***	(0.0234)	-0.1063***	(0.0224)	-0.0904***	(0.0220)	0.0325 (0.0216)
Non-Asian Ref	-0.0715***	(0.0269)	-0.2525***	(0.0259)	-0.3190***	(0.0255)	-0.3969***(0.0250)
Asian Refugee 90	0.0799***	(0.0319)	0.0254	(0.0304)	0.0279	(0.0299)	-0.0158 (0.0292)
Non-Asian Ref 90	0.3631***	(0.0378)	0.4932***	(0.0363)	0.4680***	(0.0357)	0.4204***(0.0349)
Adjusted R²	0.1105		0.1900		0.2217		0.2583

Dependent Variable Log Annual Earnings

Female Sample	Model 1 (no controls)		Model 2 (with controls)		Model 3 (w/ cntrls + CSHC)		Model 4 (w/ cntrls + CSHC + educ. attainment)
	Coef	Std err	Coef	Std err	Coef	Std err	
Asian Constant	8.9908***	(0.0134)	-1.5365**	(0.7236)	-1.2657*	(0.7143)	0.2844 (0.7075)
Non-Asian Constant	8.8054***	(0.0103)	-1.6361**	(0.7225)	-1.2912*	(0.7133)	0.3744 (0.7057)
Asian90	0.7307***	(0.0180)	0.6516***	(0.0190)	0.6251***	(0.0192)	0.6014*** (0.0188)
Non-Asian90	0.4481***	(0.0137)	0.2810***	(0.0155)	0.2867***	(0.0185)	0.2982*** (0.0182)
Asian Refugee	-0.0321	(0.0292)	0.0594**	(0.0288)	0.0799***	(0.0284)	0.2008*** (0.0281)
Non-Asian Ref	-0.0491	(0.0464)	-0.1461***	(0.0335)	-0.1916***	(0.0332)	-0.2800*** (0.0328)
Asian Refugee 90	-0.0643*	(0.0379)	-0.1280***	(0.0372)	-0.1073***	(0.0368)	-0.1364*** (0.0361)
Non-Asian Ref 90	0.4403***	(0.0553)	0.5279***	(0.0446)	0.4732***	(0.0443)	0.4371*** (0.0435)
Adjusted R²	0.2339		0.1603		0.1832		0.2153

Notes: Number of observations for the male and female regressions 51,510 and 31,725. ***, **, * are statistically significant at the 1, 5, 10 percent level, respectively. Model specification:

$Ln(annearn)_{i,t} = \alpha_0 + \alpha_0^A D^A + X_{i,t}\gamma + \alpha_1^A D^{1990}D^A + \alpha_1^N D^{1990}D^N + \alpha_2^A D^{Ref}D^A + \alpha_2^N D^{Ref}D^N + \alpha_3^A D^{1990}D^{Ref}D^A + \alpha_3^N D^{1990}D^{Ref}D^N + \mu_{it}$, where $Ln(annearn)_{i,t}$ is log annual earnings, which is defined as wages plus salary. The explanatory variables are: a vector of control variables, $X_{i,t}$ (i.e., age, age², age³, age⁴, region, marital status, low English, low English in 1990, and educational attainment), D^A is a dummy variable for any Asian immigrant, $D^{1990}D^A$ is a dummy variable for any Asian immigrant in 1990, $D^{1990}D^N$ is a dummy variable for any non-Asian immigrant in 1990, $D^{Ref}D^A$ is a dummy variable indicating Asian refugee, $D^{Ref}D^N$ is a dummy variable indicating non-Asian refugee, $D^{1990}D^{Ref}D^A$ is a dummy variable indicating Asian refugee in 1990, $D^{1990}D^{Ref}D^N$ is a dummy variable indicating non-Asian refugee in 1990, and $\mu_{i,t}$ is an error term.
Source: Public Use Micro Samples (PUMS) 1990 and 1980.