

# Immigrant Earnings Patterns In High Immigration States

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## Abstract

*This paper examines and measures the extent of wage convergence of immigrants to native-born workers. The focus is on a dimension of immigrant labor market assimilation that has been largely overlooked in this literature; particularly, how differences in local labor market wage-setting mechanisms affect the process of wage convergence. Recently, some have argued that immigrants arriving after the 1970s will possess inferior assimilation abilities relative to previous immigrant cohorts because they lack essential skills. This paper shows that wage convergence varies significantly between high-immigration states and that the wage-setting structure can be a significant factor in the assimilation process. The results also indicate that recent immigrants begin their process of assimilation from a position that is similar to previous immigrants and that if their human capital accumulation rates mirror those of previous cohorts, successful wage convergence will rest on the development of an equitable pay structure.*

## 1.0 Introduction

The large increase in immigration flows during the 1980s has given rise to an intense debate about the guidelines that should be followed in setting immigration policy. Immigration is, in particular, a major concern if it results in a transfer of income resources from native- to foreign-born individuals. One way in which this can occur is if immigrants are not capable of assimilating into the labor market (i.e., achieve wage convergence) and, as a result, become more dependent on income transfer programs. These are separate questions and it is not necessarily the case that one outcome follows the other. This paper, therefore, attempts to only provide insights on the issue of immigrant assimilation.

The goal is not only to address the issue of wage convergence, but also to decompose any existing wage gaps between native- and foreign-born workers. In particular, this study investigates two issues that have been largely overlooked by the immigration literature: how the unexplained portion of the wage gap between immigrants and natives is affected by changes in the wage structure and how local labor market wage-setting mechanisms affect the assimilation process.

## 2.0 Previous Findings and New Questions

The study by Chiswick (1978) was one of the first to estimate job market assimilation. The results suggested that immigrants assimilate and their earnings actually increase at a higher rate than those of natives. While initially foreign-born men receive earnings that are at least 10 percent lower than their native-born counterparts, earnings converge after approximately 13 years and are 6 percent higher after 20 years (Chiswick 1978).

According to Borjas (1985), however, these results are flawed. Cross-sectional results that do not account for the changing characteristics of immigrant cohorts will not provide accurate results. For example, recent immigrant arrivals may have inherently different characteristics (e.g., skill, innate ability, etc.) compared to previous

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cohorts. If this is the case, an accurate estimate of future earnings for recent arrivals cannot be calculated by using information on the labor market experiences of previous cohorts (Borjas 1994).

Controlling for cohort-specific effects yields results that show that the expected wages of immigrants vary with the period of arrival. More specifically, expected earnings for recent immigrants are lower than those for immigrants arriving earlier. Furthermore, the growth of earnings for more recent cohorts (i.e., those arriving after 1975) is not sufficient for immigrants to overcome their initial earnings disadvantage (Borjas 1985, 1995). Although recent immigrants do experience some earnings growth, a 15 to 20 percent wage gap is found to persist for most of the working years (Borjas 1995).

The standard model in the literature now estimates a wage equation that controls for years since immigration, cohort-specific effects, year-specific effects, and other observable human capital and demographic characteristics. The obvious issue that arises with the generic specification, however, is perfect multicollinearity.<sup>1</sup> The years since immigration variable is a linear combination of the year-specific effect (calculated by using an indicator for the year of the survey from which an observation was drawn) and the cohort-specific effect. In order to avoid this problem, studies have imposed the restriction that period effects be the same for immigrants and natives (Borjas 1985, 1995; LaLonde and Topel 1992; Schoeni 1997).

Solving the multicollinearity problem in this fashion, however, creates a legitimate concern about the assumption of period effects. While there has been no formal testing of this assumption in these studies, Borjas (1994, p.1676) claims that "it is unlikely, however, that changes in the wage structure account for the downward trend in relative wages across successive immigrant cohorts or for the slow wage convergence between immigrants and natives." Instead, Borjas (1994) points to the reduction in the levels of immigrant educational attainment as the culprit. However, Sorensen and Enchautegui (1994) and Funkhouser and Trejo (1995) using Current Population Survey (CPS) data find that the skill level of immigrants increased in the 1980s.<sup>2</sup>

Nevertheless, relying solely on changes in skill composition to explain assimilation patterns ignores recent findings suggesting that returns to education and experience changed sharply for both native- and foreign-born workers during the 1980s (Murphy and Welch 1992; Juhn, Murphy, and Pierce 1993; Katz, Loveman, and Blanchflower 1995; Funkhouser and Trejo 1995). Furthermore, to the extent that immigrants and natives do not have similar human capital distributions, it is not likely that these structural changes will affect their earnings equally.

Another potential problem with these studies is the assumption of identical earnings growth rates across immigrant cohorts. Duleep and Regets (1996) found that more recent cohorts have an initial earnings disadvantage but experience more rapid earnings growth relative to earlier cohorts. Restricting growth rates to be constant across cohorts, therefore, may tend to conceal assimilation (Schultz 1998).

This paper focuses on the issue of immigrant assimilation by paying particular attention to changes in the structure of wages. Two questions will be addressed. First, do the earnings of immigrants converge to those of native-born workers over time? Second, are changes in the earnings gaps between natives and immigrants primarily the result of declining human capital characteristics or structural shifts in the wage setting process?

While many studies have allowed for structural breaks (i.e., for the effect of education and age to vary between foreign- and native-born, and/or between survey years), there have been few attempts to examine the significance of this phenomenon or decompose the resulting wage gaps.<sup>3</sup> In addition, studies have ignored the existence of immigrant concentrations in areas that may have distinct wage-setting processes. One expectation is that immigrants with highly transferable human capital will have few geographic constraints while those with less transferable skills will want to locate in areas with immigrant enclaves (Duleep and Regets 1997). Local labor markets may reward those with transferable skills with higher returns for their human capital. Another possibility, however, is that those in or near immigrant enclaves may receive better knowledge about job search strategies and receive larger returns for their human capital, even if their stock of skill is lower. In any case, if local labor markets generate differential returns to skills and/or appear to have a discriminatory wage-setting structure, the assimilation process will vary across

regions. This paper directly addresses this issue by comparing assimilation profiles among the high-immigration states.

If immigrants are not assimilating and human capital characteristics are primarily responsible for this pattern, then we should find that a large proportion of wage gaps are explained by observable differences in the productivity characteristics of the two groups. In this case, immigration policy may need to focus on the reforming of admission criteria. On the other hand, if a relatively large fraction of wage gaps are unexplained, then amendments to admission criteria may not solve the assimilation problem.

Immigration policy has traditionally been determined at the national level, but since many income transfer and social welfare policies are determined at the state-level, a comparison of the assimilation process across these regions should provide an indication as to which states have a legitimate concern over immigration flows. Many high-immigration states have demanded that national actions be taken to curb immigration, so this issue deserves special attention.

### 3.0 The Empirical Model

The basis for the empirical work is a standard human capital model initially modified by Chiswick (1978) to address the issue of immigrant assimilation. This model was later extended by Borjas (1985) to pool data from two cross-sections and incorporate cohort-effects. In addition, some studies have included factors that are uniquely expected to influence immigrants' earnings. In particular, English language proficiency has been found to be a significant determinant of labor market outcomes for immigrants (McManus, Gould, and Welch 1983; Chiswick 1991; Gonzalez 2000; Park 1999; Stolzenberg and Tienda 1997).

The empirical specification in this study follows previous work, with the additional objective of accounting for structural differences in the wage-setting process between native-born and immigrant workers, between immigrant cohorts, across survey years, and between geographic regions. The basic wage equations are given by

$$w_{in} = \mathbf{x}'_{in} \boldsymbol{\alpha}_n + v_{in} \quad (1)$$

$$w_{if} = \mathbf{x}'_{if} \boldsymbol{\alpha}_f + \mathbf{e}'_{if} \boldsymbol{\delta}_f + \mathbf{m}'_{if} \boldsymbol{\phi}_f + \varepsilon_{if} \quad (2)$$

where the  $i$ ,  $n$ , and  $f$ , subscripts represent individual, native-born, and foreign-born, respectively;  $w$  is the natural log of hourly wages;  $\mathbf{x}$  is a vector of socioeconomic characteristics (education, age, marital status, health status, and an indicator of metropolitan residence);  $\mathbf{e}$  is a vector of indicators representing English language ability; and  $\mathbf{m}$  is a matrix of indicators for the number of years the immigrant has resided in the U.S. (i.e., 0-5 years, 6-10 years, etc.). These regressions are estimated separately for each year (1980 and 1990) and, for immigrants, each cohort (e.g., 1980-89, 1970-79, and pre-1970). Particular attention is given to high-immigration areas; so unique parameter estimates are obtained for six different states (California, Florida, Illinois, New Jersey, New York, and Texas).

One potential problem of estimating assimilation with this type of empirical model is selective emigration. If return migrants mainly consist of unsuccessful workers (i.e., those unable to assimilate), the rate of wage convergence will tend to be overestimated. On the other hand, if emigrants consist of the most successful workers that can now return to take advantage of a wider income distribution in their country of origin, then the rate of assimilation will tend to be understated. However, Lindstrom and Massey (1994), combining information from a binational survey containing data on return migrants in Mexico and a 1990 U.S. Census sample, have shown that selective emigration does not significantly bias wage regressions estimated from cross-sectional data.<sup>5</sup> It is not possible to address this without data on return migrants, but given prior evidence and treatment of this issue in the literature (Borjas 1994), in this paper the potential bias is also assumed to be insignificant.

### 4.0 The Data

This paper uses the 1980 “B” and 1990 “1%” extracts of the Integrated Public Use Microdata samples (IPUMS). Both have sample densities of 1/100 and are compatible-format individual-level samples from the U.S. Census (Ruggles and Sobek 1997). These files allow for a straightforward identification of foreign-born individuals and cohort by year of immigration.<sup>6</sup>

The samples used to estimate the wage equations include males aged 16-64 who reported all of the necessary personal and employment information. Hourly wages are defined as annual earnings/number of weeks worked/usual hours worked per week. In addition, only civilian, non-student, wage and salary workers are included.

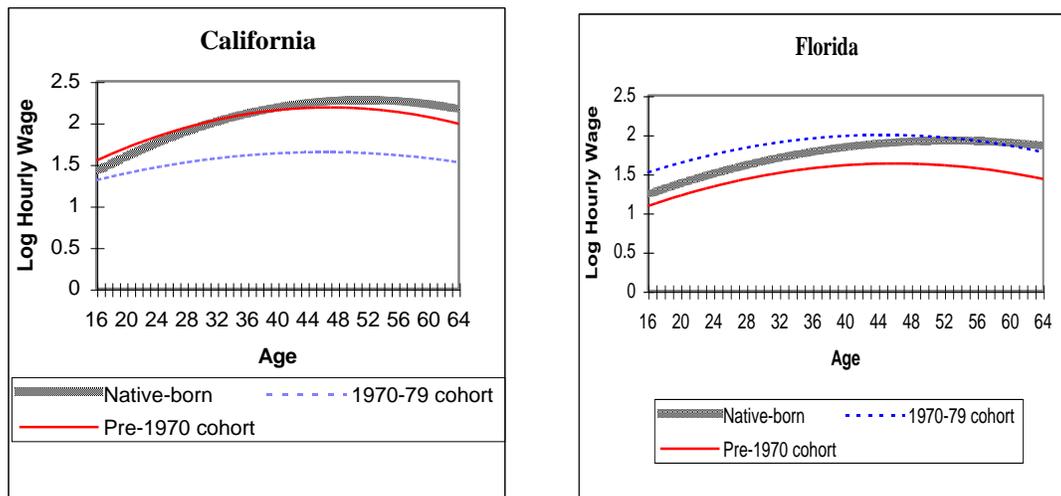
**5.0 Results**

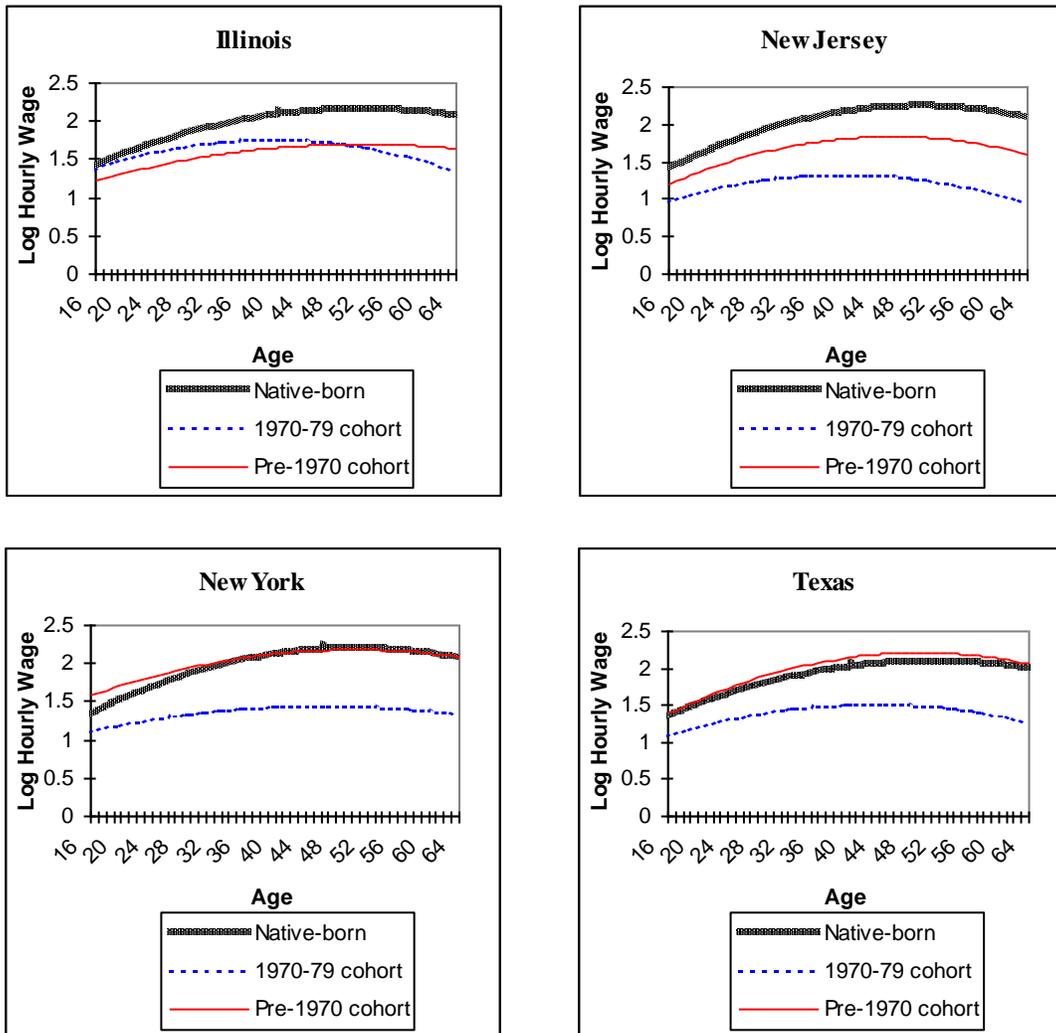
Estimations of equations (1) and (2) are used to obtain earnings profiles for natives and immigrants. These suggest that there are significant differences in wages and earnings growth across cohorts. In general, since more recent cohorts have flatter wage profiles, it appears that they may face more assimilation difficulties.

In addition to the slope of the age-earnings profiles, the position of immigrants’ earnings functions is also an important determinant of wage convergence. In 1980, the age-earnings profile for immigrants that arrived before 1970 in California, New York, and Texas exhibits successful labor market assimilation despite the fact that those immigrants appear to have slower earnings growth. By 1980, the pre-1970 cohort has achieved wage convergence in nearly all of the high-immigration states. The disadvantages from a flatter age-earnings profile are outweighed by increases in acquired human capital and the associated returns to those skills. On the other hand, the 1970-79 cohort of immigrants face relatively large earnings disadvantages in 1980 that, for the most part, remain present in 1990. New Jersey is the only high-immigration state in which the 1970-79 cohort successfully assimilates.

This might be seen as support for Borjas’ (1985, 1995) findings, but there are some important exceptions to consider. In 1980, for example, the most recent cohort of immigrants (1970-79 arrivals) has a higher wage profile than natives in the state of Florida (see Figure 1 for 1980 assimilation profiles). In addition, Florida is the only state among the high-immigration states where the earnings path of recent immigrants is similar to that of native-born workers. In most of the high-immigration states, the earnings path is such that immigrants increasingly earn less than natives as they age.

**Figure 1: Age-Wage Profiles, 1980**

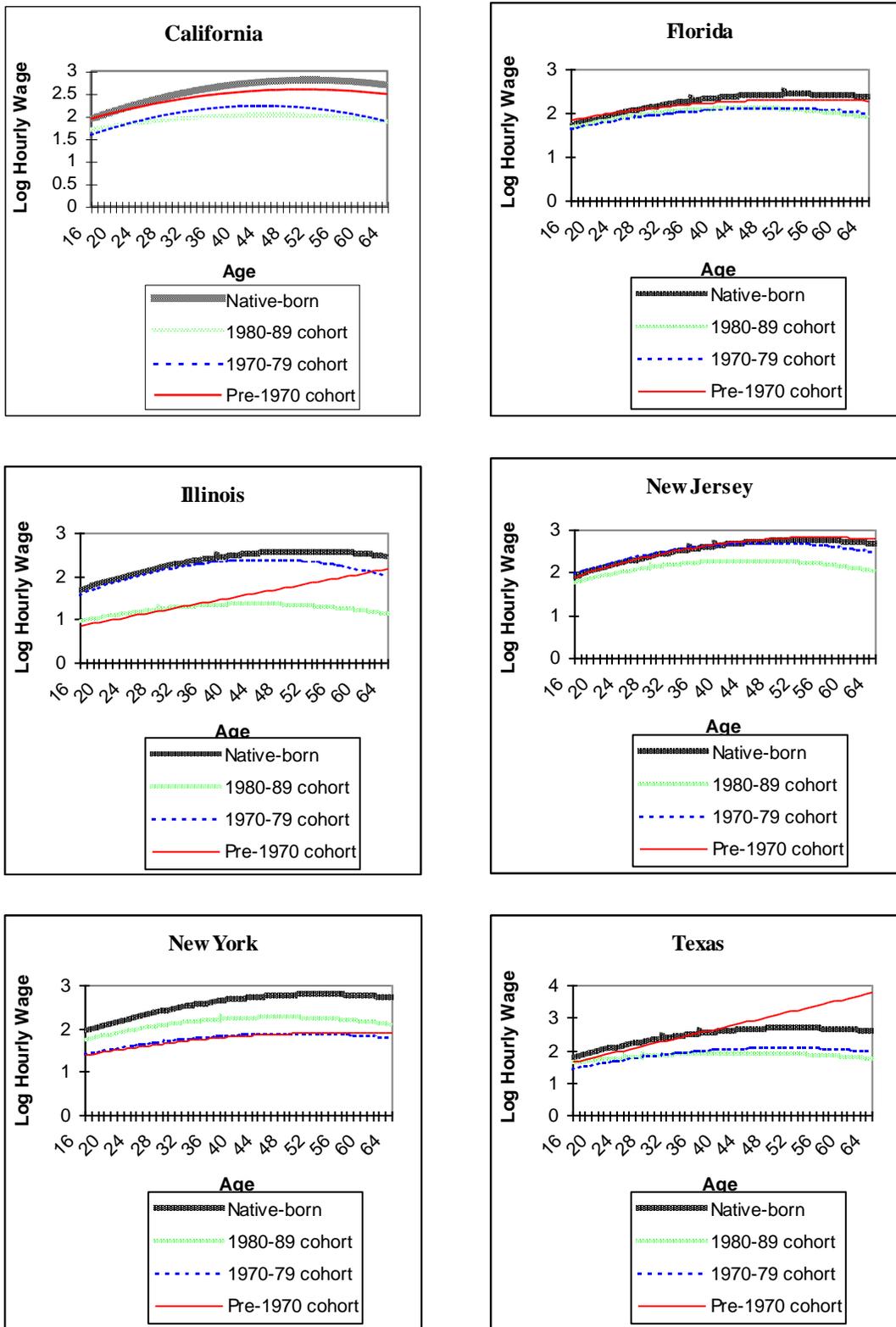




A flatter earnings profile is also evident for the most recent immigrant cohort (1980-89 arrivals) in 1990 (see Figure 2 for 1990 assimilation profiles). Again, only in Florida does this cohort of immigrants not face a large earnings disadvantage. This evidence alone, however, is not convincing in showing that immigrants who arrived in the 1970s and 1980s will face assimilation difficulties. Acquisition of human capital and structural shifts in the wage setting process (i.e., changes in the returns to skills) can greatly influence the position of the earnings profile for a given cohort of immigrants.

An examination of the 1990 earnings profiles reveals that the relative position of the 1970-79 immigrant cohort changed significantly in all high-immigration states except California and New York. In these states, the 1970-79 cohort was equally disadvantaged in 1980 and 1990. In Florida, the earnings growth path for this cohort shifted down, causing them to be at a greater disadvantage relative to natives in 1990 than in 1980. It is both interesting and disconcerting to find this apparent lack of labor market assimilation in the states with the largest concentrations of immigrants.

Figure 2: Age-Wage Profiles, 1990



The other high-immigration states, however, exhibit a different pattern. In Illinois, New Jersey, and Texas, the relative position of the earnings growth path for the 1970-79 immigrants is improved from 1980 to 1990. In Illinois and New Jersey, over the decade, the earnings path for the 1970-79 cohort shifts to a position that is practically coincident with the native-born earnings path.

The lack of uniformity in assimilation patterns and, more specifically, the lack of wage convergence in some states raises questions about how the 1980-89 arrivals will fare. Comparing the earnings path of the 1970-79 arrivals in 1980 with the earnings path of 1980-89 arrivals in 1990 might suggest that the most recent cohort is not faced with earnings disadvantages that are vastly different from those faced by the 1970-79 cohort in the preceding decade. In almost all of the high-immigration states, the most recent immigrants in 1990 have earnings paths that are comparable to the recent immigrants in 1980. However, more attention to the wage gaps between natives and immigrants is required to determine the proportion of these gaps that are due to human capital characteristics. The reason for this is that even if there is a shift in earnings growth rates over the decade, large gaps might persist if immigrants have significantly "inferior" human capital characteristics.

Examining wage gaps for both cohorts and how the decomposition of the gap has changed for the 1970-79 arrivals will allow for a more accurate evaluation of the expected assimilation pattern for 1980-89 arrivals. A standard Blinder-Oaxaca decomposition is applied. This can be expressed as

$$\bar{w}_n - \bar{w}_f = (\bar{X}_n - \bar{X}_f)\alpha_n + \bar{X}_f(\alpha_n - \alpha_f) \quad (3)$$

where  $\bar{w}$  is the average value of the log of hourly wages,  $\bar{X}$  is a row vector of average values of the independent variables, and  $\alpha$  is a column vector of coefficient estimates. The first term in (3) provides an estimate of the contribution of observed characteristics to the earnings gap while the second term is an estimate of the earnings gap that is unexplained by the observable characteristics and is the result of different coefficient estimates.

Tables 1 and 2 show the resulting wage gap decompositions for 1980 and 1990, respectively. In both 1980 and 1990, a large fraction of the earnings gap between natives and immigrants is not explained by the amount of human capital possessed by the two groups. This is true in all high-immigrations states, but there are some important differences in the magnitudes for each state that should be highlighted.

In 1980, there is a significant wage gap between the pre-1970 cohort and their native counterparts only in Florida, Illinois, and New Jersey. In all of these states, however, the percent of the gap that is explained by differences in human capital characteristics is negative. This suggests that the earnings gap for pre-1970 immigrants in these states is due solely to differences in the returns and not the level of skills.

Wage gaps for the 1970-79 cohort in 1980 exist in all states, except Florida. The fraction of the gap that is explained by human capital differences varies significantly from state to state. In California, Illinois, and Texas, the percent of the gap explained by skill differences is 50.37, 44.84, and 48.13, respectively. In New Jersey and New York, this figure is significantly smaller; 5.63 and 10.47 percent, respectively.

In 1990, wage gaps for the pre-1970 cohort have disappeared in all states, except New York. Here, however, the percent of the gap explained by productivity characteristics is negative. Again, suggesting that this group of immigrants, if they received comparable returns for their skills, would earn more than native workers.

The 1970-79 cohort continues to face earnings gaps in 1990. However, in all states, less than half of the gap can be attributed to differences in human capital. The explained portion of the gap is largest for immigrants in California and Texas where the percent explained by human capital characteristics is 26.70 and 38.63, respectively. This is much smaller in Florida and Illinois; 8.73 percent in both states. In New York, the explained portion of the wage gap is also negative for the 1970-79 cohort. This group of immigrants would also earn more than natives in that state if their human capital returns were equivalent to those of native workers.

Table 1: Wage Decompositions, 1980

<i>State</i>	<i>Cohort</i>	<i>Total</i>	<i>Due to:</i>		<i>Coefficients</i>	<i>%</i>
			<i>Characteristics</i>	<i>%</i>		
California	1970-79	.5044	.2541	50.37	.2503	49.63
	Pre-1970	-----	-----	-----	-----	-----
Florida	1970-79	-----	-----	-----	-----	-----
	Pre-1970	.1893	-.0804	-42.48	.2698	142.48
Illinois	1970-79	.3093	.1387	44.84	.1706	55.16
	Pre-1970	.3349	-.0604	-18.04	.3953	118.04
New Jersey	1970-79	.7942	.0447	5.63	.7495	94.37
	Pre-1970	.3072	-.0114	-3.72	.3187	103.72
New York	1970-79	.6324	.0662	10.47	.5662	89.53
	Pre-1970	-----	-----	-----	-----	-----
Texas	1970-79	.5180	.2493	48.13	.2687	51.87
	Pre-1970	-----	-----	-----	-----	-----

Note – Values are in logs.

Table 2: Wage Decompositions, 1990

<i>State</i>	<i>Cohort</i>	<i>Total</i>	<i>Due to:</i>		<i>Coefficients</i>	<i>%</i>
			<i>Characteristics</i>	<i>%</i>		
California	1980-89	.6754	.3052	45.19	.3702	54.81
	1970-79	.4855	.1296	26.70	.3559	73.30
	Pre-1970	-----	-----	-----	-----	-----
Florida	1980-89	.2615	.1088	41.59	.1528	58.41
	1970-79	.2422	.0211	8.73	.2210	91.27
	Pre-1970	-----	-----	-----	-----	-----
Illinois	1980-89	1.1379	.2112	18.56	.9267	81.44
	1970-79	.2422	.0211	8.73	.2210	91.27
	Pre-1970	-----	-----	-----	-----	-----
New Jersey	1980-89	.3987	.0848	21.27	.3139	78.73
	1970-79	-----	-----	-----	-----	-----
	Pre-1970	-----	-----	-----	-----	-----
New York	1980-89	.4621	.1011	21.87	.3610	78.13
	1970-79	.7227	-.0072	-0.99	.7299	100.99
	Pre-1970	.7268	-.0810	-11.14	.8078	111.14
Texas	1980-89	.6580	.3638	55.29	.2942	44.71
	1970-79	.5297	.2046	38.63	.3251	61.37
	Pre-1970	-----	-----	-----	-----	-----

Note – Values are in logs.

The 1980-89 cohort faces the largest wage gaps, but again, a large fraction of the gap is not explained by human capital differences. The explained fraction of the wage gap is largest in California, Florida, and Texas; 45.19, 41.59, and 55.29 percent, respectively. In Illinois, New Jersey, and New York, the explained portion of the wage gap is significantly smaller; 18.56, 21.27, and 21.87 percent, respectively.

## 6.0 Conclusions

Clearly, the process of assimilation is not uniform across all immigrant groups. While this is consistent with Borjas' (1985, 1995) findings, an examination of the immigrant-native wage gaps reveals that much of the difference in earnings is not the result of "inferior" human capital characteristics. In almost all cases, less than 50 percent of the gap in earnings can be attributed to differences in measurable productivity characteristics. This, however, varies significantly from one high-immigration state to another.

Immigrants do appear to acquire a significant amount of human capital over time. For example, in 1980, approximately 42 percent of the 1970-79 cohort had at least a high school education; in 1990, approximately 62 percent of individuals in this cohort had achieved that level of education. While Borjas and others have attempted to draw particular attention to the 1980-89 cohort, it should be noted that 59 percent of individuals in this cohort have achieved at least a high school education. The educational attainment for natives also increased from 1980 to 1990, but the relative position of the most recent immigrant cohort is no worse than that of the 1970-79 cohort in 1980.

Immigration to states that have received the largest number of recent immigrants (California, Florida, and Texas) appears to present the greatest concern. While it is true that a large portion of the earnings gap is not the result of observable productivity characteristics, an equitable pay structure (i.e., similar returns to skills) in these states would continue to leave immigrants with a large earnings disadvantage. Nevertheless, this assumes that human capital development will proceed at a negligible pace. The 1970-79 cohort, however, overcame similar difficulties in these states. Over the 1980-90 decade, the wage structure became more equitable and those immigrants acquired a significant amount of human capital to reduce the explained portion of the gap by 20 to 100 percent (depending on the state). The existence of wage gaps between native and foreign-born workers certainly deserves attention, but the evidence does not convincingly support the assertion that recent immigrants face insurmountable obstacles that are unlike anything experienced by previous immigrant cohorts. 

## Notes

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1. Borjas (1994) refers to this as an identification problem and provides a formal explanation of this issue.
2. Borjas (1995), however, claims that immigrant samples in Current Population Surveys may be too small for generating reliable inferences.
3. The exceptions are Chiswick (1978), Funkhouser and Trejo (1995), and Pendakur and Pendakur (1998).
4. Bloom and Gunderson (1991) also adopt this specification in their analysis of Canadian immigrant earnings.
5. Licht and Steiner (1994) using data on workers in Germany explicitly control for return migration by using a two-step selection model. They also find that estimates of immigrant wage convergence are not biased by return migration.
6. Individuals born in Puerto Rico are treated as foreign-born.

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