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Income, Cohort Effects, and Occupational Mobility: A New Look at Immigration to the United States at the Turn of the 20th Century

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How did turn-of-the-20th-century immigrants perform in the American economy relative to native-born Americans? This article reassesses this question using data from the 1900 and 1910 American census files. I find in both cross sections that American immigrants perform well in blue-collar and white-collar occupations, with either faster growth in earnings or an outright earnings advantage over native-born Americans in the same occupational sector. Estimates of within-cohort growth reveal that the cross-sectional results do not overstate immigrant progress due to cohort effects. Immigrants also exhibit a high degree of mobility into the well-paid white-collar sector of the American economy, and the progress of the immigrant population as a whole was not slowed by the emergence of the "new" immigration. © 2000 Academic Press

Introduction

The turn of the 20th century saw a massive flow of population from the Old World to the New, with over 25 million immigrants entering the United States between 1881 and 1924 (Borjas, 1994). This article assesses the fate of these immigrant arrivals in America: How did the foreign-born perform in the U.S. labor market relative to native-born Americans? This question has been of great interest to both present-day economic historians and contemporaries of the migration period.

Recent studies of late-19th- and early-20th-century immigrants in America are divided on the issue of whether immigrants were able to achieve economic assimilation with the native-born. Some authors (for example, Hatton, 1997; Blau, 1980) have found that immigrants had faster wage growth than native-born

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Americans, enabling them to "catch up" to the native-born level of earnings within 20 or 25 years. Others (Hannon, 1982a; Eichengreen and Gemery, 1986; Hanes, 1996) claim that wage growth among immigrants was actually slower than for native-born workers, implying that there would be no convergence in earnings between the two groups. While there have been a range of estimates for the earnings growth of the foreign-born in America, these results are based on the analysis of single cross sections of data. George Borjas (1985) brought attention to the fact that cross-sectional regression estimates may not be representative of earnings growth over the life cycle if there is a change in the labor market abilities of successive immigrant cohorts. No studies to date have calculated relative within-cohort earnings growth for immigrants in turn-of-the-20th-century United States.

Another difficulty is that most of the literature on the economic performance of pre-World War I immigrants does not address the issue that drew the most attention when the migration was taking place: the (possible) differences in the rate of assimilation between "old" immigrants from northwestern Europe and "new" immigrants from southern and eastern Europe. The United States Immigration Commission presented an unfavourable view of new immigrants in its 1911 report, a sentiment that was reinforced by Jeremiah Jenks and J. B. Lauck's *The Immigration Problem* (1926) and Madison Grant's *The Passing of the Great Race* (1925). The literature to date suggests that, relative to immigrants from northwestern Europe, the arrivals from southern and eastern Europe did suffer a wage penalty upon entry to the United States. It is unclear, however, how the wage growth thereafter of the new immigrants compared to that of immigrants from old sources.

This article reexamines the performance of immigrants in turn-of-the-20th-century America with rich data sources: the 1900 and 1910 IPUMS Census manuscripts. After initial estimates of cross-sectional regressions in separate sectors of the American economy for foreign-born and native-born workers, I examine the issue of changes in immigrant "quality" between cohorts by calculating within-cohort earnings growth for successive immigrant and native-born cohorts between 1900 and 1910. The tracking of population cohorts also allows me to examine mobility among different occupational classifications between 1900 and 1910. Finally, I turn to the new and old immigrants, to determine how the labor market performances of these two groups fits into the overall picture of immigrant economic performance in America.

Immigration Assimilation in Theory and History

Work on recent immigration history into the United States has produced two principal views on the immigrant assimilation process into host economies. The argument espoused by Barry Chiswick (1978) is that immigrants experience more rapid wage growth than do native-born workers, despite an initial earnings disadvantage upon entry into the American economy. Chiswick attributes the economic success of American immigrants to the fact that they have been

positively self-selected from source economies. Positive self-selection implies that only the most motivated individuals move in response to economic opportunities. Chiswick found that immigrants in fact had greater incomes than did native-born workers once they had acquired the specific human capital necessary to perform in the United States labor market.

Chiswick's ideas have been challenged by George Borjas (1985), who claims that (self-)selection may be either positive or negative, depending on the relative wage dispersion in the source and host countries. Borjas also argues that evidence supporting rapid wage growth among immigrant workers may be an illusion caused by declining labor-market quality between successive immigrant cohorts. Estimates of wage growth over the life cycle made from a single cross section of data will be biased upward if, for example, a recent immigrant cohort possesses less human capital or has lower unobserved quality than did an earlier wave of arrivals. In the most recent United States census, young immigrants arriving after 1985 had lower wages than older immigrants who arrived between 1975 and 1980. Claiming that the wage difference between these two groups represents wage growth for immigrants is misleading if the young immigrants entering after 1985 do not possess the human capital necessary to achieve the wage levels of the earlier cohort after 10 years in the United States. Borjas' technique to understand the "true" level of immigrant wage growth over time is to track particular cohorts across several cross sections of data. However, this approach may also be subject to a source of bias. Jasso and Rosenzweig (1988) note that immigrant cohorts may be "trimmed" over time by emigration from the United States. If this emigration is selective, in that it is the low or high achievers who systematically leave the United States, estimates of wage growth made from cross-sectional regressions or from comparisons of cohorts across successive data sets will not provide an accurate picture of relative immigrant progress.

No consensus has emerged regarding the performance of American immigrants over the period 1890–1910. There are three predominant data sources for this work. The extensive inquiries of the United States Immigration Commission from 1907 to 1911 have left a valuable collection of data on turn-of-the-century immigration history. Using the Immigration Commission data, Robert Higgs (1971) found that there was little difference in earnings between native-born and immigrant workers after controlling for differences in literacy and English-language ability. Paul McGouldrick and Michael Tannen (1977) argued that the Immigration Commission data revealed that immigrants from southern and eastern Europe were disadvantaged relative to those from northwestern Europe, who themselves suffered no wage penalty relative to native-born Americans. Francine Blau (1980) found that while all immigrants had an initial earnings disadvantage relative to native-born Americans, this differential was greater for "new" immigrants from southern and eastern Europe, and that the new immigrants took longer than "old" immigrants to achieve wage parity with similarly skilled native-born Americans.

State-level industry surveys have also provided material for economic historians interested in the immigration question. Joan Hannon (1982a,b) and

Barry Eichengreen and Henry Gemery (1986) employed state labor bureau data from various industries in Michigan and Iowa in the 1880s and 1890s. The partial effect of foreign birth on earnings was found to be about 6 to 7% in these states, and immigrant wage growth with experience was much slower than in studies using the Immigration Commission Data. These findings were reinforced by Chris Hanes' (1996) work with an 1892 survey for California as well as two Michigan surveys from the 1890s. He discovered, as had Eichengreen and Gemery, that for the most part immigrants had slower wage growth with experience than native-born workers.

Hanes also assessed immigrant performance in an early versions of the 1900 United States Census Public Use Manuscript data file. Using an occupational prestige index included in the data file to analyze the performance of immigrants in the 1900 Census, Hanes found that if agricultural workers are omitted from the analysis, immigrants experienced slower growth in occupational prestige with increasing age than did native-born Americans. Using the same PUMS sample of the 1900 census, Barry Chiswick (1991) found that the foreign-born in 1900 never achieve parity with natives in occupational prestige scores, although the native-born/foreign-born gap closes with time spent in the United States.

A more recent article by Tim Hatton (1997) observed that the simple quadratic formulation in age or experience with 1890s data from Michigan and California results in an earnings profile which is far more "humped" than the pattern of actual earnings across the life cycle. Another point brought out in Hatton's article is that immigrants arriving in the United States as children may have quite different experiences in the American labor market than those who arrived as adults. Comparing native-born wage growth to that of all immigrants (including those who arrived as children) may give a misleading picture of how immigrants performed in the U.S. economy. Regression results that account for these adjustments suggest faster immigrant wage growth than was reported in previous work with micro-level data.

Many of the studies listed above do estimate the lifetime wage growth of immigrants relative to the native-born. However, there are good reasons to be hesitant about the conclusions that can be drawn from the data sources used in these articles. The grouped data of the Immigration Commission contains only a small number of highly aggregated observations. State labor bureau surveys from Michigan, California, and Iowa provide more plentiful and more detailed data than the returns of the Immigration Commission, but these surveys suffer in that they cover only specific industries in specific states. These state surveys contain relatively few new immigrants or foreign-born working in white-collar occupations across the country. The census data used by Chiswick and Hanes does cover the entire breadth of the American economy, but their results are dependent on the assimilation process being equivalent in prestige scores and income.

While cross-sectional wage growth has been measured in the work to date on early American immigration, there has been no formal accounting for the

possibility of cohort effects.[2] The results of existing studies are therefore susceptible to bias if the labor market quality of immigrants had been changing over time or if there was selective return migration. Hatton's (1997) observation that regression results from single cross sections are highly sensitive to functional form is a further indication that cohort growth should be considered to obtain an accurate picture of immigrant assimilation in America.

The IPUMS Census Data

I use the Integrated Public Use manuscripts of the 1910 and 1900 Censuses of Population to reassess immigrant performance in the United States at the turn of 20th century. The IPUMS are large samples of micro-level data; the 1910 survey is a 1-in-250 sample of the United States population, while in 1900 1-in-760 observations are included in the public sample. Census interviewers gathered information on a wide range of personal and household characteristics. Personal information provided by respondents includes age, gender, birthplace, and parent origins. The census interviewers also made inquiries into the economic status of the American population. Respondents were asked about their current employment status and whether they had been unemployed in the previous year. The occupation of respondents was also recorded, with responses being subsequently translated into the 1950 occupational structure where an occupational prestige score and an annual income score has been estimated for each occupation.[3]

One might wonder if 1950-based income scores are appropriate for analyzing economic performance in 1900 and 1910. Goldin and Margo (1992) report that there was significant compression in the American wages in the 1940s, suggesting that using the income scores provided in the IPUMS data could understate differences in occupational incomes in 1900 and 1910. With this in mind, I modified the IPUMS data to better reflect actual incomes in 1900 and 1910, using the work of Sobek (1995) and Preston and Haines (1991) to create a table of annual incomes by occupation at 1890 levels.[4]

One difficulty with the IPUMS data is that the measure of individual income used is an income score that corresponds directly to the respondent's occupation. This means that all individuals classified in the same occupational category will have the same income for my analysis. While I have no way to control for

[2] Hanes (1996) does discuss the issue of cohort effects and selective migration, but without a quantitative assessment of their possible impact on his results.

[3] The occupational prestige scale was developed by Reiss (1961). Matthew Sobek (1996) has estimated 1950-equivalent annual income scores. Both these measures have been appended to the 1900 and 1910 IPUMS data files.

[4] As mentioned earlier, The IPUMS census data includes Matthew Sobek's (1996) estimates of 1950-based occupational income scores. However, I preferred a dependent variable that more closely reflected occupational pay at the turn of the century. I constructed an income score/occupation table based primarily on Sobek's (1995) comprehensive estimates of income by occupation in 1890. I used Preston and Haines's (1991) earlier table of income by occupation in 1900 to supplement Sobek's data for occupations not covered in Sobek's study. Note that these sources provide national rather than region-specific estimates of income by occupation.

variations in income across individuals within occupations,[5] using income scores as the dependent variable is not entirely without merit. For one, income scores would seem to be a more direct measure of economic success than the prestige scores employed as the dependent variables by Chiswick (1991) and Hanes (1996). An advantage to using 1890-based income estimates by occupation rather than individually reported incomes is that the same income score is assigned to an occupation in both the 1900 and 1910 census sets. Therefore there is no need to be concerned with variations in the relative pay of certain occupations between the census years. However, it is possible to capture the variability in individual income due to periods of unemployment. I used information provided in the census data on unemployment in the previous year to scale the annual income scores by months or weeks employed for each individual.[6] My final alteration to the original IPUMS census data was for individuals engaged in farming in 1900 or 1910. The estimated annual income for farmers is lower than for almost all urban occupations, but this was offset somewhat in that the cost of living in rural areas was also noticeably lower than in urban America at the turn of the century (Hatton and Williamson, 1991). Thus, the recorded annual income of farm-dwelling Americans would be lower relative to urban-based Americans than their *real* annual income earned once differences in the cost of living are considered. To compensate farm workers for cost-of-living differences I adjusted the wage of farm employees (both owner-farmers and day labor) by an appropriate urban/rural differential.[7]

Annual Income for Native and Foreign-Born Americans—1900 and 1910

The analysis of economic status of 1900 and 1910 census respondents was limited to males between the ages of 16 and 65 years who reported their occupation to the census interviewer. These individuals were then divided into six categories. The first category consists of native-born American men whose parents were both born in the United States. Native-born individuals of native parentage are therefore at least two generations removed from any origins outside the United States. The second group includes all foreign-born males who entered the United States as adults.[8] I placed immigrants who arrived as children into a separate group to explore the possibility that the assimilation process differed for those who entered American society at a young age. The fourth group contains native-born Americans who are the children of immigrants to the United States.[9]

[5] While income within a given occupation is held fixed in my study, I do have annual incomes for 192 different occupations. This provides me with enough detail to capture changes in income as individuals advance up the occupational ladder within an industry.

[6] The 1900 census includes months unemployed in 1899; the 1910 census includes weeks unemployed in 1909.

[7] I increased farm income by 18.5%, corresponding to the urban/rural cost-of-living difference found in 1892 Michigan by Hatton and Williamson (1991).

[8] I considered those ages 16 or higher to be adults.

[9] In this study the second-generation group consists of native-born Americans whose father is of foreign birth.

TABLE 1
Census Summary Statistics, 1900

	Native-born, native-born parentage	Foreign-born, adult immigrants	Foreign-born, child immigrants	Second-generation immigrants	Foreign-born "old" sources	Foreign-born "new" sources
Annual income	$440.32	$476.26	$492.71	$499.99	$477.93	$457.76
	(281.88)	(246.66)	(261.33)	(270.52)	(245.46)	(232.11)
Occupational prestige score	23.56	20.97	23.90	26.27	21.67	17.82
	(20.40)	(18.62)	(19.38)	(20.06)	(18.29)	(17.77)
Annual income without agriculture	$601.94	$528.82	$562.99	$582.54	$544.76	$481.67
	(299.08)	(245.98)	(257.24)	(264.23)	(242.62)	(232.82)
Age	34.83	40.71	33.77	31.46	43.00	35.53
	(12.96)	(11.51)	(12.55)	(10.76)	(11.35)	(10.32)
Years in the United States	—	15.51	25.10	—	18.21	9.30
		(10.15)	(13.10)		(10.01)	(7.36)
% in agriculture	46.26	19.22	22.73	25.02	23.28	10.23
% in white-collar work	18.50	14.05	18.18	21.47	13.55	13.48
% in blue-collar work	35.24	66.73	59.09	53.51	63.18	76.29
Observations	13795	4085	1826	4769	2569	1046

Note. Annual incomes are 1890-based estimates by occupation. Standard errors are in parentheses.

There is some evidence (Chiswick, 1977) that these "second-generation immigrants" outperform native-born Americans with native-born parents in the United States labor market, possibly due to the transmission of positive characteristics (as a result of self-selection) from immigrant parents to their children. On the other hand, Joan Hannon (1982a) argued that the disadvantage of being foreign-born in Michigan copper mines was somehow transmitted to the children of the foreign born, who themselves entered the labor market with an earnings disadvantage relative to those of native parentage. The immigrant population was further subdivided into two geographical categories based on source countries. "Old" immigrants are those who arrived from areas in northern and western Europe, which by 1900 had a long-established history of sending people to the United States. "New" immigrants consisted of arrivals from southern and eastern Europe, areas that had not contributed much to the immigrant flow prior to 1900.[10]

Tables 1 and 2 list the means and standard errors for annual income in 1900 and 1910 for the four groups described above. It is apparent that, on average, immigrants arriving in the United States as adults earned more than did native-

[10] I considered the following countries to be sources for "old" immigrants: Denmark, Iceland, Norway, Sweden, England, Scotland, Wales, Ireland, Belgium, France, Luxembourg, the Netherlands, Switzerland, and Germany. "New" immigrants arrived from Finland, Greece, Italy, Portugal, Spain, Austria, Bohemia-Moravia, Hungary, Poland, Romania, Croatia, Montenegro, Serbia, Lithuania, and Russia.

TABLE 2
Census Summary Statistics, 1910

	Native-born, native-born parentage	Foreign-born, adult immigrants	Foreign-born, child immigrants	Second-generation immigrants	Foreign-born "old" sources	Foreign-born "new" sources
Annual income	$483.23	$508.49	$548.99	$545.58	$513.41	$497.97
	(298.54)	(259.32)	(281.53)	(297.85)	(263.26)	(249.22)
Occupational prestige score	25.65	21.84	27.05	29.30	23.97	19.20
	(22.08)	(19.72)	(21.18)	(22.15)	(19.77)	(18.71)
Annual income without agriculture	$651.33	$550.06	$609.61	$641.58	$586.18	$515.07
	(285.09)	(254.06)	(269.96)	(278.08)	(251.02)	(246.94)
Age	34.95	38.27	33.93	33.29	43.27	33.51
	(13.09)	(12.09)	(12.46)	(12.02)	(11.88)	(10.20)
Years in the United States	—	13.19	25.14	—	18.92	7.93
		(11.07)	(13.33)		(11.49)	(7.45)
% in agriculture	41.01	13.40	16.69	23.81	21.37	5.92
% in white-collar work	22.68	15.05	23.05	27.63	16.32	12.54
% in blue-collar work	36.31	71.55	60.26	48.56	62.31	81.54
Observations	53257	18674	6152	18422	7764	9038

Note. Annual incomes are 1890-based estimates by occupation. Standard errors are in parentheses.

born Americans of native parentage in both 1900 and 1910. The third and fourth columns in both tables reveal an occupational earnings advantage for immigrants entering the United States as children and second-generation immigrants. This is interesting in light of the fact that child immigrants and second-generation immigrants are younger on average than adult immigrants or the native-born of native parentage and thus would probably be expected to be at a lower point on the lifetime age-earnings profile. Adult immigrants maintained their occupational earnings advantage in 1910 despite the influx of immigrants from new sources between 1900 and 1910. This would seem a sharp contrast to the conventional view (Hannon, 1982a; McGouldrick and Tannen, 1977) that new immigrants suffered a noticeable wage penalty in the American labor market. As Tables 1 and 2 show, the average new immigrant managed to earn more than the average American-born male of native parentage.

However, the picture of relative immigrant performance based on summary statistics is heavily dependent on the distribution of both immigrants and native-born Americans across different sectors of the economy. Tables 1 and 2 divide the American working population into three occupational categories.[11] The first category is agriculture, which incorporates self-employed farmers and nontenant agricultural labor. The second grouping consists of blue-collar workers. This

[11] This scheme roughly follows the classification guidelines originally set out by Alba Edwards (1917).

group includes operatives, craftsmen, and other laboring occupations. I also included service workers in the blue-collar group. Professionals are members of the third group, white-collar workers, along with managers, officials, salespeople, and clerical workers. Tables 1 and 2 show that over 40% of native-born Americans of native parentage were engaged in agriculture in 1900 and 1910. Immigrant groups were less inclined to enter agricultural pursuits, focusing instead on the blue-collar sectors of the economy. This trend is even more pronounced for the new immigrants surveyed in the 1910 census (Table 1). The variation in sectoral distribution between native-born Americans and immigrants plays a large role in determining the difference in average incomes among these groups. The sixth row of Tables 1 and 2 show how average occupational income changes when agricultural workers are excluded from the sample. Native-born Americans employed in white-collar or blue-collar occupations in 1900 and 1910 earned much higher incomes than did immigrant workers employed in nonagricultural sectors. The occupational earnings advantage seen in Tables 1 and 2 for second-generation immigrants and immigrants who arrived as children does not hold when the sample is restricted to nonagricultural workers.

Regression Analysis—1900 and 1910

To compare the relative performance of adult male immigrants and native-born, native-parentage Americans in the United States labor market in the early 20th century, I estimated earnings profiles over the life cycle for the male American working population. The logarithm of occupational income served as the dependent variable. Age was included as an explanatory variable, as it is the only proxy for experience available in the IPUMS data set. The square of age was also included to capture the notion of decreasing returns to experience in earnings. I follow Hatton (1997) in including two additional age terms, (age-25) and (age-25)-squared. These terms allow for the possibility that workers under the age of 25 have a rapidly rising income profile, as a model including only the standard quadratic in age has been shown to be an inappropriate functional form with other historical data (Hatton, 1997).[12] For nonnatives the number of years since migration to the United States is included as a second explanatory variable. This variable measures the rate of assimilation into the United States labor market, as one would expect an immigrant's income to rise as he acquired the specific human capital necessary for success in the United States.

I estimated this simple regression model for the blue-collar and white-collar sectors of the American economy in 1900 and 1910, with different regressions to represent the sectors separately as well as a combined regression that includes all nonagricultural workers. Why choose this particular framework to approach the problem of the economic performance of immigrants relative to native-born Americans of native parentage? Comparing the entire employed immigrant and

[12] Note that the variable (age-25) is restricted to a value of zero at all ages below 25. Thus it should be technically written as Max[0, (age-25)] and its square as $(\text{Max}[0, (\text{age-25})])^2$.

native-born, native-parentage populations would be misleading due to the much higher proportion of natives engaged in the agricultural sector. Immigrants would clearly out-earn the native-born on aggregate, though they might actually have lower earnings and slower earnings growth within all three occupational sectors. In addition, almost all of the existing research on immigrant performance in the late 19th and early 20th centuries is based on sources providing subsets of the blue-collar sector.[13] The formulation I adopt below allows my results to be compared with articles limited to blue-collar occupations, while also determining what contribution (if any) employment in white-collar occupations may have made to changing the relative labor market outcomes of immigrants and native-born, native-parentage workers.

Regression results for 1900 and 1910 are seen in Tables 3 and 4. Although there is quite a bit of variation across the different population groups and regression formulations, the adjusted R^2 figures are well in line with the results drawn from the 1910 IPUMS data by Chiswick (1991) and Hanes (1996). Turning to specific coefficient estimates, note first that in both samples the coefficient measuring years spent in the United States is significant at the 5% level for adult immigrants in all but one case.[14] When the adult immigrant population is split into those from new and old sources, years in the United States retains its significance in at least two of the three regressions for both old and new immigrants in 1900 and is significant in all old and new immigrant regressions in 1910. These results underline the importance of U.S.-specific human capital formation for adult immigrants. The estimates for the effect of years spent in the United States for immigrants arriving as children confirm that "assimilation effects" for this group were much weaker; years spent in the United States was significant in only one regression in 1910, and the coefficient estimates for this variable are of a much lower magnitude for immigrants who arrived in the United States as children. This suggests that immigrants arriving in the United States as children were integrated into American society to a greater extent before entering the labor market. Labor market experience (as proxied by age) emerges as a significant factor in the earning power of native-born Americans in 1910, as the age and age-squared terms are significant in 1910 for the native-born of native-parentage and second-generation immigrants in all three regressions. The majority of the terms representing the effect of work experience on income in Tables

[13] The 1911 Immigration Commission data used by Higgs (1971), McGouldrick and Tannen (1977), Blau (1980), and Hatton (2000) contains information on "over half a million employees in a variety of manufacturing and mining industries in 1909" (Hatton, 2000). Hannon (1982a,b), Eichengreen and Gemery (1986), Hanes (1996), and Hatton (1997) draw results from late-19th century State Labor Bureau reports in Michigan, Iowa, and California that are all restricted to specific subsets of what I have defined as the blue-collar sector.

[14] In the regression for foreign-born adult immigrants in the white-collar sector in 1910, the coefficient for years spent in the United States just fails to be significant at the 10% level, with a p value of 0.104.

TABLE 3
Regression Results, 1900

Factor	Native-born, native parentage	Foreign-born, adult immigrants	Foreign-born, child immigrants	Second-generation Americans	Foreign-born "old" sources	Foreign-born "new" sources
All						
age	0.035826	0.2466324	0.1149136	0.1136008	−0.2713656	0.3723264
	(0.0529769)	(0.1929237)	(0.0958351)	(0.0627295)	(0.3239153)	(0.2536332)
age2	−0.0000243	−0.0053326	−0.0020509	−0.0019748	0.006517	−0.0081776
	(0.0012464)	(0.0043592)	(0.002269)	(0.0014902)	(0.0072853)	(0.0057555)
age25	**−0.0236265**	0.01588	−0.0086681	−0.0065121	−0.0561569	0.025795
	(0.0110163)	(0.0277266)	(0.0212965)	(0.014085)	(0.0450006)	(0.0381643)
age252	−0.0002237	0.0052584	0.0020871	0.0017725	−0.0066439	0.0082309
	(0.0012313)	(0.0043455)	(0.0022365)	(0.0014663)	(0.0072692)	(0.0057274)
yus	—	**0.0214485**	0.0044699	—	**0.009585**	**0.0169674**
		(0.0029881)	(0.0057652)		(0.0046308)	(0.0053226)
yus2	—	**−0.0002482**	−0.00007	—	−0.0000381	0.0002317
		(0.000074)	(0.0001013)		(0.0001038)	(0.0001794)
constant	5.386035	3.191881	**4.58469**	**4.664893**	**8.852199**	1.809162
	(0.5536307)	(2.110098)	(0.9940705)	(0.6476614)	(3.564541)	(2.760281)
F test age terms	**110.98**	**11.43**	**6.90**	**44.52**	**6.40**	**7.21**
F test yus terms	—	**63.51**	0.30	—	**14.26**	**46.29**
F test all terms	**110.98**	**25.97**	**15.42**	**44.52**	**6.61**	**16.69**
Adj. R^2	0.0560	0.0434	0.0578	0.0464	0.0168	0.0912
Observations	7414	3300	1411	3576	1971	939
Blue-collar						
age	0.0573504	0.1171802	0.1218342	0.110596	−0.2878044	0.1944088
	(0.0480013)	(0.1569963)	(0.0818231)	(0.0597582)	(0.269848)	(0.2054155)
age2	−0.0008338	−0.0024171	−0.0024507	−0.0020374	0.0069853	−0.0041508
	(0.0011312)	(0.0035526)	(0.0019415)	(0.0014208)	(0.0060728)	(0.0046669)
age25	−0.0068715	−0.0012092	0.0016223	−0.0057987	−0.0653692	0.0051278
	(0.0101643)	(0.0228521)	(0.0185996)	(0.0135444)	(0.0378445)	(0.0312994)
age252	0.0005321	0.0023645	0.0024044	0.0019117	−0.0070648	0.0041461
	(0.0011162)	(0.0035409)	(0.0019113)	(0.001397)	(0.0060588)	(0.0046426)
yus	—	**0.0164952**	0.0030598	—	**0.008707**	0.0070615
		(0.0025497)	(0.0051149)		(0.0040819)	(0.0049447)
yus2	—	**−0.0002418**	−0.0000341	—	−0.0001142	0.0001793
		(0.0000645)	(0.0000928)		(0.0000928)	(0.0001958)
constant	5.154489	**4.565974**	**4.549931**	**4.637831**	**8.918464**	3.722938
	(0.5008341)	(1.714111)	(0.8468414)	(0.6165351)	(2.968168)	(2.232447)
F test age terms	**46.89**	**14.48**	**3.72**	**21.85**	**923**	**6.77**
F test yus terms	—	**37.30**	0.25	—	**5.26**	**12.10**
F test all terms	**46.89**	**17.41**	**5.05**	**21.85**	**7.86**	**5.80**
Adj. R^2	0.0364	0.0349	0.0220	0.0317	0.0248	0.0348
Observations	4862	2726	1079	2552	1623	798
White-collar						
age	0.1166048	0.4764618	0.3337458	0.1567686	−0.0885984	0.3003418
	(0.0808249)	(0.7742452)	(0.2083423)	(0.0985307)	(0.9061307)	(2.211961)
age2	−0.0017035	−0.0110443	−0.0064185	−0.002817	0.0022861	−0.0097601
	(0.0018944)	(0.0171206)	(0.004885)	(0.0023357)	(0.0203113)	(0.0480417)
age25	−0.0198125	0.07642	−0.0067066	−0.0034448	−0.0191777	0.1636008
	(0.0161841)	(0.0914093)	(0.0418757)	(0.0216133)	(0.1187592)	(0.2126249)
age252	0.001498	0.0109137	0.0064248	0.0026774	−0.0024944	0.0100834
	(0.0018754)	(0.0170873)	(0.0048377)	(0.0023021)	(0.0202776)	(0.0479419)
yus	—	**0.0152311**	−0.0052839	—	0.0080557	**0.037402**
		(0.0076671)	(0.010506)		(0.0093827)	(0.0172864)
yus2	—	−0.0001475	0.0000612	—	−0.0000227	−0.0004911
		(0.0001746)	(0.0001683)		(0.0001989)	(0.0004469)

TABLE 3—*Continued*

Factor	Native-born, native parentage	Foreign-born, adult immigrants	Foreign-born, child immigrants	Second-generation Americans	Foreign-born "old" sources	Foreign-born "new" sources
constant	**4.809288**	1.555771	2.449173	**4.48217**	7.37164	5.090112
	(0.847814)	(8.690354)	(2.183605)	(1.019243)	(9.99838)	(25.33687)
F test age terms	**77.43**	1.19	**7.96**	**43.04**	0.42	**4.07**
F test yus terms		**6.72**	0.16	—	2.66	**6.64**
F test all terms	**77.43**	**2.70**	**10.35**	**43.04**	1.98	**3.23**
Adj. R^1	0.1070	0.0174	0.1449	0.1412	0.0167	0.0873
Observations	2552	574	332	1024	348	141

Note. Standard errors in parentheses. *F* tests evaluate the joint significance of the age terms and their squares, years in the United States and its' square, or all of the variables in the regression. Figures significant at the 5% level are in bold.

3 and 4 are not statistically significant, but *F* tests against models excluding these terms reject their exclusion in most cases.[15]

Graphical representations of the predicted age-income profiles are perhaps the best way to use the results in Tables 3 and 4 to assess the economic performance of immigrants and native-born workers. Figure 1 compares native-born Americans of native parentage with adult immigrants in both the blue-collar and white-collar sectors in 1900, while Fig. 2 presents the earnings profile for the regression combining the sectors. Figs. 3 and 4 apply the same structure to the 1910 sample.

Figure 1 shows that in 1900 the foreign-born adult immigrants employed in blue-collar work managed to "catch up" and out-earn native-born Americans before the end of the life cycle. In the white-collar sector, adult immigrants did not completely close the gap with native-born, native-parentage Americans, although they did experience faster income growth after arrival in the United States. The income gap at age 25, which is approximately the average age of arrival for adult immigrants in 1900 and 1910, is less than 10% in both blue- and white-collar sectors. This difference on arrival is less than has typically been reported in immigrant assimilation studies for both present-day and turn-of-the-century migration (Chiswick, 1978; Blau, 1980). However, income growth after arrival is slower than predicted in much of the literature on immigrant performance in the United States. Foreign-born adult immigrants occupied in blue-collar and white-collar work still trailed their native-born native parentage counterparts by 3.8 and 4.7% after 15 years in the U.S. labor market. Figure 2

[15] The reader may still be wary of the lack of significance seen in the coefficients in the above regressions. This seems to be a consequence of several factors. Separating the sectors eliminates the effect of advancement over the life cycle due to movement between sectors of the economy. We will see later that immigrant and native-born cohorts were able to achieve income growth by moving between sectors over time. The most significant problem appears to be the inclusion of the (age-25) terms. These are highly significant for native-born native-parentage Americans in 1910, but for the other groups they serve to compromise the significance of the remaining variables. To be consistent I used the formulation that best fits the native-born of native parentage in 1910 in all other groups.

TABLE 4
Regression Results, 1910

	Native-born, native-parentage	Foreign-born, adult immigrants	Foreign-born, child immigrants	Second-generation Americans	Foreign-born "old" sources	Foreign-born "new" sources
All						
age	**0.1202777**	−0.0183038	0.0070959	**0.1114071**	0.1277517	−0.0544877
	(0.0224511)	(0.0574121)	(0.0511375)	(0.0309465)	(0.1398052)	(0.065568)
age2	**−0.0021758**	0.0005013	0.0004104	**−0.0019974**	−0.0026071	0.0012166
	(0.0005279)	(0.0012987)	(0.0012082)	(0.0007348)	(0.0031429)	(0.0014861)
age25	0.0023321	−0.0020411	**−0.0226733**	0.0034264	0.0061266	−0.0038897
	(0.0046479)	(0.0086309)	(0.0111254)	(0.0069111)	(0.0196423)	(0.0102425)
age252	**0.0018925**	−0.0006534	−0.000557	**0.0016565**	0.0024211	−0.0012327
	(0.0005216)	(0.0012912)	(0.0011899)	(0.0007233)	(0.0031328)	(0.0014736)
yus	—	**0.0201027**	**0.0056712**	—	**0.0088341**	**0.0239417**
		(0.0011661)	(0.0027273)		(0.0020907)	(0.001932)
yus2	—	**−0.0003158**	−0.0000586	—	−0.0000758	**−0.0003904**
		(0.0000315)	(0.0000497)		(0.0000474)	(0.0000676)
constant	**4.688765**	**6.183828**	**5.815067**	**4.794484**	**4.621148**	**6.593693**
	(0.2347683)	(0.6279755)	(0.530471)	(0.3198476)	(1.539978)	(0.7158524)
F test age terms	**582.11**	**7.74**	**13.49**	**287.40**	**9.13**	**3.18**
F test yus terms	—	**242.78**	**3.32**	—	**26.41**	**173.99**
F test all terms	**582.11**	**198.55**	**52.91**	**287.40**	**20.07**	**113.25**
Adj. R^2	0.0689	0.0683	0.0573	0.0755	0.0184	0.0734
Observations	31417	16171	5125	14035	6105	8503
Blue-collar						
age	**0.1011452**	−0.0099254	0.0152448	**0.0808462**	0.1009564	−0.0191471
	(0.0194763)	(0.0441076)	(0.0415845)	(0.0284527)	(0.1125353)	(0.0488562)
age2	**−0.0019788**	0.0003179	−0.0000197	**−0.0015111**	−0.0020034	0.0004661
	(0.0004591)	(0.0009983)	(0.0009824)	(0.0006757)	(0.0025292)	(0.0011081)
age25	0.0042487	−0.0051842	−0.015829	0.0027039	−0.0018373	−0.0034545
	(0.0041197)	(0.0066889)	(0.0091199)	(0.0064077)	(0.0158186)	(0.0077256)
age252	**0.0018023**	−0.0003942	−0.0000438	0.0012739	0.0019455	−0.0005225
	(0.0004531)	(0.0009491)	(0.0009663)	(0.0006646)	(0.0025207)	(0.0010977)
yus	—	**0.0101212**	0.0036005	—	**0.0049716**	**0.0073084**
		(0.0009491)	(0.0022433)		(0.0017494)	(0.0015505)
yus2	—	**−0.0001489**	−0.0000143	—	**−0.0000819**	**−0.0001118**
		(0.0000263)	(0.0000423)		(0.0000404)	(0.0000568)
constant	**4.869443**	**6.065681**	**5.749239**	**5.089132**	**4.874643**	**6.181989**
	(0.2031001)	(0.4822083)	(0.4314962)	(0.2941589)	(1.240079)	(0.5330245)
F test age terms	**170.03**	**7.16**	**7.49**	**89.03**	**7.11**	1.18
F test yus terms	—	**101.69**	**4.13**	—	**5.14**	**27.13**
F test all terms	**170.03**	**58.78**	**18.37**	**89.03**	**7.79**	**12.52**
Adj. R^2	0.0338	0.0253	0.0273	0.0379	0.0084	0.0093
Observations	19336	13361	3707	8945	4838	7370
White-collar						
age	**0.1382994**	0.2318604	**0.2692586**	**0.2546742**	0.5765199	−0.1294762
	(0.0324079)	(0.1508061)	(0.0819436)	(0.0444685)	(0.3164143)	(0.1544311)
age2	**−0.0023076**	−0.0047479	**−0.0048378**	**−0.0049333**	−0.0126464	0.0035081
	(0.000758)	(0.0033963)	(0.0019366)	(0.0010556)	(0.0071335)	(0.0034747)
age25	−0.0072055	0.0122637	−0.015147	0.006877	0.0634166	−0.0417465
	(0.0064191)	(0.0212993)	(0.0174352)	(0.0097842)	(0.0449149)	(0.0219003)
age252	**0.0020204**	0.0045985	**0.0046051**	**0.004676**	0.0124534	−0.0036165
	(0.0007501)	(0.003385)	(0.0019129)	(0.0010405)	(0.0071167)	(0.0034599)
yus	—	0.0035017	**−0.0103208**	—	**0.0100429**	**0.0065407**
		(0.0021503)	(0.0043294)		(0.0038709)	(0.0029255)
yus2	—	−0.0000644	0.0001246	—	−0.0001149	−0.0001518
		(0.0000518)	(0.0000724)		(0.0000821)	(0.0000863)

TABLE 4—*Continued*

	Native-born, native-parentage	Foreign-born, adult immigrants	Foreign-born, child immigrants	Second-generation Americans	Foreign-born "old" sources	Foreign-born "new" sources
constant	**4.647712**	**3.95127**	**3.230183**	**3.391018**	0.1055823	**7.919505**
	(0.3409709)	(1.656706)	(0.8483572)	(0.459216)	(3.471087)	(1.699228)
F test age terms	**562.55**	**6.77**	**41.46**	**382.83**	2.01	**6.83**
F test yus terms	—	1.63	**3.45**	—	**7.53**	**3.00**
F test all terms	**562.55**	**11.08**	**55.42**	**328.83**	**10.77**	**10.18**
Adj. R^2	0.1568	0.0211	0.1873	0.2049	0.0443	0.0464
Observations	12081	2810	1418	5090	1267	1133

Note. Standard errors in parentheses. *F* tests evaluate the joint significance of the age terms and their squares, years in the United States and its' square, or all of the variables in the regression. Figures significant at the 5% level are in bold.

shows that when the blue-collar and white-collar sectors are pooled to create combined earnings profiles, there is a noticeable increase in the gap in earnings between native-born, native-parentage Americans and foreign-born adult immigrants. The foreign-born trail native-parentage Americans by over 24.1% of income at age 25, with the gap falling to 16.3% after 15 years in the United States. This earnings differential is larger than what has typically been reported in immigrant assimilation studies at the end of the 19th or beginning of the 20th centuries, as previous research generally excludes the well-paid white-collar occupations included in the pooled regressions drawn upon in Fig. 3. My results for the 1900 census suggest that, contrary to Hanes (1996) findings, adult immigrants did see their occupational incomes rise faster than the native-born of native parentage. Within occupational sectors, immigrant incomes were converging to the earnings of native-born, native-parentage Americans, though a much smaller fraction of the immigrant population were engaged in well-paid white-collar work.

In 1910, foreign-born adult immigrants working in the blue-collar sector (Fig.

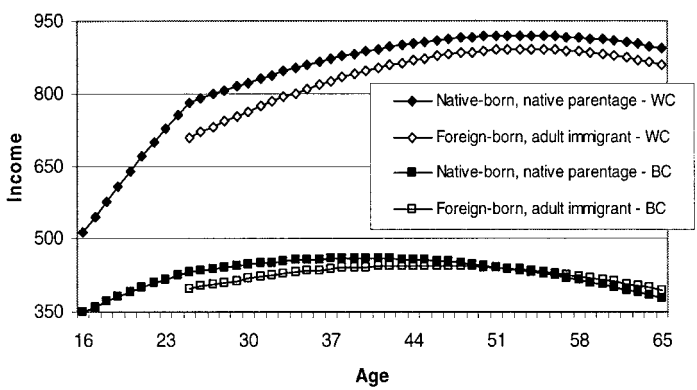

FIG. 1. Blue-collar and white-collar income by cohort, 1900.

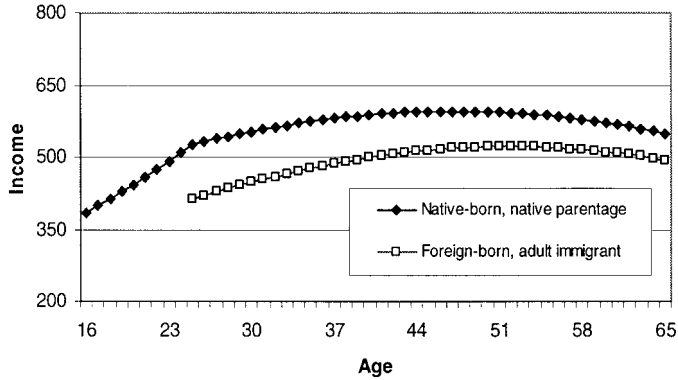

FIG. 2. All nonagricultural income by cohort, 1900.

3) had lower relative occupational incomes upon entry to the United States than in the 1900 sample, though adult immigrants did experience slightly faster relative wage growth in the blue-collar sector in 1910. At the age of 25 foreign-born adult immigrants would be predicted to earn 14.5% less than native-born, native-parentage Americans in blue-collar occupations; despite somewhat faster income growth across the cross section than in 1900, the immigrant group was still 8.9% behind native-born Americans in the same sector at the age of 40. For white-collar workers the pattern of predicted income over the life cycle has completely changed in 1910. In the later census, it is the foreign-born adult immigrants who hold an edge over native-born, native-parentage Americans. This gap falls slowly with increasing age, from a maximum of 11.7% at age 25 to 5.2% at age 40, but the native-born do not catch up entirely over the normal working lifetime. Finally, Fig. 6 reveals that in the pooled regression adult immigrants trail native-parentage Americans by 29.6% at age 25, with the gap closing to 17.3% by age 40. This picture is fairly similar to

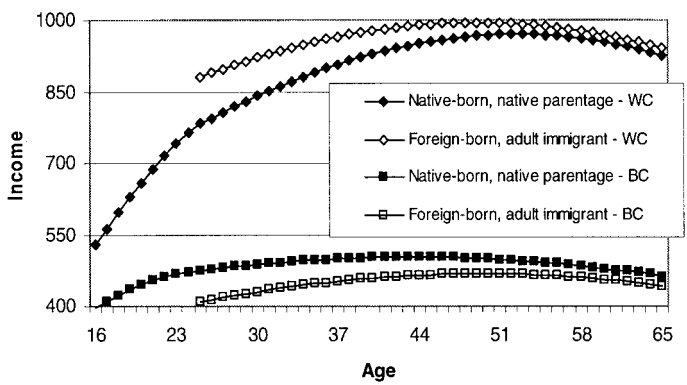

FIG. 3. Blue-collar and white-collar income by cohort, 1910.

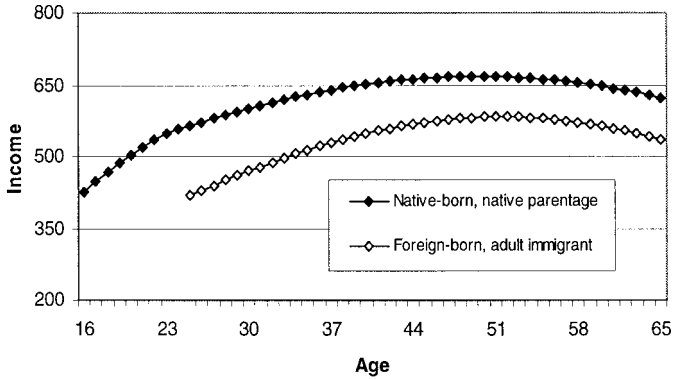

FIG. 4. All nonagricultural income by cohort, 1910.

that seen in Fig. 2 for the 1900 cross section; there is a somewhat larger income differential both on arrival and at age 40, though the rate of relative "catch-up" over the 15 years in between is quicker than in 1900.[16]

Cross-Sectional Growth vs Cohort Growth

My results to this point are drawn from single cross-sectional regressions and thus could be subject to bias due to cohort effects. It would be invalid to infer any "catching up" on the part of immigrants from a single cross section if recent immigrant cohorts did not experience positive relative income growth between the 1900 and 1910 census samples. Do cohort effects in the immigrant population undermine the results of my sectoral analysis of the 1900 and 1910 IPUMS census data? I can test this proposition by following the progress of immigrant cohorts across the two censuses.

Table 5 uses results from the regressions for 1900 and 1910 seen in Tables 3 and 4 to determine the cross-sectional income growth of immigrants relative to native-born Americans over 10-year periods under the assumption that immigrants arrive at age 25. For example, the 1900 cross section predicts relative income growth of 3.70% after 10 years in the United States for newly arrived

[16] While the regressions discussed do not control for differences in observable characteristics between immigrants and native-parentage Americans, I have estimated earnings regressions (not shown in this article) which include measures of literacy and English language ability. Based on combined blue-collar and white-collar regressions, if foreign-born adult immigrants were to have the same level of literacy and English proficiency as the native-born, native-parentage population, adult immigrants would trail native-parentage earnings by 13.7% on arrival in 1900, with the gap closing to 13.4% by age 40. In 1910, the earnings differential would be 16.8% at age 25, closing to 13.2% by age 40. In the blue-collar sector, controlling for differences in literacy and English language ability reduces the earnings differential at age 40 to 2.2% in 1900 and to 6.6% in 1910. In white-collar work the differential at age 40 in 1900 falls to 4.1%, while the immigrant advantage over the native-born in this sector in 1910 is reduced to 4.3%. I have written another article (Minns, 2000) which provides a deeper investigation into the effect of English language ability on immigrant labor market outcomes.

25-year-old immigrants in blue-collar and white-collar occupations. Cross-sectional income growth estimates can then be compared to the progress of particular immigrant cohorts between the 1900 and 1910 surveys. The counterpart to the cross-sectional result listed above is the relative change in income between a newly arrived 25-year-old immigrant blue-collar worker in 1900 and a 35-year-old immigrant blue-collar worker in 1910 who had been in the United States for 10 years.

The first section of Table 5 reveals that estimates of relative within-cohort growth for foreign-born adult immigrants between 1900 and 1910 are quite close to cross-sectional growth estimates from the 1900 and 1910 censuses. For immigrants cohorts born in 1855 or later, the 1900 cross-section regression predicts relative earnings growth of 2.6 to 5.6% over the next 10 years, while the relative income of the same immigrant cohorts increased by 1.2 to 3.7% between the censuses. These figures suggest that adult immigrants did experience positive income growth relative to native-born native parentage at rates only slightly overstated by findings based on cross-section regressions. The second and third sections of Table 5 separate the analysis into the blue-collar and white-collar sectors. In blue-collar work the cross-sectional relative growth estimates range from 1.0 to 3.2% over 10 years, while within-cohort growth is found to be negative over the 10-year span. In the white-collar sector, cross-sectional relative growth rates of up to 3.6% in 1900 are accompanied by estimates of relative growth between the cohorts of between 4.8 and 16.5%. What these two sections make clear is that the earnings convergence achieved by foreign-born adult immigrant cohorts came not through advance within blue-collar industrial and manufacturing occupations (which, as noted, are the focus of most previous research on immigrant performance in this period), but rather by attaining highly paid white-collar occupations.

Mobility Between Sectors

The preceding paragraphs have revealed that the relative income growth experienced by American adult immigrants in the early 20th century was largely driven by rising immigrant incomes in white-collar occupations. To complete the story one must also consider whether the opportunities for occupational mobility between sectors were similar for immigrants and native-born Americans. Indeed, some writers have argued that the economic attainment of immigrants was hampered by discrimination that specifically limited occupation mobility. Hannon (1982a, p. 48) wrote that " . . . the foreign born were denied opportunities for acquiring the skills necessary for advancement or they were denied access to the upper rungs of the occupational ladder . . .." In her subsequent article Hannon argued that immigrant occupational mobility was constrained particularly in Michigan's large cities (Hannon, 1982b). On the other hand, Thomas Kessner (1977) found a great degree of occupational mobility between occupational sectors among Jewish and Italian immigrants in New York City at the turn of the 20th century. Kessner claims that results for New York City may be more

TABLE 5
Within-Cohort Growth vs Cross-Sectional Growth

	10-year cross-sectional growth, 1990	10-year cross-sectional growth, 1910	Within cohort growth, 1900 to 1910
All nonagriculture			
1900 arrival	0.056024	0.054650	0.036964
1890 arrival	0.041144	0.017730	0.035590
1880 arrival	0.026264	−0.019190	0.012176
1870 arrival	0.011384	—	−0.033277
Blue-Collar			
1900 arrival	0.028953	0.029917	−0.023100
1890 arrival	0.030413	0.020177	−0.022136
1880 arrival	0.031873	0.010437	−0.032372
1870 arrival	0.016904	—	−0.053808
White-Collar			
1900 arrival	0.035546	−0.032811	0.164996
1890 arrival	0.021026	−0.018131	0.096640
1880 arrival	0.006506	−0.003451	0.057482
1870 arrival	7.15E-05	—	0.047526
New immigrant, all nonagriculture			
1900 arrival	0.005543	0.088785	0.029643
1890 arrival	0.112143	0.064145	0.112885
1880 arrival	0.218743	0.039505	0.064887
1870 arrival	0.325343	—	−0.11435
Old immigrant, all nonagriculture			
1900 arrival	−0.02242	−0.00817	−0.03749
1890 arrival	−0.00582	−0.002387	−0.02324
1880 arrival	0.01078	0.000426	−0.0213
1870 arrival	0.02738	—	−0.03185

Note. All growth rates are calculated over 10-year periods. The figures indicate the income growth of immigrants relative to the income of native-born, native-parentage Americans of the same age in the same sector.

representative of the immigrant experience in America than studies based on smaller centers which received fewer emigrants from Europe. Joe Ferrie's (1997) study of European immigrants arriving between 1840 and 1850 also found substantial occupational mobility among the new arrivals in the United States. Ferrie's data reveal that 44% of immigrants who reported being unskilled laborers in Europe had moved to higher status occupations by the 1850 census, while 25% of those in while-collar and skilled or semiskilled trades in Europe were employed as unskilled workers in the 1850 American census. The degree of upward and downward mobility appears to differ among immigrant nationalities, with British and German arrivals more likely to move to higher status occupations (and less likely to move to lower status occupations) than their Irish counterparts.

TABLE 6
Movement into the White-Collar Sector between 1900 and 1910

Cohort	% Increase in white-collar (all imm.)	% Increase in white-collar (all imm., adjusted)	% Increase in white-collar (old imm., adjusted)	% Increase in white-collar (new imm., adjusted)	% Increase for the comparable n.b. cohort
1896–1900	11.82	10.35	2.65	12.49	8.08
1891–1895	12.51	10.42	11.23	14.70	8.08
1886–1890	11.75	9.38	6.06	10.78	4.95
1881–1885	6.57	3.91	4.04	7.79	7.49
1876–1880	5.83	2.63	7.09	−1.00	7.39

Note. Figures list the increase in the share of each population engaged in white-collar work between 1900 and 1910. The comparable native-born cohorts are in the same age bracket as the immigrant cohort, i.e., 25–30 years old for the 1896–1900 cohort.

Were immigrants able to combine high incomes within white-collar work with the ability to enter this sector of the American economy between 1900 and 1910? Table 6 follows the distribution of immigrant arrival cohorts among the three sectors of the economy in the 1900 and 1910 censuses. These figures suggest that adult immigrants were able to move across sectors when opportunities presented themselves, as the proportion of each cohort engaged in the white-collar sector increased between 1900 and 1910. Comparing adult immigrant cohorts to similarly aged native-born Americans[17] shows that the immigrants arriving since 1885 were more adept at moving into the higher earning white-collar sector between censuses than the comparable group in the native-born American population. There is an increase of over 10% in the share of workers in the white-collar sector between 1900 and 1910 for the 1886–1900 immigrant cohorts. The white-collar gains between the surveys for similarly aged native-born, native-parentage Americans (aged less than 34 in 1900) are less than 8.1%.

These results would seem to dispel the myth that immigrants were somehow more constrained in their occupational opportunities than native-born, native-parentage Americans. However, there remains the difficulty of accounting for return migration out of the United States. High rates of return migration to Europe have been reported for certain immigrant groups.[18] The results above showing immigrants moving to the well-paid white-collar sector between the 1900 and 1910 censuses is biased if many immigrants in agriculture and the blue-collar sector in 1900 were returning to their source countries before the

[17] The average age of arrival for adult immigrants was approximately 25; thus it seems reasonable to compare the 1896–1900 immigrant cohort of the 1900 census with native-born, native-parentage Americans aged 25 to 29 years in the same census.

[18] Hanes (1996, Table 6) cites data from Kuznets and Rubin (1954) suggesting that out-migration of the foreign-born was equal to 15.3% of the foreign-born population residing in the United States in 1910, with much higher rates for immigrants other than the British, Irish, or Germans.

second census. As noted earlier, substantial return migration will also taint estimates of income growth in single cross-sectional regressions and in analyses tracking cohort growth across successive surveys. I tried to tease out a rough estimate of return migration from the census returns by comparing the ratio of particular immigrant and native-born cohort populations in the 1910 and 1900 surveys.[19] Assuming that mortality rates were the same for adult immigrants and native-born Americans in the same age brackets, differences in the "increase" in the size of the cohort between immigrants and the native-born from 1900 to 1910 should indicate the magnitude of return migration to Europe on the part of American immigrants.[20] My calculations reveal that the 1910 census contains 2.91 times as many Americans born between 1860 and 1875 (i.e., ages 25–40 in 1900) as the 1900 survey. For immigrants this ratio is smaller, with the 1910 census containing 2.78 times as many old immigrants born between 1860 and 1875 as in 1900 and 2.46 times as many new immigrants of the same ages as in 1900.[21] If mortality rates were the same for male adult immigrants and native-born American males of native parentage, and the census sample does not underrepresent immigrant populations, the figure above implies that 4.5% of the old immigrants had emigrated out of the United States by 1900. For new immigrants, the estimate of out migration rises to 15.5%.[22]

It would seem, however, that advancement through the sectors of the American economy remains a strong feature of immigrant performance despite out-migration up to 16% in some sections of the immigrant population. Even if 4.5% of old immigrants and 15.5% of all immigrants departed between 1900 and 1910,[23] and all of these departures came from the lower paid agricultural and blue-collar sectors, I still find that adult immigrants were highly mobile between the sectors of the American economy (second column of Table 6).

[19] The age group I examine consists of those ages 25–40 in 1900. For immigrants only those who arrived by 1900 were included in the 1910 samples.

[20] Note that due to the larger sample drawn from the 1910 census means that the cohort populations for 1910 will be larger than 1900 despite mortality and return migration.

[21] I chose not to break down the immigrant groups into individual nationalities. One problem with subdividing the immigrant population to this extent is that some of the national/age group cohorts would be quite small, making implied estimates of return migration sensitive to sampling error. Another difficulty is that the definition used by the census Bureau for the boundaries of some of the source countries changed over this period.

[22] This figure also assumes that there was equal out-migration by native-born Americans and adult immigrants to regions other than immigrant source countries (i.e., any migration to Canada during this period). Note also that the figures here and in Table 6 do not change significantly if immigrant mortality rates differ somewhat from those of native-born Americans. If immigrants suffered higher mortality rates than native-born Americans the estimated rates of return migration to Europe are lower than what I have calculated, and there is therefore the correction for return migration in Table 6 should actually be smaller than I have indicated. I also experimented with lower mortality rates for immigrants, finding that the rate of return migration my either old or new immigrants would increase by only 4 to 5% had there been *no* mortality within cohorts between 1900 and 1910.

[23] This figure, which is the estimate return migration rate for new immigrants, surely overstates actual return migration among the cohorts of Table 6, as they include old immigrants with their correspondingly lower return migration rates.

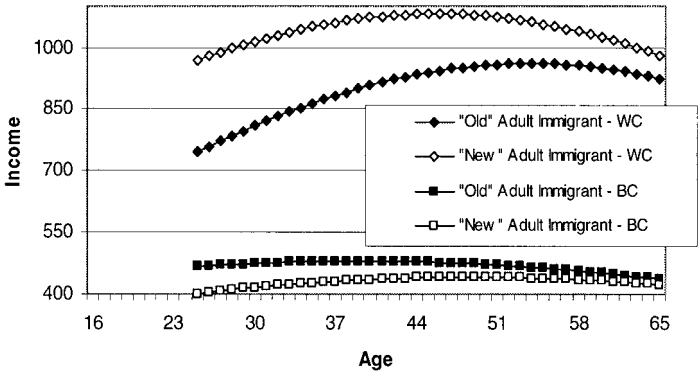

FIG. 5. Blue-collar and white-collar income by cohort, 1910.

"Old" vs "New" Immigrants in 1910

Although the results shown in Table 5 indicate that immigrants did see positive rates of assimilation between 1900 and 1910, the fact that within-cohort growth estimates are somewhat lower than cross-sectional growth estimates could be seen to support the hypothesis that the immigrant inflows dominated by new immigrants after 1900 were of lower labor-market "quality."[24] Did the emergence of the new immigrants slow the rate of overall immigrant assimilation? To determine if there were differences between old and new immigrants up to 1910, we can refer to earlier occupational income regressions for both groups of immigrants in the three sectors of the economy in the 1910 census cross section (Table 4). Again, I offer an easier interpretation of the regression table through predicted age–income profiles for old and new immigrants in the blue-collar and white-collar sectors (Figs. 5 and 6).

The relative progress of new immigrants against old immigrants in blue-collar occupations in 1910 was quite similar to what we have seen earlier in comparing all foreign-born adult immigrants to the native-born of native parentage in the same census. New adult immigrants trailed their counterparts from old sources by 15.1% of income on arrival in the United States. At age 40, the new group still trailed by almost 10% of income, with this positive gap remaining across the normal working life. This result is in line with the observations made by earlier researchers. Hatton (2000) found that across a range of data sources dealing with blue-collar industries,[25] fully assimilated new immigrants trailed the old immigrants by 5.9 to 10.2% of wages. These figures are quite close to the difference

[24] The United States Immigration Commission report of 1911, as well as subsequent works by John Commons, Madison Grant, and Jeremiah Jenks and Jett Lauck, all took a negative view of the ability of new immigrants to integrate into the United States labor market (Hatton, 2000). However, Douglas (1919) found that 17.0% of new immigrants arriving between 1899 and 1902 were members of skilled or professional occupations, while only 12.2% of immigrants arriving between 1871 and 1882 (a time in which the old immigrants dominated inflows) were skilled or professional.

[25] These sources include the 1909 Immigration Commission Data, the 1890 Michigan Implement

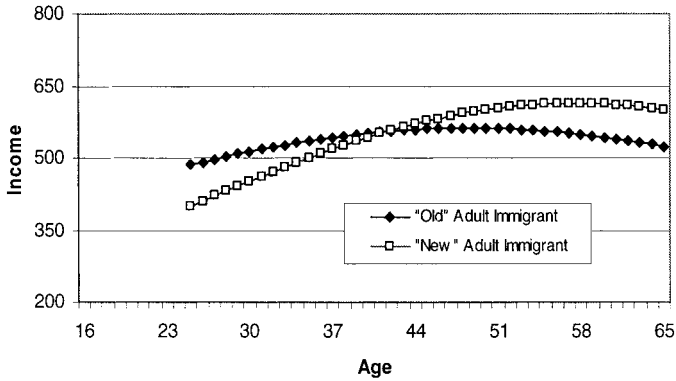

FIG. 6. All nonagricultural income by cohort, 1910.

found here between 40-year-old new and old immigrants in the 1910 census. Using the Immigration Commission data, Francine Blau (1980) found that new immigrants trailed the old by 6.38% of wages at arrival,[26] but her calculation of the "catch-up period" for both groups infers that the arrivals from new sources did not experience faster wage growth once in the United States.

The white-collar sector provides an entirely different picture. Here the old immigrants trail the new by over 26% of income on arrival to the United States at age 25. Although there is some catching-up over the life cycle, the new immigrants continue to hold an advantage in this area, with the old immigrants trailing by 16.7% of income at age 40, remaining over 11% behind the new immigrants at age 50. In Fig. 6, which combines the blue- and white-collar sectors, the new immigrants out-earn old immigrants from the age of 42 onward.

To tighten the focus on the issue of the labor market quality of old and new immigrants, the final two sections of Table 5 present 10-year cross sections and within-cohort relative income growth rates for old and new immigrant groups. The figures for new immigrants reveal that for the two most recent cohorts under consideration, those immigrants born in 1875 and 1865, earnings growth between the cohorts exceeds the predicted growth over the same period based on the 1900 census cross section. For old immigrants, the within-cohort growth estimates are negative and are less than the 1900 cross-sectional growth estimates. While this analysis does not directly determine the effect of a change in the source area composition of the immigrant population on within-cohort growth, it does suggest that new immigrant arrivals after 1890 were able to assimilate as least as well as the small number of immigrants who arrived from southern and eastern Europe before 1890. It is in the

and Ironworkers survey, and the 1892 California Manufacturing Workers survey (Hatton, 2000, Table 5).

[26] Note that Blau's division of immigrants into two ethnic groups is somewhat different from mine: She includes the Irish and French Canadians in what would be considered the "new" immigrant group (Blau, 1980, Table 1). (This may account for the smaller differential she finds on arrival, as these immigrants will have had more exposure to English than southern and eastern Europeans.)

old immigrant population where there is evidence of wage growth slower than native-born Americans and a possible decline in labor-market quality.

Why did the new immigrant cohorts do so well relative to old immigrant cohorts? The third and fourth columns of Table 6 break the immigrant population into old and new immigrant groups and calculate the increase in the white-collar sector between censuses for various cohorts after adjusting for out-migration. For old immigrant cohorts, the percentage increase in the white-collar sector between the censuses exceeds that of similarly aged native-born Americans for three of five cohorts under consideration. For new immigrants the results are quite remarkable: after adjusting for a return migration rate of 15.5% out of agriculture and the blue-collar sector, I found that among those arriving between 1891 and 1900 there was still an increase of over 12% in the share working in the white-collar sector. New immigrants arriving between 1881 and 1890 also were more able to find their way into white-collar work than their old immigrant or native-born counterparts. The new immigrants arriving from the 1890s onward were therefore able to combine higher earnings within white-collar work (as seen in Fig. 5) with a greater propensity to enter this sector over time then the old immigrant population.

It would seem that the emergence of new immigrants by the 1910 census is driving the changes in relative performance of all adult immigrants seen in Figs. 3 and 4. In 1910, progress in the blue-collar sector for the adult foreign-born appears to have been slowed by the performance of the "new" adult immigrants highlighted in Fig. 5. These immigrants start with a greater occupational income disadvantage in blue-collar work than do old immigrants and do not come as close to achieving income parity with natives despite somewhat faster income growth over the life cycle. At the same time, the stunning results for the white-collar sector seen in Fig. 4 are clearly a result of the success of the new immigrants in this sector. As well as outperforming old immigrants and the native-born in white-collar work, the new immigrants were more likely to move into this sector with time spent in the United States.

Conclusions

The analysis above carries several important messages regarding turn-of-the-century migration to the United States. One is that all sectors of the American economy must be considered to gain a true understanding of immigrant assimilation in the United States in this period. Failing to distinguish between the sectors leads to an incorrect picture of life-cycle income for native-born, native-parentage Americans, who were much more likely to be engaged in agricultural pursuits than their immigrant counterparts. At the same time, it is not adequate to limit our attention to blue-collar occupations, as the white-collar sector was a source of high earnings for the foreign-born.

A second theme is the relatively strong performance of immigrants in cross-sectional regressions. The 1900 sample reveals that immigrants were not far off of the predicted income level for native-born Americans within the blue-collar and white-collar sectors, while enjoying positive earnings growth relative to

native-born native parentage Americans. Immigrants fare somewhat worse in the 1910 cross sections for blue-collar work, but manage to out-earn the native-born in the white-collar sector. It appears that this change is driven by the emergence of immigrants from new sources, who have slightly lower earnings than old immigrants in blue-collar work while holding a distinct advantage in the white-collar sector.

Furthermore, the cross-sectional results are not rendered invalid by cohort effects due to changing immigrant quality between 1900 and 1910. Immigrants did experience positive relative earnings growth between the two census surveys, though at slightly lower rates then reported in the cross-sectional analysis. The change in immigrant sources to southern and eastern Europe did not reduce relative earnings growth, as immigrants from these regions experienced earnings growth over the cohort at rates exceeding estimates based on cross-sectional regressions. Nor were immigrants particularly restricted in their ability to move between the sectors of the American economy. Even after an extreme adjustment for possible return migration to Europe, foreign-born adult immigrants appear to have been equally if not more able to move into the high-income white-collar sector than their native-born counterparts. The remarkable results for intersectoral mobility suggest that highly skilled immigrants may have entered the United States labor market in blue-collar occupations, moving on to white-collar occupations once they had acquired U.S.-specific human capital, such as mastery of the English language.

While the case for the "optimistic" view of immigrant progress in America is strengthened in the analysis above, particularly for the new immigrants from southern and eastern Europe, there remain some unsettled questions as to why particular sections of the immigrant population were able to prosper to such a degree in the United States. In particular, the stunning success of the new immigrants in the white-collar sector is an intriguing result, particularly when combined with their less impressive performance in blue-collar occupations. My finding of a strong immigrant presence in white-collar occupations suggests a change is in order toward the study of immigrant progress in America. There is a need for greater understanding of immigrant histories outside of the industrial and manufacturing areas under focus in most of the quantitative studies. Work in this area would provide a fresh perspective on the performance of immigrants as a whole as well as unlock the issue of how some new immigrants came to find such high earnings in white-collar work.

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