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DEPARTAMENTO DE ECONOMIA

The Economic and Demographic Consequences of Inmigration into the United States:

Quantitative Historical Perspectives

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The Economic and Demographic Consequences of Immigration into the United States: Quantitative Historical Perspectives

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> Immigration has had a long history in the United States. For the most part, however, it was seldom treated dispassionately even when an attempt was made only to ascertain the pertinent facts and their reliability. Books and innumerable articles were written to "prove" that immigration did not contribute to the population growth of this country because immigration depressed the fertility rate of the native population: that immigration, if it continued, would result in race suicide of the Nordic element; that immigration was a threat to "American" institutions, etc. For this reason much of the literature on the subject is almost worthless.
>
> Simon Kuznets and Ernest Rubin [1954: 87]

INTRODUCTION

The Immigration Act of 1990 created the U.S. Commission on Immigration Reform which it charged with assessing American immigration policy. The Commission is scheduled to make recommendations to Congress in 1997. As part of its efforts, the Commission requested the assistance of the National Academy of Sciences and the National Research Council. These agencies have an extensive research effort now underway to examine the demographic and economic impacts of immigration. The focus of this work is the consequences of immigration today, but the Academy has also commissioned a broad historical view of the economic consequences of immigration.

This is a formidable task. There is an enormous literature on the subject ranging over every conceivable genre. These include nineteenth-century political broadsides, serious and masterfully-written histories, the forty-two volume report of the first Immigration Commission appointed in 1907, focused cliometric studies appearing in scholarly journals, autobiographies that witness the era of high immigration, obscure statistical compendia, and theoretical analyses some of which are highly abstract and

mathematically intricate. The subject is also emotional and controversial. In the past, as today, immigration policy arouses strong feelings and in some cases these have colored the analysis offered. As Kuznets and Rubin suggested, dispassionate inquiry is hard to find. Many authors express their conclusions with a degree of certitude that is difficult to justify from the evidence they offer. Writers on opposite sides often have failed to take account of the evidence and arguments of their opponents. On many aspects of the question a modern consensus of scholarly opinion cannot be found.

Nevertheless, we feel that it is possible to survey the literature and extract a list of defensible conclusions. Not everyone will agree with our distillation nor welcome our attempt to cover such an intractable subject with the guise of apparent order. Our "conclusions" might be better read as provocation for further research by economic and demographic historians on the consequences of immigration in America's past. At least, we are convinced that this entire area is ripe with important and researchable topics.

CONCLUSIONS

- Immigration has a smaller quantitative impact on the economy and population today than it did during the era of "high immigration" roughly spanning 1880 to 1914. **pages 7 to 11**

- Immigration around the turn of the century was dominated by males of young working age. As a consequence, immigrants had a high labor force participation rate. By contrast, today's immigrants are slightly more likely to be female than male and while the concentration in the young working ages is still evident this is less pronounced than was true a century ago. **pages 11 to 12**

- Many of the immigrants during the period of high immigration were sojourners who did not intend to -- nor did they -- make the United States their permanent residence. **pages 12 to 14**

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- Before controls, the flow of immigrants was highly responsive to economic conditions in the United States. The numbers swelled when the U.S. economy was booming, wages were rising, and unemployment was low. They ebbed when the economy was depressed. Emigration, the return flow, was highest during American depressions and was reduced during booms. **pages 14 to 16**

- America selected people with above-average skills and backgrounds from their countries of origin. **pages 17 to 19**

- Immigrants in the era of high migration reported approximately the same mix of non-agricultural skills upon their arrival as those possessed by the American non-farm labor force they joined. **pages 19 to 23**

- Immigrants took jobs that were concentrated near the middle of the late nineteenth century occupational distribution. There were significant numbers of native-born American workers both below above the strata occupied by the foreign-born population. **pages 23 to 24**

- After their arrival, nineteenth-century immigrants experienced rapid occupational mobility. There children fared even better with the opportunities opened up to them by their parents' change of residence. **pages 24 to 25**

- Immigration caused the size of the American economy to grow more rapidly than would have been the case otherwise. **pages 26 to 30**

- There was probably a small transitory reduction in the real wages of resident workers and a transitory rise in the rate of return to capital and land induced by the influx of labor from abroad. However the gains of resident capital- and land-owners exceeded the losses to workers. **pages 31 to 33**

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- Immigrants had a higher labor force participation rate than resident Americans. This caused an increase in the percapita income of the resident population.

  pages 33 to 34

- The increase in the size of the U.S. economy caused by migration probably induced higher capital flows from abroad, particularly from the migrants' countries of origin. **pages 34 to 36**

- Immigrants were unusually heavy savers compared to the native-born population. Much of this saving was invested in residential structures and in the capital necessary to operate self-owned businesses. **pages 36 to 38**

- The foreign born were disproportionately inclined to enter self-employment within five to ten years after their arrival in the United States. **page 37**

- Immigration stimulated an increase in the capital stock and in the aggregate capital-labor ratio. **pages 38 to 39**

- Immigration stimulated inventive activity. **pages 39 to 40**

- Immigration sped the progress of technological advance, helping to push the United States to the forefront of the world economy in terms of the application of advanced technology by the time of World War I. This was because the rapid growth of the capital stock required by the rapid growth of the population lowered the average age of capital. **pages 40 to 41**

- If there were large economies of scale operating at the national level, as many economic historians believe, then immigration had a profound effect on increasing the productivity of the economy and raising the standard of living of all Americans. **pages 41 to 43**

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- Immigrants imported a significant stock of human capital to the United States. This gift had a potentially large effect on the stock of both physical and human capital that resident Americans were able to accumulate. **pages 44 to 45**

- There is no evidence that immigrants permanently lowered the real wage of resident workers overall in the nineteenth and early-twentieth centuries. **pages 46 to 49**

- Real wages of all Americans rose throughout the period from the Civil War to World War I. **page 49**

- The concentrated influx of immigrants into particular occupations and particular cities had a depressing effect on the real wages of resident workers in those same labor markets. However these adjustments were transitory and equilibrating. Because immigrants had high occupational and geographical mobility they helped speed the return to equilibrium. Thus they benefited the economy by moving it toward a more optimal allocation of resources. **pages 50 to 51**

- There is no evidence that international migrants increased the rate of unemployment, took jobs from residents, or crowded resident workers into less attractive jobs. **pages 51 to 52**

- The flow of European-born workers into the rapidly growing industrial cities of the North may have help to delay the migration of Blacks from the South to the North until after World War I. **pages 52 to 53**

- There is no evidence that the early-twentieth-century immigrant community placed a disproportionate burden on public charitable agencies or private philanthropies. **pages 54 to 59**

- There was a significant transfer of income from immigrants to recipients of federal Civil War pensions particularly in the period 1900 to 1914. **pages 59 to 60**

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- There was a significant transfer of income from the native-born to turn-of-the-century immigrants through the Social Security System in the 1950s and 1960s. This transfer was due to the reduction in immigration in the 1920s, 1930s, and 1940s.

pages 60 to 61

- The turn-of-the-century educational system does not appear to have been an important arena for transferring resources between the foreign- and native-born populations.

pages 61 to 64

- There is a broad consensus that immigration did not depress the fertility of the native-born population.

pages 65 to 66

- Fears of "race suicide" because of the higher fertility of the foreign-born and their children were unfounded.

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THE MAGNITUDE AND CHARACTER OF IMMIGRANT FLOWS: NOW AND THEN

Immigration to the United States has increased steadily in the post-World War II period.[1] In 1993, the latest year for which data is available, the number of immigrants admitted into the United States was three times the annual flow between 1951 to 1960 and nearly double that of the 1970s.[2] Figure 1 displays the number of immigrants arriving in the United States annually between 1950 and 1993.[3] The spike in the graph for the years 1989 through 1993, shown by the dashed line, includes persons granted permanent residence under the legalization program of the Immigration Reform and Control Act of 1986. Even excluding these "special" immigrants, Figure 1 shows a pronounced upward trend in immigration over the last third of a century. Moreover, if

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1. "Immigrants" are aliens who have been admitted into the United States for legal, permanent residence. In the post-World War II period, immigrants account for only a small fraction of the total number of aliens who arrive into the United States each year [U.S. Bureau of the Census 1995, Table 7: 11]. In recent years the number of non-immigrants exceeds the number of immigrants by approximately twenty-fold. The overwhelming majority of these non-immigrants are tourists, business travelers, and persons in transit. Students are another important category of non-immigrants. The number of non-immigrant students admitted each year is about half as great as the total number of persons admitted as immigrants. Over the past ten years the number of temporary workers and trainees has grown very rapidly to become another important category of non-immigrants. In 1993 the number of temporary workers admitted was almost as great as the number of students. Illegal border crossers, crewmen, and "insular travelers" are a third category of aliens who enter the country. They are not included in any of the totals reported here.

2. The number of immigrants admitted in 1993 was 880 thousand exclusive of those admitted under the legalization adjustments permitted by the Immigration Control Act of 1986. The number of immigrants admitted during the years 1951 to 1960 was 2.5 million and between 1971 and 1980 it was 4.5 million [U.S. Bureau of the Census 1995, Tables 5 and 6: 10].

3. These are the "official" numbers as published by the U.S. Immigration and Naturalization Service in its annual *Statistical Yearbook* [1994: Table 1]. Also see U.S. Bureau of the Census, *Historical Statistics of the United States* [1975; series C89] and *Statistical Abstract of the United States* [1975, Tables 5 and 6].

the response to the Immigration and Control Act of 1986 can be interpreted as some measure of the "excess supply" of potential immigrants, then the pressure on American borders may have grown much faster than the numbers plotted in Figure 1 would suggest.

As a direct consequence of the recent increase in immigration, the fraction of the American population foreign-born has risen dramatically. Figure 2 charts this change for the post-World War II period.[4] In the 1950s and 1960s, the small number of immigrants, together with the high fertility of the native population, meant that the fraction of the population foreign-born actually declined. In 1950, the foreign-born comprised 6.9 percent of the population; by 1970 their share had dropped to only 4.8 percent. The increasing numbers of immigrants after 1970 lead to a reversal of this downward trend. By 1990 the foreign-born had surpassed their 1950 share, accounting for 7.9 percent of the population. A recent news release by the U.S. Census Bureau puts the 1996 share at 9 percent [McLeod 1996].

Because immigrants tend to be young adults, the recent increase in immigration has had a disproportionate impact on the population in the age range of 20 to 40 years. This is shown in Figure 3, which plots the fraction of the population foreign-born by age at three post-World War II census dates.[5] In 1950, and even more so in 1970, the foreign-born tended to be older than the average American. These people had migrated to the United States in the early decades of the century when *they* were in their late teens and early twenties. By the post-World War II period, they had aged, but the long period of reduced immigration beginning in the 1920s and lasting through 1970 meant that there were far fewer new recruits at the lower end of the age spectrum. With the resumption of heavier immigration in the 1980s and 1990s, these new flows substantially altered the age-structure of the foreign-born population. Since the new immigrants were

4. U.S. Bureau of the Census [1975 series A91; 1984, Table 253; and 1993, Table 1].

5. U.S. Bureau of the Census [1975 series A119-A134; 1984, Table 253; 1993, Table 1].

disproportionately young adults, their arrival increased the foreign-born fraction of the population in the economically-active age groups. It is no wonder that the current policy debate over immigration centers on labor market and employment impacts [Borjas 1995].

Current Flows in Historical Perspective

The level of immigration in the 1980s and 1990s is certainly high in the context of the immediate post-World War II decades -- and, indeed, in the experience of almost all of the native-born population of the United States today. Yet it is relatively modest from the perspective of the experience in the period 1880 through 1914; the era of "mass immigration." Figure 4 displays the numbers of immigrants admitted into the United States over the period 1820 to 1993. This is the same statistic as the one displayed in Figure 1; Figure 4 simply presents the series over a longer period of time.[6] While the spike of 1991, reflecting response to the Immigration Reform and Control Act of 1986 still stands out, the chart reveals that the number of immigrants admitted through normal channels in the recent period is decidedly smaller than the number admitted in the first decade of the twentieth century.

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6. These are the "official statistics" of immigration which are the result of the Passenger Act of March 2, 1819 that required the captain of each vessel arriving from abroad to deliver a manifest of all passengers taken on board in a foreign port, with their sex, age, occupation, country of origin and whether or not they intended to become inhabitants of the United States. These reports were collected and abstracted for the period 1820 to 1855 by Bromwell [1855], for the period 1820 to 1874 by the Secretary of State, for the period 1867 to 1895 by the Treasury Department's Bureau of Statistics, and since 1892 by the Office or Bureau of Immigration which is now part of the U.S. Immigration and Naturalization Service [1994]. The statistics for the period 1820 to 1910 were compiled by the Immigration Commission [1911, Volume 1, Table 1, p. 56]. The defects of the official series are well known [U.S. Bureau of the Census, *Historical Statistics of the United States*, 1975: 97-98; series C89; Jerome 1926: 29-33; Kuznets and Rubin 1954: 55-64; Thomas 1973: 42-50; McClelland and Zeckhauser 1982: 32-35; and Schaefer 1994: 55-59]. The chief biases are the following: (1) the figures apparently exclude first-class passengers for the early decades, (2) before 1906 they exclude immigrants arriving overland from British North America (Canada) and Mexico; (3) immigrants arriving at Pacific ports before 1849 and at Confederate ports during the Civil War are excluded; and (4) the data such as they are measure gross rather than net immigration.

Moreover, the United States was a much smaller country early in the century. To put the current immigration flows into proper perspective, we deflate the *numbers* of immigrants by the number of people resident in the United States at the time of their arrival and display the result in Figure 5.[7] Our calculations reveal that, in proportionate terms, the current inflow of immigrants is rather modest. If we look only at the "regular" immigrants -- that is, exclusive of those admitted under the 1986 act -- then the current inflows approximate those in the very *slowest* years from the period between 1840 and the onset of World War I. Before the imposition of a literary test for admission in 1917 (overriding President Wilson's veto) and the passage of the Emergency Quota Act in May 1921, only the disruptions of the First World War pushed the flow of immigrants relative to the native population to levels below those that we experience today.[8]

As a consequence of the large and persistent immigrant flows in the early period, the foreign-born came to comprise a rather large fraction of the total population. Figure 6 shows that, in the years between 1870 and 1910, the numbers of resident Americans born abroad ranged between 12 and 15 percent of the total population [U.S. Bureau of the Census 1975, series A91]. The foreign-born fraction of the population in that period was approximately three-times the level recorded in 1970 and over twice as high as it is today.

The historical record thus reveals that the numerical impact of immigration flows were once substantially larger than what we have now and were also larger than the

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7. The data in Figure 5 have been extended back to 1790 and the data before the Civil War have been corrected for the undercounts noted in footnote 6. The figures for 1790 to 1799 are from Bromwell [1855: 13-14] and should be considered as nothing more than educated guesses by contemporaries [Blodget 1806 and Seybert 1818]. The data for 1800 through 1849 are estimates made by McClelland and Zeckhauser [1982, Table A-24, p. 113]. Those for 1850 to 1859 are estimates by Schaefer [1994, Table 3.1, p. 56]. Thereafter the official statistics from the U.S. Immigration and Naturalization Service are used [1994, Table 1]. The resident population is taken from U.S. Bureau of the Census [1975, series A7, and 1995, Table 2, p. 8].

8. Goldin [1994a] discusses the legislative and political history of immigration restriction.

levels we are likely to experience in the foreseeable future. Thus we are tempted to suggest that the economic and demographic consequences of immigration in the 1840-1914 period are likely to have been greater than the impact of immigration flows today.

Age and Gender of Immigrants

The overwhelming proportion of immigrants are young adults. This is true today and it was so in the early years of the twentieth century as well. Figure 7 contrasts the age distribution of immigrants in 1907-10 with those for 1992-95.[9] Clearly, the propensity to immigrate is strongest from ages 18 to 30 in both periods. One change that is visible is that modern immigrants are more likely to be accompanied with young children then was true in 1907-10. This finding is understandable in terms of the reduced costs of migration but it also reflects a sharp change in the gender composition of migrants. In the late-nineteenth and early-twentieth centuries men were far more like to come to America than women. This gender imbalance was particularly pronounced among the young adults who constituted the bulk of all immigrants.

Figure 8 contrasts the data on gender composition of immigrants by age from the 1907-10 period with the most recent data available on gender composition. The proportion male was well over seventy percent in the age range 18 through 40 in 1907-10. This represents a male-female ratio of more than two to one. For those in their late twenties the ratio is greater than three to one. The data from the beginning of the century, when the age of independence was younger than today, show a modest imbalance in favor of young women aged 12 through 16, undoubtedly produced by the

9. The data for 1909-10 are based on the public-use microdata sample from the enumerator's manuscripts for the 1910 Population Census [IPUMS]. All immigrants (both males and females) who reported arriving in the United States in 1907 or after were included (n=7658). This census was taken on April 15, 1910. The sample thus includes all 1907-09 immigrants and slightly more than one-fourth of the 1910 arrivals. The 1992-95 data are based on the March Current Population Surveys of the Bureau of Labor Statistics for 1994 and 1995 [CPS]. They include all immigrants who reported a permanent move to the United States during or after 1992. All migrants residing in the US in 1994 or 1995 who immigrated in 1992-94 and the first few months of 1995 are included (n=3841).

earlier maturation of girls than boys. Yet the startling finding revealed by Figure 8 is the relative gender equality in immigration in the modern data. Today women actually predominate in the prime migration age cohorts. The data on the gender of immigrants is available beginning in 1820.[10] The long time series of the proportion male is plotted in Figure 9. The predominance of males is clearly a phenomenon of the entire period of uncontrolled immigration but it disappears within a decade following the imposition of limitations in 1921.

Because of the age selectivity of migration, a disproportionate share of foreign-born persons resident in the United States at the turn-of-the-century were in the prime working age groups. Figure 10 displays the fraction of the population foreign-born by age for selected census years beginning in 1870 [U.S. Bureau of the Census 1975, series A119-134]. Though Figure 6 shows that the overall fraction of the population foreign-born in the earlier period was about twice the percentage for 1990, Figure 10 reveals that at that time the fraction in the prime working ages was closer to three times as great as today. It is no wonder that the first Immigration Commission [1910] concentrated its attention on the impact of immigration on the labor market and employment.

Return Flows: The Illusive Emigrants

While the age composition of the immigrants had a strong impact on the age distribution of the subsequent foreign-born population, it is interesting to note that the proportion of males among the foreign-born population recorded at the various censuses from 1880 to 1910, while greater than fifty percent, was not heavily imbalanced. In Figure 11 the proportion of the foreign-born in 1910 who were male is displayed by their year of arrival in the United States [1910 IPUMS]. These numbers are compared with

10. U.S. Census Bureau [1975, series C138-C139]; U.S. Immigration and Nationalization Service [1979, Table 10; 1989, Table 11; 1994, Table ?]. Official data on gender are not available for 1868, 1980, or 1981.

the proportion of immigrants arriving in each year who were male (dashed line).[11] Clearly many more men then women left the country after immigrating.

Another feature of the time series displayed in Figure 9 is that the predominance of males among new immigrants declines during periods in which the economy was depressed -- 1857, 1874-76, 1894-95, 1920-21 -- precisely the same periods when the number of immigrants declined. This cyclical pattern may reflect the reduction of temporary immigrants. Presumably these sojourners were primarily males who moved to the United States for a temporary period to earn income, accumulate assets, and then return to their home country. These temporary migrants bear some similarities with the "guest workers" in today's Europe or the Braceros of the southwestern United States during the early post-war era.[12] Quite possibly recent illegal immigrants to the United States should be thought of more like these early-twentieth century sojourners than as individuals who are intending to settle permanently, albeit illegally, in this country.

Certainly it is plausible that a depressed economy would discourage sojourners. But in fact little is known about the phenomenon in the era of mass migration. Before 1908 the official statistics on immigrants count only arrivals. They do not distinguish between permanent settlers and temporary guest workers, nor is there any comprehensive count of returning immigrants during this period. Kuznets and Rubin have estimated return migration for the period 1870 to 1908 based on official reports of passenger departures and several assumptions about the mix of American citizens and returning immigrants in the departure data, the mortality of foreign-born in the United States and

11. The immigration data is the same as displayed in Figure 9 except that calendar-year flows are estimated by averaging the fiscal year data. That is, calendar year 1905 is an average of fiscal year 1905 (which ends June 30, 1905) and fiscal year 1906.

12. The Braceros program was established during World War II to relieve war-time shortages in the agricultural labor markets of southern California and Texas. These migrant workers were allowed to remain in the United States for up to 18 months. The program was extended after the war and was not ended until 1965 [Feleciano 1996].

the mortality of Americans when visiting abroad.[13] These data are displayed in Figure 12 together with the official data from 1908 onwards. Figure 13 displays the departure rate of immigrants. The return rate rose from less than ten percent in 1870 and 1881 to over seventy percent just before World War I. This increasing propensity of the U.S. to attract sojourners makes sense given the declining cost of trans-Atlantic passage due to the continual technological improvement of the steamship following the introduction of scheduled service on the North Atlantic in the 1860s [Baines 1991: 40-42].

Immigration and the Business Cycle

Figure 4 reveals another striking difference between the data for the recent and distant past. In the recent past immigration flows have increased in almost every year, showing little sensitivity to year-to-year changes in macroeconomic conditions. This is because immigration is today closely regulated and because more wish to migrate than the number of visa slots available. Most successful immigrants have been waiting for admission for several years. Today, year-to-year changes in the number of immigrants reflect policy changes, particularly regarding the admission of refugees and asylees, not changes in demand for admission. In the early period, by contrast, immigration was extremely sensitive to economic conditions in the United States. Between 1891 and 1895, for example, when the unemployment rate almost doubled from 4.5 to 8.5 percent, the number of immigrants fell by more than half, from 560 thousand to 259 thousand. Even more dramatic is the almost 40 percent reduction in the number of immigrants in a single year, from 1.3 million 1907 to 783 thousand in 1908 in response to a sharp jump in the unemployment rate from 3.1 to 7.5 percent between those same years [U.S. Bureau of the Census 1975, C 89: 105 and Weir 1992: 341]. Harry Jerome concluded that the lag between economic activity and immigration in this period was only one to five months [Jerome 1926: 208].

13. Kuznets and Rubin [1954, Table B-1, pp. 95-96]. These data have been accepted by Hatton and Williamson [1995, Appendix] who use them for calculating annual estimates of *net* migration.

The relationship between the American business cycle and the flow of immigrants has been extensively examined [Jerome 1926; Thomas 1954, 1973; Abromovitz 1961; Williamson 1964; Easterlin 1968]. The consensus is that the pull forces of American opportunities dominated the push forces of European poverty, land scarcity, and military conscription [Easterlin 1968: 35-36; Cohn 1995]. Brinley Thomas has developed an elegant model of the "Atlantic Economy" as an integrated economic unit with flows of immigrants, goods, and capital moving in a rhythm of self-reinforcing and inversely related long-swing Kuznets cycles [1954, first edition: 1973, second edition].[14] This raises the possibility that immigration acted as a "governor" for the economy slowing down the booms and cushioning the depressions. Early writers on the business cycle such as Wesley Clair Mitchell did not feel that immigration was likely to have been a major factor in moderating the cycle [1913: 225-228]. Jerome on balance thought immigration may have exacerbated depressions, but his conclusion drew a strong rejoinder from M. C. Rorty.[15] More recent work on the business cycle tends to ignore the role of immigration, perhaps for the obvious reason that the cyclical nature of the immigration flows ended with the Quota Act. Brinley Thomas [1973] and Bert Hickman [1973] have both suggested that the reduction in immigration was responsible for the decline in demand for housing that preceded and may have contributed to the Great Depression.

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It was not just the inflow of immigrants that responded to economic conditions in this country; the outflow of emigrants also responded to the rate of unemployment.

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14. Albert Fishlow has criticized the Thomas model [1965: 200-203].

15. Jerome [1926: 120-122] was impressed by the fact that net immigration was positive even during times of depression (he was writing before the Great Depression). Rorty, who as a Director of the National Bureau of Economic Research by appointment of the American Statistical Association had the right to attach a dissenting footnote to Jerome's NBER Occasional Paper, correctly, we think, pointed out that the cause of the rate of growth in the population should be irrelevant to population growth's impact on the business cycle. Since immigration flows slowed during business downturns, the cyclical movement of immigration can only have helped reduce the magnitude of the unemployment problem.

Figure 13 shows large increases in the rate of departure during the business downturns after 1873, in 1885, after 1893, and in 1908. Throughout the period preceding the First World War, the inward and outward movements of immigrants show a negative correlation.[16] In 1910 and 1913, when arrivals are up, departures are down. In 1912, when arrivals are down, departures are up. The relationship changes with the onset of the War. Both arrivals *and* departures are down during the war years and up during the immediate post-war period.

Charles Kindleberger has emphasized the potentially important role that sojourners might play in moderating the business cycle In the upturns an elastic labor supply from abroad might relieve bottlenecks, moderate wage increases, and thereby extend an expansion. In downturns an elastic labor supply can reduce downward pressure on the wage rates earned by the resident population and reduce the drain on public coffers for support of the unemployed [Kindleberger 1967]. Recently, Hatton and Williamson have revived the issue of the role of sojourners in moderating the consequences of economic fluctuations in the United States. They compare the actual course of the business cycle of the 1890s with a "no-guest-worker counterfactual" and conclude that the impact of guest workers on moderating the business cycle was "surprisingly small" [1995: 10]. Yet this assessment is based on their finding that "free migration muted the rise in unemployment during the biggest pre-World War I depression, 1892 to 1896, by only a quarter" [p. 11]. Size is in the eye of the beholder, but some would judge this effect as gratifyingly large.[17] Clearly an important area for further research would be to improve our understanding of the impact of the sojourner on the American economy at the turn of the century, especially in light of the possibility that illegal migrants might be playing a similar role in the American economy today.

16. However a glance at Figure 12 reveals that the magnitude of changes in departures is much smaller than that for arrivals.

17. We have a number of technical reservations about the structure of the Hatton-Williamson counterfactual upon which their judgement is based. We strongly suspect that their technique will bias their estimated impact is downward.

THE SELECTIVITY OF IMMIGRATION: THE QUESTION OF "QUALITY"

While it is probably an unfortunate term, the historical literature has given considerable attention to the issue of "immigrant quality." Simply put the question is whether the United States attracted the more-highly skilled, the more entrepreneurial and the more adventurous from abroad, or whether it received the "tired, ... poor, your huddled masses," the unlucky, the least educated, and the least able?[18] Presumably, "high quality" immigrants would accelerate economic growth, vitalize and enrich the society, and more quickly assimilate into the American "melting pot." "Low quality" immigrants would, it has often been charged, be more likely to become a burden on the economy, exacerbate inequality, and prove to be a disruptive social force.

In 1891 Francis Walker, the first President of the American Economic Association and former Superintendent of the U.S. Census, expressed his opinion on the matter with little generosity:

> [N]o one can surely be enough of an optimist to contemplate without dread the fast rising flood of immigration now setting in upon our shores...[T]he immigration of the present time...is tending to bring to us no longer the more alert and enterprising members of their respective communities, but rather the unlucky, the thriftless, the worthless....There is no reason why every stagnant pool of European population, representing the utterest failures of civilization, the worst defeats in the struggle for existence, the lowest degradation of human nature, should not be

18. Recall the poem by Emma Lazarus inscribed at the base of the Statute of Liberty:

> Give me your tired, your poor,
> Your huddled masses yearning to breath free,
> The wretched refuse of your teeming shore.
> Send these, the homeless, tempest tossed to me:
> I lift my lamp beside the golden door.

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> completely drained off into the United States. So long as any difference of economic conditions remains in our favor, so long as the least reason appears for the miserable, the broken, the corrupt, the abject, to think that they might be better off here than there, if not in the workshop, then in the workhouse, these Huns, and Poles, and Bohemians, and Russian Jews, and South Italians will continue to come, and to come by millions [Walker 1891, as quoted in Handlin 1959: 73-74].

Treatment of immigrant "quality" is intimately bound up with the pull-versus-push debate about the motives underlying immigration. If immigrants were pushed out of their home country by increasing immizeration, lack of jobs, or the shortage of land, the presumption is that immigration would tend to select individuals from the lower tail of the skill and resourcefulness distributions of their country of origin. On the other hand, if immigrants were pulled to the United States by the attractiveness of American opportunities, they are more likely to come from the upper tail of the home-country distribution.[19]

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19. Historical studies of immigration debate the relative importance of these "push" and "pull" forces. We note that the differential selectivity of push and pull forces is not a certainty. The argument is based on a threshold model of push forces in which low incomes in the origin country depress the lower tail of the income distribution below some intolerable poverty line that compels the migration of the most wretched, while those more fortunately situated can remain. On the other hand, it might also be noted that the very poor might not have the resources to afford the long-distance migration thus moderating or even reversing the conclusion that push works to select the least able and least skilled. The pull model assumes that those with the highest ability and the most education will have the most to gain by transferring their skills to a country with a higher capital-labor ratio and a stronger growth-induced excess demand for skilled workers. The conclusion is not a certainty. Perhaps the highly-skilled can earn more at home in a poor country or perhaps their relative income position matters most to them. If so, they would prefer to be a big fish even if they have to live in a small pond. The recent literature on the selectivity of immigration in the modern period makes heavy use of a different model of selectivity developed by Roy [1951. For an application to modern immigration patterns see Borjas 1987, 1994]. The Roy model -- which focuses on differences between countries in the variance of their earnings distributions as well as in the mean. Countries with a large variance in earnings tend to select immigrants from the upper-tail of the earnings distribution in sending countries; the reverse is true for countries with small earnings variance.

Did Migration Select the Best from Europe?

Whether looked at from the point of view of the attributes of the arrivals or the push-versus-pull controversy, the consensus among economic historians is that, before World War I, that America selected immigrants from the upper-tail of the skill distribution in their countries of origin [Easterlin 1971, Dunlevy and Gemery 1983]. Joel Mokyr, for example, has studied the occupations of Irish immigrants before 1850 and concluded that immigration selected from the upper tail of the occupational distribution of Ireland, though the magnitude of the difference between the occupational mix of immigrants and that of the resident population of Ireland was small [Mokyr 1983: 247-252].[20] Authors who emphasize the pull of American opportunities suggest that these forces would select the higher skilled, better situated members of European society. Even Brinley Thomas, one of the few writers who sees a strong role for push factors in motivating immigration, agrees that migrants to the United States tended to come from the upper strata of their own societies [1973: 56-62].

Were Immigrants of High Quality?
Immigrant and Native-Born Workers Compared

Whether these select workers from Europe's perspective appeared as high-skilled and advantaged competitors in the American labor market is more controversial. It could be true that immigrants selected from the upper-tail of their home-country's distribution of skills and other endowments, nevertheless fell below the median of native-born

20. Others who have reached similar conclusions include Baines [1985: 51-52], Erickson [1972, 1981, 1989, 1990], and Van Vugt [1988a, 1988b]. Raymond Cohn [1992, 1995] has criticized this work for using biased samples that underestimated the numbers of laborers and farmers in the years before the Civil War. The issue is how to treat the "questionable" passenger lists. These are lists on which *every* passenger is recorded as a laborer (or farmer) usually by the use of ditto marks down the occupation column. Most researchers have excluded such lists from their samples. Cohn disagrees. When Cohen includes the questionable lists in his sample, he finds more laborers and farmers among immigrants from England and Scotland and more laborers and servants from Ireland than in the occupational distributions of the countries of origin. In the case of Germany, on the other hand, Cohn's work supports the select-immigrant hypothesis.

American workers. It has also been asserted that the quality of immigrants fell as mass migration continued. A popular textbook in economic history states that "It is probably true that immigrants after 1880 were less skilled and educated than earlier immigrants."[21]

Historians have sometimes asserted or assumed that the bulk of immigrants were unskilled.[22] Oscar Handlin in the classic history of immigration to America, *The Uprooted*, described immigrants as "peasants," people who lacked training for merchandising and the skills to pursue a craft [Handlin 1951, 1973: 58, 60]. This view also appears in some surveys of American history. The textbook by Gary Nash, *et al.*, for example, reports that "most immigrants" after the Civil War "had few skills" [1986: 604]. Cliometric investigation suggests a quite different story. Available evidence implies that skill differences between native- and foreign-born workers throughout the period of mass immigration were small or nonexistent and that the relative quality of immigrants did not fall over time.

Occupations of Arriving Immigrants: One source of evidence on the relative skills of newly-arriving immigrants are the ship manifests giving the occupation of arriving passengers, recorded since the United States began the formal collection of immigration statistics in 1819. These data have been compiled by broad occupational grouping in *Historical Statistics of the United States* [1975, Series C120-137] and by more detailed occupation for 1819 through 1855 in Bromwell [1855]. Table 1 displays the occupational distribution of immigrants who reported an occupation at the time of their arrival into the United States by broad occupational category as decadal averages for the 50-year period

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21. Walton and Rockoff, *History of the American Economy*, Seventh Edition [1994: 402]. This exact sentence has passed down to this edition of the text book from Ross M. Robertson, *History of the American Economy*, Third Edition [1973: 387], through Walton and Robertson, *History of the American Economy*, Fifth Edition [1983: 444]. None of the editions offer a citation or evidence.

22. The proposition advanced in this literature is that the immigrants arrived without skills acquired in their home country. This is somewhat different than asserting that immigrants took unskilled jobs in this country irrespective of their ability to perform skilled work.

1861-1910. The high proportion of immigrants reporting an unskilled labor occupation in the passenger lists (40 to 50 percent before 1900) has been offered as evidence that the skill content of immigration during this period was low. We disagree.

It is clear that farmers and agricultural workers are proportionately less evident in the immigrant flows than in the resident American labor force. Table 2 compares Lebergott's [1964] estimates of the percentage of the resident labor force in the agricultural sector over the 50-year period beginning in 1861 with comparable data on the occupations of arriving immigrants presented from Table 1.[23] In no decade is the proportion of agricultural workers in the immigrant flow over 25 percent; in no decade is the proportion of agricultural workers in the American labor force less than 35 percent. Since agricultural workers are generally classified as unskilled, this evidence cannot support the suggestion that new immigrants were less skilled than the average resident worker.

Immigrants do not appear to have been particularly deficient in skills as compared with the non-agricultural labor force in the United States, either. Table 3 makes the comparison for the first decade of the twentieth century, the first decade for which the required data is available. Taking the usual definition skilled workers -- craftsmen, foreman and kindred workers -- Table 3 reveals a higher proportion of skilled workers among the immigrants, 26.7 percent, than among the resident American labor force, 16.8 percent. Table 3 also reveals a relatively lower proportion of domestic servants among arriving immigrants.

Yet as we have noted, at the same time immigrants were relatively more likely to report "unskilled" occupations than were American workers, which complicates the

23. Since the populations of the primarily-European origin countries were more heavily agricultural than the American population and since by most accounts the agricultural labor force in Europe ("peasants") were the least-skilled and least-educated of European workers, these data provide further support to the conclusion stated above that the immigrants tended to come from the higher strata of European society.

interpretation of the data. Moreover and not surprisingly, given the young ages of immigrants, professionals were not well represented among the new arrivals, either. To help clarify the picture, we group the skilled, the professional, and "all other" occupations into a single category and contrast these higher-status occupations with the unskilled and domestic service occupations. We find that 47.3 percent of the non-agricultural immigrants reported high-status occupations and 52.7 percent were unskilled or in domestic service. In this sense, immigrants were (slightly) more likely to be unskilled than skilled. Yet, this proportion is nearly exactly the split within the resident-American non-agricultural labor force; 46.6 percent in high-status occupations and 53.4 percent either unskilled or in service occupations. We might even say that the immigrants in this decade were *more skilled* than the American labor force.

The data on the occupations of arriving immigrants, shown in Table 1, reveals very little in the way of a trend over time. The high-status occupations accounted for a stable forty percent of immigrants reporting non-agricultural occupations between 1860 and 1900 and then *rose* to 47 percent in the final decade before World War I. This evidence contradicts the frequently-made claim, put forth without evidence, that the skills of immigrants were falling in this period.

Of course, there is good reason to be cautious about the data on immigrant skills. The occupations were self-reported and recorded by ship captains who may have imposed prejudices of their own. Presumably the new-arrivals reported the occupation they had followed in the old country, but perhaps young immigrants reported their father's occupation or perhaps some reported their intended occupation in America. In any case, there is strong evidence that many of the new arrivals took jobs other than those they reported on entry. Farming, in particular, was difficult to enter because of the cost of purchasing and equipping a farm and the evident fact that a year's worth of provisions or credit would be required before the first crops came in. Differences in technologies, the quality of the final product, and the organization of trades may have reduced the value of European-acquired skills [Eichengreen and Gemery 1986]. For this reason

many researchers have examined, not the occupations immigrants reported upon arrival, but the occupations actually taken up by immigrants in their new home.[24]

Occupations of the Foreign-Born in the United States: The federal census provides data on the occupations of the labor force by the nativity of the worker. Peter Hill categorized these occupations as either "skilled," "semiskilled," or "unskilled," using the classification devised by Alba Edwards [1943]. The results of his exercise led him to conclude that "the native and foreign born were of relatively comparable economic status" during the period of mass immigration [Hill 1975: 59]. While the foreign-born were slightly less likely to have been employed in skilled positions and slightly more likely to have been employed in unskilled positions, they were *much more* likely to have held semiskilled jobs. Their share of the semiskilled jobs is disproportionately large enough to bring them close to occupational parity with the native-born despite their disadvantage at the upper and lower ends of the occupational spectrum.[25]

Joan Hannon [1982c] has raised two important questions about these conclusions. First, she points to the enormous difference in the occupational distribution of native- and foreign-born workers. The foreign-born were heavily concentrated in urban manufacturing and the trades; the native-born were more likely to be farmers and skilled craftsmen and professionals. Given the dearth of occupational wage data from this period, it is difficult to know how to compare these very different distributions.

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24. Occupations actually taken up by immigrants will not adequately indicate their skills either if immigrants face discrimination in their entry into occupations. A number of scholars have argued that immigrants did in fact face occupation-based discrimination during the era of mass migration [Azuma 1994, Barth 1984, Brown and Philips 1986, Cloud and Galenson 1987, Daniels 1962, Hannon 1982a, 1982b, Higgs 1978, LaCroix and Fishback 1989, Liu 1988, Murayama 1984, and Saxton 1971]. But see Chiswick [1978a, 1978b, 1991a, 1991b, 1992] for an analysis that emphasizes the role of human capital in immigrant occupational attainment. The consensus in the literature is that within occupations immigrants were paid roughly equal pay for equal work [Blau 1980, Ginger 1954, Haines 1996, Higgs 1971a, McGouldrick and Tannen 1977].

25. The semi-skilled class is largely made up of factory operatives, a class of occupations that Table 1 classified as "unskilled."

Fortunately, a new paper by Matthew Sobek [1996] develops estimates of the average wage for a large number of American occupations since the late-nineteenth century. These estimates are based on an ambitious survey of occupational wage-rate data from this period and offer the possibility of testing the Edwards' occupational classification scheme adopted by Hill. This work remains to be done.

Hannon's second point emphasizes the enormous differences among different categories of native-born workers. In particular, the inclusion of native-born white women and all blacks in the group of native-born workers greatly reduces the occupational score of the native-born. She finds a 10 to 14 percent differential between the occupational skill score of native-born and foreign-born white males, a differential that is approximately half the size of the differential between native-born white and black males. This does not negate Hill's basic conclusion that the occupational attainment of the native- and foreign-born work force were similar. It highlights, instead, the fact that the foreign-born were somewhere in the middle of the American occupational distribution. Significantly, there were many native-born American workers who were below them on the occupational ladder.

Economic Mobility of Immigrants: Joseph Ferrie has made an extensive study of immigrants who arrived in the 1840s. By matching the names of immigrants on the passenger manifests submitted by ship captains to immigration officials with individuals located in the manuscript censuses of population for 1850 and 1860, Ferrie was able to obtain a estimate of the skills, wealth, and economic mobility of recently-arrived immigrants in those two years. He finds that immigrants rapidly accumulated wealth and human capital, exhibited substantial upward occupational mobility, and fared best if they entered with some skills than without [Ferrie 1994, 1995a, 1996]. Compared to the rapid assimilation and improvement in status of modern immigrants, however, the pre-Civil War immigrants fared less well [Ferrie 1995b].

The upward mobility of immigrant and their children is illustrated by data from the 1910 census assembled by Emily P. Huchinson [1956]. She created an index of occupational concentration. Setting the proportion of foreign-born in the labor force at the scale of 100, she then calculated the relative proportion of foreign-born workers in each industry. An industry in which the foreign-born were under-represented has an index number below 100, one with a more-than-proportionate share of foreign-born workers receives an index number greater than 100. The exercise is then repeated for the native-born workers of foreign parentage. A sample of results is displayed in Table 4. The foreign-born appear to be concentrated in the lower-skilled and lower-status occupations listed at the bottom of the table. By the second generation, however, the prestigious professional occupations of accountant, engineer, and lawyer are at or above parity and the concentration of immigrants in the low-status occupations has all but disappeared.

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WAS UNRESTRICTED IMMIGRATION GOOD FOR GROWTH?

Mass immigration occurred during a period of very rapid economic growth and America's ascendancy to international industrial leadership [Wright 1990; Abramovitz 1993]. Most of the historians and economic historians who have studied immigration have tried to assess its relationship to these positive economic developments. Yet there is probably more confusion on this issue in the existing literature than on any of the issues we address in this paper. There is certainly a lack of consensus. Some of the confusion on this issue has its origins in different implicit definitions of economic growth. It seems wise, then, to take a few paragraphs to frame the question, we hope, in a more satisfactory way.

Defining Growth: There is little doubt that immigration caused the American population and the American labor force to grow more rapidly than it would have in its absence.[1] As Table 5 shows, the impact of net migration on the rate of growth of the labor force was substantial.[2] More workers meant more output. Population, after all, is fundamental to production, not only because people supply the labor required, but because the consumption of the population is the raison d'être of the production system. Thus the size of the economy, measured, say, by real gross domestic product, grew more

1. Since net immigration was positive throughout the entire history of the county before World War I, this would be a tautology except for the possibility that the flow of immigrants somehow might have induced a decline in the natural rate of increase of the native-born population sufficiently large to numerically cancel the inflow. This possibility was actually suggested by Francis Walker [1891, 1894]. While it is true that both the fertility rate and the rate of net population growth from natural increase fell over the nineteenth and first third of the twentieth centuries, most demographic studies of population dynamics lend little or no support to the Walker hypothesis. We summarize this literature in the section of this paper on population dynamics.

2. The data in Table 1 are taken from Richard Easterlin's [1968] book on the Kuznets Cycle. Easterlin used the labor force data estimated by Clarence Long [1958, Appendix A]. Though Long's work has been since superseded by that of Lebergott [1964] and Weiss [1990], we have not undertaken the task of recalculating these numbers since the new labor force estimates are unlikely to affect the general picture shown.

rapidly than it would have without immigration. This is, we think, what historian Maldwyn Allen Jones had in mind when he wrote in his classic book, *American Immigration*:

> The realization of America's vast economic potential has ... been due in significant measure to the efforts of immigrants. They supplied much of the labor and technical skill needed to tap the underdeveloped resources of a virgin continent. This was most obviously true during the colonial period .... But immigrants were just as indispensable in the nineteenth century, when they contributed to the rapid settlement of the West and the transformation of the United States into a leading industrial power [Jones 1960: 309-310].

But this concept of growth, sometimes called "extensive growth," is not what economists usually mean by the phrase "economic growth." Instead, the growth of labor productivity, or the growth of per capita output, or the growth in the standard of living, "intensive growth," is usually of greater interest. At first glance it would appear that there is no clear consensus among economic historians about the impact of turn-of-the-century immigration on the rate of intensive growth. The most careful of the several reviews of the historical literature, that by Jeremy Atack and Peter Passell [1994: 236-237], concluded that there was a large, positive, and "profound" effect of immigration on the rate of growth measured in per capita terms. On the other hand, Jeffrey Williamson asserts without qualification that:

> The issue in American historiography, however, has never been whether immigration tended to suppress the rise in the real wage .... Surely, in the absence of mass migrations, the real wage would have risen faster .... [Williamson 1982: 254].

Williamson together with Timothy Hatton test this proposition in a recent draft of a chapter for their book *Understanding Mass Migration in the Past*[3] and conclude that late-nineteenth- and early-twentieth-century immigration "significantly retarded the growth

3. This book has now been published. We do not have access to the book at the time of this writing.

of real wages and living standards economy-wide" [Hatton and Williamson 1995: 33]. It seems to us that there are three factors that underlie this apparent divergence of opinion: definitions of the population of interest, composition effects, and model specification.

Defining the Population of Interest: Which is the population for whom the effects of immigration are to be measured? Is it the entire population, including the newly-arrived immigrants? Is it the population resident in the United States at the time of the immigrants' arrival? Perhaps it is the native-born, or even the native-born of native parentage. Are workers alone to be considered, or the workers and their dependents? Just workers and their families, or capitalists and landowners as well? Any of these populations may be a legitimate focus of attention. The appropriate definition depends upon the question being asked.

One source of confusion in the literature stems from the fact that scholars have not always been explicit about the definition they have chosen. Thus it becomes clear only after a careful reading that Stanley Lebergott [1964: 163] is interested in the impact of immigration on the wage rates of the entire population of workers, including the wages of the newly-arrived immigrants?[4] Hatton and Williamson, however, cite Lebergott in support of their contention that immigration slowed the growth rate of wages

4. The reference occurs in the context of a discussion of the impact of immigration on wage rates [Lebergott 1964: 161-164]. Lebergott presents evidence on "the advance of real income per nonfarm employee in the century from 1860 to 1960" [p. 162]. This is the average real income of *all* non-farm employees on a given date -- the resident population and the newly-arrived immigrants. Lebergott writes:

> In the decade after 1920,...this annual gain about tripled. We find it most unlikely that the rate of productivity advance or the nature of the productivity advance changed so at this point as to explain this turn. Instead we find that halting the flow of millions of migrants, who entered the United States labor market with low wage horizons, offers a much more reasonable explanation of the speed-up in real-wage advance. Political changes in the labor supply can be more effective in determining wages than even explicit attempts to fix wages [pp. 163-164].

of *natives* and of *past immigrants* in the early decades of this century [Hatton and Williamson 1995: 20-21].

Composition Effects: To measure the impact of immigration on the wages of natives and of past immigrants, one needs to partition the population between the resident population and the new immigrants and consider changes in the welfare of the resident population alone. For the most part, however, long-term historical data on wages, income, and wealth is available only for the population as a whole. Scholars are forced to deduce the impact of immigration on the welfare of the resident population (or the native-born or the native-born of native parents) from data on the entire population.

Such a project is, of course, fraught with hazards. An aggregate time series on wage rates (or living standards) may rise slowly or even fall at the same time that the wages of *both* the resident population and the newly-arrived immigrants are rising rapidly. This would occur if, say, the newly-arrived-immigrant share of the population were rising rapidly and the wages of the newly-arrived immigrants were below those of the resident workers. The most careful scholars describe the evidence that leads them to use trends for the entire population to proxy trends for residents. Hatton and Williamson [1995: 20-1] refer to evidence that native-born and immigrant workers appear to have been paid equal pay for equal work. They do not at the same time address possible nativity differences in the occupational distribution which are, of course, also central to the argument.

Model Specification: Another source of difference of opinion stems from the fact that any assessment of the impact of immigrants requires a comparison between the historical record and an explicit counterfactual; a comparison of "what was" with "what might have been" had immigration flows been absent or reduced. To assess the impact of immigration on growth, the investigator must specify a general equilibrium model of

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both the labor and capital markets and of the production and distribution of output.[5]

The counterfactual method has a long history in cliometric work.[6] By now it is clear that the outcome of such an exercise is quite sensitive to the specification of the formal theoretical model that describes the workings of the counterfactual universe. The aggregate production function must be specified mathematically and assigned numerical parameters. Is the production function Cobb-Douglas, or CES, or Leontief? Are their economies of scale? Is the growth of the capital stock constrained by the flow of savings or by available investment opportunities? Is the model static or dynamic? The results also depend upon the assumptions built into the model about the distribution of wealth, income, and employment. Are workers paid their marginal product? Are governments redistributive? Do immigrants import or export capital? Do immigrants and native-born have different savings propensities? Is the macroeconomy Keynesian or neoclassical? Since the conclusions reached via counterfactual modeling are so sensitive to the model's structure, the persuasiveness of any such exercise depends crucially upon the plausibility of the model specification.

Given this state of affairs, the most helpful thing we can do is to describe some of the prominent arguments about relevant aspects of the economy that appear in the literature. The reader will note that many of these issues are difficult to resolve with the available data and that the literature itself has given insufficient attention to the data that are available. In the absence of more empirical work, the conclusion readers reach will depend in large part upon their tastes for various theoretical constructs. In the process of constructing our catalog, we will reveal our own priors. The reader is invited, at the same time, to form an opinion more compatible with his or her own tastes.

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5. For an early and influential example of the counterfactual method that uses a computable general equilibrium model to examine the immigration question with late-nineteenth-century data see Williamson [1974]. Williamson concludes that an "America without immigrants would not have grown very much differently from how she did in the late nineteenth century" [p. 249].

6. For an early application of the counterfactual method see Fogel [1964].

Impact of Immigration on the Capital-Labor Ratio

In the short-run at least, an influx of immigrants who do not bring capital with them will have the effect of "diluting" the capital stock, that is, reducing the economy-wide capital-labor ratio. If capital and labor are substitutes, this reduction in the capital-labor ratio will raise the rate of return to capital and lower the real wage of workers. The overall impact of this dilution of capital on the initial resident population is predicted by theory to be positive. Capital owners -- all of whom are posited to be native-born -- will gain and workers will loose, but the gains of the capital- (and land-) owners should exceed the losses of the resident laborers. This because the labor and capital owned by residents can produce more output after the arrival of the immigrants than before. Immigrants will increase output by more than they will take home in wages.[7]

In his discussion of the probable magnitudes of the redistribution affected by this mechanism in the modern era, Borjas estimates that immigration effects a loss to native workers of about 1.9 percent of GDP and a gain to native capital-owners of approximately 2.0 percent of GDP. Borjas suggests that this relatively small net surplus, especially compared with the larger wealth transfers from labor to capital, "probably explains why the debate over immigration policy has usually focused on the potentially harmful labor market impacts rather than on the overall increase in native income" [Borjas 1995: 8-9].

When considering the relevance of this redistribution for the period of rapid immigration in the early part of this century, we note, first, that many of the resident workers were also capital owners.[8] Lebergott [1964: 512-3] estimates that as late as

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7. Edward Denison [1962: 177] suggests that immigrants will take home only 77.3 percent of the increase (labor's share in national income), the rest goes to the resident owners of capital and land. Other scholars estimate an even lower share for labor -- closer to 60 percent [Abramovitz 1993; Taylor and Williamson 1994].

8. This is true today, as well. Many workers own shares of pension and mutual funds that give them a direct and obvious owners' share in the nation's capital stock.

1900, about one third of the labor force were at the same time owners of land and capital. They were self-employed farm owners and the owners and operators of small retail shops and manufacturing plants. Others were providers of professional and personal services [Carter and Sutch 1996]. Also we note that a substantial fraction of American household heads and workers owned their own homes. Michael Haines and Allen Goodman [1995] put the level at over one-third about the turn of the century. To the degree that the arrival of new immigrants increased the demand for housing, owners of the existing stock of housing would enjoy capital gains.[9]

Second, a substantial fraction of the turn-of-the-century working-class population owned capital assets indirectly through the agency of insurance companies. Ransom and Sutch [1987: 386] estimate that in 1905 there were approximately nine million Tontine insurance polices outstanding at a time when there were only about 18 million households. These Tontine policies were, in effect, self-financed pension funds invested in assets and equities whose value rose (or fell) with the return to capital.[10]

In any case, the wide-spread ownership of capital by resident workers at the turn of the century meant that any immigration-initiated redistribution of income among *individuals* was far more muted than the redistribution between labor and capital as *factors of production*. Though we know of no empirical work on this topic, the fact of widespread worker ownership of assets suggests that workers may not have been

9. For evidence on the strong positive impact of immigration on the relative price of housing in New York City during the period 1830-1860 see Margo [1994].

10. A Tontine insurance policy combined a term life insurance policy with a saving fund which pooled the contributions of policy holders, invested them, and then divided the principal and accumulated returns at the expiration of the policy among the surviving policy holders. Thus if the purchaser died prematurely, his or her heirs would receive a death benefit from the insurance portion of the policy. But if the policyholder should live out the term of the contract (typically 25 or 30 years), he or she would receive a share of the savings fund which had been augmented by the contributions of policyholders who had died or defaulted on their premium payments. Tontine insurance was declared illegal and such policies were ultimately phased out after a corruption scandal in the insurance industry. On these issues see Ransom and Sutch [1987].

significantly harmed by immigration even if there was a depressing effect on their real wages in the short-run.

Third, to the extent to which the immigrants brought sufficient capital with them, capital dilution and the resulting redistributional effect would not even be present. Available evidence on the relation between capital and labor flows in the early part of this century suggests that immigrants brought some capital with them, though the per capita value of these stocks were generally smaller than the capital-labor ratio in the United States at the time of their arrival [North 1960; Simon 1960].

Another point to note in connection with the capital-dilution argument is that, whatever its effects on the returns to capital, asset values, and real wages, the effects are likely to have been transitory. Higher returns to capital should, in a dynamic economy, increase the demand for capital, that is shift the demand for investment outward. If the supply of savings is elastic or if the supply of savings shifted outward as a consequence of immigration, then the capital stock would increase, the capital-labor ratio would rise, real wages would rise, and the return to capital would fall. We will return to these possibilities shortly.

Impact of the High Labor Force Participation of Immigrants

Most economic historians noted that early-twentieth-century immigration caused the labor force to grow more rapidly than the population [Kuznets 1952: 196-204]. Immigrants in that period were disproportionately young males and more likely than their native-born counterparts to be labor force participants. If these foreign-born workers were as productive as the native-born and if their arrival did not depress the capital-labor ratio (that it *did not* is commonly supposed in the historical literature), then immigration would cause per capita income of the resident population to rise more rapidly than it

would have in the absence of immigration [Gallman 1977: 30].[11]

The first element of the argument -- that *overall* per capita incomes tend to rise because of the immigration-induced increase in the labor force participation rate -- is well established. The balance of the argument -- that immigration had at least a short-term positive impact on the economic well-being of the *resident* population -- depends upon two assumptions that are less-well supported by empirical work. One point has to do with the nativity differences in worker productivity discussed earlier. The consensus is that any differences in the average productivity of the native- and foreign-born work force were small. The second key point -- the impact of immigration on capital formation -- has been left largely to assumption and speculation. Very little empirical work with historical data has been reported in the literature. There are really two questions: 1) Was the growth of capital constrained by saving (at a given interest rate) or was it constrained by the growth of investment opportunities? 2) To what extent did immigrants either import physical capital or save heavily?

The Impact of Immigration on Physical Capital Formation

Simon Kuznets has argued that American economic growth was constrained by an inelastic supply of savings [Kuznets 1961]. Moses Abramovitz and Paul David [1973, 1996] and David [1977] prefer a model in which expanding opportunities for investment (in turn driven by the flow of technological innovation) play the chief dynamic role, pushing out along a responsive and elastic supply of funds. The debate has not been

11. As already mentioned, in the short run the influx of new labor is likely to depress the capital-labor ratio before it is restored through new investment. If the capital stock is disproportionately owned by native-born residents, as was surely the case in the late-nineteenth and early-twentieth centuries, then native-born owners of capital will benefit temporarily from higher returns to capital. Indeed, it is this higher return to capital that (in part) is thought to induce an increased volume of investment that ultimately restores the capital-labor ratio to its pre-immigration level.

settled.[12] What we know is that the capital stock did grow and grew fast enough to prevent any decline in the capital-labor ratio. Abramovitz and David report that the capital-labor ratio grew 0.6 percent annually between 1800 and 1855, 1.5 percent between 1855 and 1890, and 1.34 percent between 1890 and 1927 [Abramovitz 1993, Table 1: p. 223]. What was the mechanism behind this relative increase in the capital stock? What was the likely role played by immigration?

Suppose, first, that savings is the constraint to capital formation. In this case, immigration would have to increase the rate of capital formation either by increasing the importation of capital from abroad or by increasing the flow of domestically-generated saving. Importation of capital may have been tied to the volume of immigration via two possible mechanisms. There is the possibility that immigrants may have imported substantial amounts of capital with them when they moved. Although little empirical work has been done on this question, it is generally supposed that the amount of immigrant-supplied capital was trivial and, indeed, that any such inward flows were partially offset by an outward flow of "remittances" from immigrants to friends and relatives in the old country.[13] Another possibility is that the foreign born were able to

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12. We lean heavily toward the side of the debate that argues that savings was an active constraint on capital formation. First, our view rests upon our belief in the historical applicability of the life-cycle model of savings (due to Modigliani [1966] and [1975]) and the implication of that model that the supply of domestic savings is not likely to be interest elastic. Second, we are impressed with the evidence that the flow of capital from abroad in this period was relatively small in magnitude [North 1960]; Simon 1960; Davis and Gallman 1973] and not very interest sensitive [Ransom and Sutch 1984]. Second, we are impressed by a variety of historical studies that seem to us to support the Kuznets' version of the mechanism behind capital formation. See Williamson [1974a, 1974b]; David and Scadding [1974]; and Ransom and Sutch [1988].

13. North [1960: 612-7] estimates the average amount of capital per immigrant at $75 in the period 1815 to 1840 and a varying sum according to nationality (per capita sums of $100 for Germans but only $25 for the Irish) for the period 1840 to 1860. For comparison, free farm laborers are estimated to have averaged $8.50 to $13.70 per month (including board) over the same period [Lebergott 1960: 462]. Thus, the imported capital is less than a year's wages. In the latter part of the nineteenth century capital imports by immigrants appear to have been smaller still [Simon 1960: 672].

attract foreign investment to the American economy by alerting prospective investors in their country of origin of investment opportunities and by acting as principles or intermediaries connecting the foreign investor with an American borrower. A third possibility is that the higher rates of return to capital produced by the capital dilution effect attracted more capital from abroad.

We know of no systematic study of such induced investment flows from abroad, although Brinley Thomas has incorporated such a mechanism in his model of the Atlantic economy [1973]. We note the fact that much of the flow of British investment abroad was directed to economies with a high proportion of English settlers; the United States, Canada, and Australia [Edelstein 1973; Davis and Gallman 1973]. Since England was the primary source of international capital flows during the late-nineteenth and early-twentieth centuries, this gave the United States an important advantage [Cairncross 1953].[14]

Another mechanism which linked immigration to capital formation is the behavior of the immigrants themselves who appear to have been unusually heavy savers and investors in the American economy. This possibility was been briefly discussed by Ransom and Sutch [1984: 49-51] in the context of a life-cycle model of saving. They make two points. First, since the bulk of turn-of-the-century immigrants arrived as young adults, they entered the country at a life-cycle stage when saving is typically heavy. Second, upon arrival, most immigrants owned very little in the way of marketable, tangible wealth, particularly so in relation to their earning-power in their new home country. Partly this was because the immigrants had consumed much of their wealth in financing their passage to the United States; partly it was because they were

14. Argentina and India also received significant flows of capital from England, reflecting the substantial presence of English-born settlers in these two countries. Indeed, a key factor in directing and controlling the foreign investments appears to be community connections with the capital-sending countries. Even today, there is a close connection between flows of capital from Asia to the United States and the presence of Asian-American communities in several American cities.

poor by American standards before they left their country of origin. When they began receiving the new, higher, American income stream, they found themselves in an "asset-income disequilibrium;" that is, their stock of assets was too low relative to their permanent income. Under these circumstances they would attempt to restore themselves to equilibrium by saving heavily.

What evidence is there that immigrants were particularly heavy savers? There has not been much research on the question. One bit of evidence consistent with higher saving rates among the foreign-born is their differentially high rates of self-employment. These nativity-based differentials were just as evident in the past as they are today [Higgs 1976; Light 1984; Borjas and Bronars 1989; Aldrich and Waldinger 1990; Aronson 1991; Carter and Sutch 1992]. Since entry into self-employment requires physical and human capital acquisition, these data suggest differentially high saving rates among the foreign born. The 1910 Public Use Microdata Sample allows us to give a particularly vivid demonstration of the probable role of financial (and human) capital acquisition on the part of immigrants *after their entry into the United States*. In Figure 14 we show the fraction of the foreign-born self-employed among cohorts of men in their twenties, thirties, forties, and fifties in 1910, arrayed by the number of years they have been living in the United States. The shorter the line, the younger the cohort in 1910. This diagram appears to suggest that newly-arrived immigrants, whatever their age, begin their American employment careers as wage workers and then increasingly move into self-employment eight to 12 years later. The consistency of the upward movement, for men arriving at different ages, suggests heavy saving rates in the years following their arrival into the United States.[15]

15. The upward slope to the self-employment rate line may also reflect possible differences in the self-employment rates of sojourners and those who intended to settle permanently in the United States. The available cross-sectional data does not allow us to assess the relative importance of this selection factor.

A second piece of evidence of differentially high rates of saving among the foreign-born is Haines and Goodman's finding of relatively larger differences in the rates of home ownership between young and older adults for the foreign-born in several samples they investigate from the turn of the century [Haines and Goodman 1995, Table 7.3, pp. 220-221].

There exists an extensive collection of budget studies from the turn of the century which surveyed both foreign- and native-born American workers [Carter, Ransom, and Sutch 1991]. Often a question was included to ask the length of time an immigrant had been in the United States. These surveys if handeled carefully might be used to estimate the differential savings propensities of immigrants and native-born workers. This work has yet to be done.

Whether the additional "boom in saving" triggered by immigration, hypothesized by Ransom and Sutch, was strong enough by itself to offset the initial capital dilution remains an open question. What is clear is aggregate American saving rates were very high during this period. Gross saving as a fraction of gross domestic product exceeded twenty percent [Davis and Gallman 1973, Ransom and Sutch 1984]. What is also clear is that the capital-labor ratio did not fall during this period -- it rose! Whether it would have risen even higher had immigration been less strong remains a question for further research.

Kuznets argued that immigration was likely to shift the demand for investment outward, primarily by stimulating the demand for housing, urban infrastructure, and other "population-sensitive capital formation" [1958: 34].[16] This is undoubtedly true. However, if saving were inelastic in supply and if there had been no immigration-induced shift of the supply of saving, then the increased demand for investment would have

16. This effect is one of the supposed underlying causes of the strong association between immigration and the "long swings" in economic activity, known as Kuznets' Cycles [Thomas 1954].

simply pushed up the rate of interest rather than increased the capital stock. Yet in fact real interest rates were low and falling during the last half of the nineteenth century and the rise in real rates during the early decades of the twentieth century was modest [Temin 1971: 70-74; Williamson 1974: 97]. So we conclude that immigration actually helped stimulate the increase in the capital stock and in the capital-labor ratio.[17]

The Impact of Immigration on Inventive Activity

America became a world leader in many technologies over the late-nineteenth and early-twentieth centuries [Mokyr 1990: 268; Wright 1990]. Rapid immigration may have contributed to this ascendancy by the simple fact that the foreigners enlarged the size of the economy. A larger economy means that more is being produced at any one time. A greater volume of production meant more opportunities to discover better ways of doing things. Historians of technology have demonstrated the quantitative importance of this "learning by doing" in stimulating technological advance. Small incremental improvements, repeated many times, appear to have contributed more than well-known breakthroughs to advances in design and to reductions in the costs of production [Rosenberg 1972; David 1974]. By promoting extensive economic growth, immigration gave the country's inventors and tinkerers more to do, thereby offering them more opportunities to learn.[18]

The immigration-induced increase in the size of the economy may have also been good for inventiveness [Kelley 1972]. Adam Smith thought that invention was accelerated by the division of labor which in turn was limited by the size of the market

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17. Robert Gallman [1977: 30] points out that in so far as the new capital put in place as a consequence of immigration catered exclusively to immigrant demands for goods and services, then the welfare effect on the resident worker need not have been positive, though again capitalists and landowners would have gained.

18. For some empirical evidence connecting manufacturing and patenting activity see Robert Higgs [1971], Kenneth Sokoloff [1988], Sokoloff and Zorina Khan [1990], and Khan and Sokoloff [1993].

[Smith 1776: 11]. Robert Higgs found a link between patenting activity and urbanization in the United States during the period 1870-1920 [Higgs 1971]. Julian Simon and Richard Sullivan [1989] show a connection between population size and the invention of new agricultural techniques. Since the foreign born enlarge the population, tend to reside in urban areas, and expand the size of the market, we suggest that here too is an indirect impact of immigration on inventive activity.

Immigrants may have played a more direct role in this development as well. Some scattered evidence suggests that immigrants accounted for more than their share of the major inventive breakthroughs in this era. A list of names of the "great" American inventors suggests a disproportionate share of immigrants [Hughes 1965]. Why might this be a systematic aspect of the invention process rather than a coincidence or the result of a flawed sampling procedure? A good answer, we think, is that America was the leading laboratory for invention in the world at the time, with the most advanced industries and one of the highest rates of capital formation. Thus it would be a magnet for would-be inventors, scientists, and innovators who would benefit from the working conditions, resources, and venture capital not available in their home country.

The Impact of Immigration on Technological Innovation

Invention will have no impact on economic performance unless the new ideas diffuse, are innovated, and transform the capital stock. Immigration helped to speed the diffusion of new technologies since it enhanced the rate of growth of the population and the gross domestic product of the economy, thereby stimulating a rapid growth in the capital stock. In the process of undertaking the new investment required, the latest and most productive technology was adopted. By providing an incentive for new investment, rapid extensive growth of the economy lowered the average age of capital, bringing more of the advanced techniques into the production process [Nelson 1964].

Most new technologies are embodied in new designs of capital machinery and factory structures. The new, mass-production techniques introduced in the era of mass

immigration required new machines and the redesign of the factory itself. Effective use of refrigeration technology required new railroad cars; use of the electric motor to drive machines required the redesign of factories. So too with continuous flow technology, department store merchandising, and nearly all of the other important innovations of this era. Had the county not welcomed the new immigrants to its shores, aggregate demand would have grown more slowly, there would have been less new investment, and the diffusion of new technologies would have been delayed.[19]

The Impact of Immigration on the Exploitation of Economies of Scale

To the extent that there were and are large unexploited economies of scale in various industries (external to the firm), then the extensive growth of the economy by itself would expand per capita output. Hollis Chenery, in a study of the productivity of manufacturing workers across 63 countries found that, other things equal, a doubling of a country's size would increase the productivity of its workers by 20 percent [Chenery 1960]. The models of growth most often invoked by economic historians, however, do not envision such an effect as a possibility. They begin with the view that the various sources of and contributions to economic growth may be separately and independently calculated and then added up without consideration of economy-wide increasing returns. But if the research begins with such a model, then one is certain to come to the conclusion, independent of the data collected and the historical research undertaken, that no single measurable source of growth is by itself very important [Abramovitz 1993]. Recently Paul Romer [1986, 1996] has urged a reconsideration of the use of such models for addressing broad-scope, long-run questions such as the one at hand.

As far as we are aware no one has explicitly tried to examine turn-of-the-century immigration as a possible accelerator of endogenous growth using the "new growth

19. Nathan Rosenberg [1982: 249] has also noted the role played by immigrants in accelerating the diffusion of technology from the country of their origin to the United States.

theory" advocated by Romer.[20] There is some evidence which has been put forward, however, to lend support to the notion of increasing returns that work at the level of the national economy [Cain and Paterson 1986]. Louis Johnston has attempted to model these effects by suggesting that the productivity-enhancing effect of scale is proportional to the total stock of capital and he suggests a specific parameterization. Based on his study of increasing returns in the mid-nineteenth century, he suggests that the rate of growth of output might be increased by a factor equal to five percent of the increase in the capital stock on account of economies of scale and quite apart from the direct contribution of capital stock growth to economic growth. De Long [1995] suggests the true factor might be as high as 10 percent.

What would such parameters mean for the impact of immigration? If the flow of new immigrants increased the labor force by four to eight percent over a decade (compare these numbers with those in Table 1) and (eventually) increased the capital stock by the same proportion, then output would be increased by 0.2 to 0.8 percent more than the direct effects of the increase in labor and capital would suggest. This translates to a five to ten percent increase in productivity. This extra supplement to growth, although proportional to the increase in capital, is not entirely captured in an increase in business profits. Instead the entire economy is made more productive and both labor and capital share in the "disembodied" increase in efficiency.

So far, empirical modeling with the new growth theory is in its infancy. The profession is far from persuaded that the economies-of-scale effects are or were significant and the parameterization of such effects is little advanced from educated speculation.[21] Yet in the hands of a skillful economic historian the notion of economies

20. For several applications of an endogenous approach to growth modeling in an historical context see Louis Johnston [1990], Bradford de Long [1995], and Paul Romer [1996].

21. This state of affairs is surprising in light of the fact that the effects of scale and size on productive efficiency is "one of the oldest and most widely acknowledged sources of economic growth" [Kelley 1972: 36].

of scale can be made to sound plausible and in good theoretical company as well. Consider Moses Abramovitz' account:

> In the nineteenth century ... capital's share [in national income] rose substantially -- by 19 percent during the first half and by another 19 percent during the second half, a 41 percent increase overall. It is this result that creates, as I say, at least a presumption that technology was advancing, not in the neutral fashion that the growth accounts assume, but in a capital-using fashion. A series of powerful, forces, each manifestly connected with technological progress, worked in this direction. First, the great expansion in the total size of the domestic market and its increasingly unified character encouraged production on a larger scale and heavier investment in the application of steam power and in more specialized capital equipment. This, indeed, is the message of all the great economists of the nineteenth and early twentieth centuries, in a line stemming from Adam Smith, running through Böhm-Bawerk, Sidgwick, and Taussig, and stretching to Allyn Young. But these men did not see the economies of scale as a source of growth separate from technological progress itself. Rather, they thought of the advances they saw with their own eyes as an emerging technology that was both capital and scale intensive. It was increasing specialized and roundabout in its organization; required increasing amounts of capital per worker to employ it; and therefore demanded larger-scale operations in its plants and in the aggregate to make the heavier use of capital economical. ...
>
> [Second, the] rise of cities, itself a requirement of scale-intensive production, was another capital-intensive development. It required heavy investment in structures for housing, trade, finance, government, and schools and, especially in its early stages, for streets, water supplies, sewage disposal, and urban transport. ....
>
> [Third, the] westward movement ... by attracting immigrants, enlarged the effective aggregate scale of the economy. ....
>
> [Abramovitz 1993: 225-226].

The Impact of Immigration on the Supply of Human Capital

Simon Kuznets made an argument for a positive impact of immigration on the native-born that suggests a very large effect coming from the importation of human capital.

> Considering the magnitude and duration of [the immigration flow], it is difficult to exaggerate its importance as a factor in the economic growth of the United States. Since immigration brought in a large labor force, the cost of whose rearing and training was borne elsewhere, it clearly represented an enormous capital investment that dwarfed any capital inflows of the more orthodox type [Kuznets 1952: 197].

Larry Neal and Paul Uselding elaborated on this point [Neal and Uselding 1972 and Uselding 1971]. They began by noting that most immigrants came to the United States as young adults and entered the labor force, thus producing output, earning wages, and consuming almost immediately upon their arrival. Their income can be thought of as the return to the "human capital" they imported when they moved to this country. Yet that human capital -- manifest both in its potential for purely physical labor and in the skills and learned abilities of immigrants -- was created in another country. The American economy (and a new American) earned the returns from the human capital that had been transferred from -- and without payment to -- the economy that spent its resources on raising the individual to young adulthood and endowing him or her with education and other valuable skills. Freed of having to pay for this importation of human capital, the American economy was able to invest the equivalent resources in physical or human capital produced at home. Neal and Uselding calculate the contribution to the U.S. capital stock of these gifts by compounding the flows at a rate of six percent. They suggest that immigration might have contributed as much as nine percent of the capital stock by 1850, 18 percent by 1880, and 42 percent by 1912.[22] With this larger capital

22. Robert Gallman [1977] suggests that these figures are too high. First, because they are built upon wage and work-year data that Gallman believes are too high. Second, because Uselding's [1971] estimates are based on the occupations that immigrants reported upon arrival rather than

stock -- larger than the same immigrants' contribution to the labor force -- the national capital-labor ratio was higher than it would have been otherwise. Thus labor productivity was higher than it would have been without immigration.

Gallman is critical of this argument because he feels it implicitly assumes an extreme version of the Walker Effect which Gallman rejects. To Gallman it appears that the saving which Neal and Uselding calculate would only be present if in the absence of immigration Americans chose to increase the native birth rate enough to fill the labor force gap left by the absent immigrants. In that case America would have had to invest in the child rearing and education for this shadow cohort. We suggest that this line of attack introduces an unnecessary confusion into the analysis. Kuznets' original insight was to see that immigrants not only import labor, they import human capital as well. Thus America gained a valuable productive resource and the origin countries lost one every time a young adult chose to immigrate.

The work of Fogel and Engerman on the evaluation of human capital (in the case of American slaves) illustrates what an enormously valuable resource a young-adult worker was in mid-nineteenth century [Fogel and Engerman 1974, volume I, pp. 72-74]. According to Engerman a prime male field hand (typically illiterate and most often put to work at unskilled tasks) was worth $1,564 in 1859 [Engerman as reported in Ransom and Sutch, 1988, Table A-4, pp. 155-156]. This is many times the average per capita income of all Americans in 1860 which Engerman has estimated to have been $128 [Engerman 1971, Table 2: 287]. When it was legal to import slaves to the United States (before 1800), American's eagerly paid proportionately similar sums to purchase black "immigrants." The free immigrants of the nineteenth century were indeed a most valuable gift.

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the occupations that they actually pursued in the United States. Gallman believes that some immigrants were forced to pursue occupations beneath their skill level because of discrimination and their lower level of literacy in English.

The Impact of Immigration on the Real Wage

We come to the final argument in our list of possible links between immigration and economic growth and the one that is most often used to suggest a negative impact. Throughout the period of open immigration contemporary observers and especially spokesmen for labor charged that the inflow of immigrants depressed the real wage of labor. The "more the supply of labor the lower must certainly become its price," said Henry Carey a prominent economist of the time in 1873 [cited in Lebergott 1964: 161]. His reasoning, as we deconstruct it today, would appear to rest on a static, partial-equilibrium model of the supply and demand for all labor analogous to the familiar supply and demand for a single commodity, say wheat. If this analysis is meant to apply to all labor and labor is viewed as a homogeneous commodity, it is -- of course -- naive. The supply and demand analysis of labor markets only makes sense when applied to the market for a specific type of labor (say bricklayers). The macroeconomic view of the labor market is quite different. An increase in the quantity of labor employed would immediately change the demand for labor: the new labor would earn income, would spend this income and increase aggregate demand and thus the demand for labor.[23] The end result might produce a depressing effect on wages through the capital dilution argument discussed above, but that is generally not the argument that was made by contemporaries.

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The naivete of the argument has not prevented some distinguished economic historians from suggesting that the real wages of all Americans were depressed by immigrants and offering evidence that this was true. Stanley Lebergott looked at the increase in wages following the restriction of immigration:[24]

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23. The effect of a new immigrant on aggregate demand may appear even before he or she takes a job in this country. The immigrant will have to spend and consume during the transition period between disembarkation and the receipt of the first pay check.

24. Lebergott [1984: 34, who in turn cites Lebergott 1964: 163].

When the immigration flow was cut off in 1914 (first by German submarines, then by legislation) wages rose markedly, as shown in Table 26.3. In the 15 years after 1914, workers' incomes rose as much as they had over the prior half-century. No speedup in entrepreneurial ingenuity or productive energies of workers was occurring at that dramatic rate. Congress, by shutting off the flow of workers from Europe, had helped push up workers' wages.

TABLE 26.3
Average Earnings of
Nonfarm Workers
(IN 1914 DOLLARS)

1860	457
1914	696
1929	898

Source: Computed from Lebergott, *Manpower*, pp. 428, 524.

There are many reasons why real wages might have risen during World War I and the "roaring Twenties" so at best Lebergott provides an only an illustrative observation of an untested and unarticulated theory.[25]

Timothy Hatton and Jeffrey Williamson [1995] have estimated that the immigration between 1890 and 1913 augmented the labor force in 1913 by 11.6 percent and reduced the real wage in 1913 by between 4.4 and 5.5 percent. This calculation was made using a Phillips-Curve model of the aggregate labor market rather than the supply and demand model. The Phillips Curve is an inverse relationship between the rate of

25. In looking at the rate of change of real wages before and after the reduction in immigration, Lebergott was echoing an older argument of Paul Douglas [1930] who estimated a very low rate of increase of real wages (0.3 percent annually) in the period of greatest immigration, 1890 and 1914. Douglas' estimates for the period of mass immigration was especially slow compared to the rates of growth of real wages in the period immediately preceding and following this period. Douglas' real wages estimates have been superseded by those of Albert Rees which show a reasonably rapid growth of wages (1.4 percent) during the era of high immigration.

wage inflation and the unemployment rate [Phillips 1958]. Hatton and Williamson suggest that by "altering labor supply and unemployment in the short run, immigration should drive the wage along some long run Phillips curve." They make this argument despite the fact that unemployment by any measure was relatively low for the period 1900 to 1913.[26] And, in any case, the negative relationship between immigration flows and unemployment rates would suggest exactly the opposite impact of immigration on wages. .

Hatton and Williamson get around this seeming contradiction by combining the Phillips relationship with an aggregate demand for labor derived from a CES production function (no economies of scale) and by substitution eliminate the unemployment rate from their estimating equation. Their formulation reduces the Phillips Curve to a positive relationship between the real wage and output per worker. Their regressions estimate a positive relationship between real wages and aggregate labor productivity (hardly a surprising result) and from that they deduce that immigration would have a negative impact on real wages by claiming that immigration would lower productivity. They estimate the impact of immigration on productivity by asserting "the long run impact of labor force growth on output is simply the labor share [0.6, they say] times labor force growth" [Hatton and Williamson 1995: 23-26].

Hatton and Williamson's calculation, then, is nothing more than an empirical estimation of the capital dilution argument we discussed above. Since, by assumption, Hatton and Williamson deny any impact of immigration on the capital stock they exclude all of the dynamic effects that are hypothesized to generate a positive effect of immigration on real wages and the rate of economic growth. They have not ruled out

26. The most familiar unemployment series for this period is the one constructed by Lebergott [1964] who reports an average unemployment rate of 4.7 percent for the period. Romer [1986] has estimated a slightly higher rate of 4.9 percent. Weir [1992], who is probably the best authority, also gives an average of 4.9 percent. The 1890s were a period of industrial depression and high unemployment, but during that decade immigration was greatly reduced. Immigration flows were running at high levels during the booming period between 1900 and 1913.

these positive effects by an examination of the data, the historical record, nor the logic of the arguments.[27]

At this point it is worth pointing out two facts that are not in dispute. The first is that, whatever the effect of immigration, real wages of labor rose throughout the period between the Civil War and World War I. Figure 15 displays data on the real wage in manufacturing [Long 1960; Rees 1961]. There is no striking slowdown of real wage growth during the period of most rapid immigration between 1900 and 1914. The second point is that the waves of immigrants ebbed and flooded in synchronization with the economy. When immigration rates were high, unemployment was low and real wages rose rapidly; when immigration was less, the economy was depressed. Rather than suggesting that immigration caused an improvement in real wages, Richard Easterlin interpreted these findings as evidence that immigration responded to increases in the demand for labor in the United States [Easterlin 1968: 30-33].

There is no evidence that immigration slowed growth or lowered living standards of the resident population. There are good reasons to think that immigration increased the pace of economic growth and the relative welfare of the resident population in the fifty years following the end of the Civil War. It is possible that the impact of immigration on growth and welfare was, indeed, profound.

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27. Hatton and Williamson also use a computable general equilibrium model to assess the impact of immigration on wages but this approach also ignores the dynamic effects of immigration and the possibility of economies of scale. Not surprisingly, their analysis with this model supports the conclusions reached using the transformed Phillips Curve.

The Impact of Immigration on Relative Wages

While the proposition that immigration could depress all real wages the way a bumper wheat crop would depress the price of wheat is neither supported by theory nor data, the proposition that immigrants might have an unfavorable effect on the wages in some occupations is another matter entirely. If, say, a large influx of slate miners from Wales were to arrive in the slate mines of Michigan, they might well increase the supply of labor relative to the demand for slate and drive down the wages of native-born workers in that industry. Since it is unlikely that the Welch slate miners would increase by a measurable amount the aggregate demand for slate in the economy, there would be no offsetting scale effect on demand. If the lower wages for miners and competition worked together to drive down the price of slate, however, the quantity of slate demanded would rise and the impact on wages would be softened. There also would remain the possibility of a response by the capital stock employed in slate mining. The increased supply of labor would increase the rate of return to capital which would stimulate more investment, create more jobs, and tend to raise wages. Neither of these counterbalancing effects are likely to completely eliminate the downward pressure on wages. Immigration's impact on wages, then, is probably much more of an issue of the distribution of the gains from immigration than one of the impact on economic growth.

Claudia Goldin has attempted to assess such a differential impact by performing a cross-section analysis that looks at the wage change between 1890 and 1915 across cities [1994: 247-253]. She concludes that "in general, a 1-percentage-point increase in the population share that was foreign born depressed wages by about 1 to 1.5 percent" [p. 250]. We cannot conclude from this that wages overall were depressed, since the

effect measured is only relative to a city that had fewer foreign born.[28] Moreover, since immigrants were attracted to high-wage cities the same data set shows that the more foreign-born a city counted amongst its residents the higher was the average wage of its residents. Thus the depressing effect of immigrants on wages that Goldin has measured is one that worked to restore geographical parity. High-wage cities had labor shortages (relative to low wage cities) and the immigrants rushed to fill those demands. Had there been no immigration, then native-born workers would have moved to fill them and the negative wage impact would have still been felt by the native-born workers. They were going to be hurt in any case. To blame the immigrants for the adjustment back to equilibrium is simple scapegoatism.

The Crowding Out Hypothesis

This way of looking at things suggests that the real losers in this process might have been the workers in the low-wage areas of the country who stayed put rather than moving to the high-wage jobs. In particular, Brinley Thomas [1973] has suggested that Blacks may have delayed their migration to the North and remained in the low-wage South because of the rapid influx of immigrants into the high-wage North. Hatton and Williamson expand Thomas's argument to embrace all low-income rural residents whose migration to the urban areas might have been slowed by the competitive impact of immigration [1992].

There is also the argument sometimes heard in the modern as well as the historical context that immigrants somehow take jobs away from members of the resident population either causing them to become structurally unemployed or driving them on to

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28. As Goldin notes, it is also possible that the effect being measured is the result of discrimination against immigrants rather than of their impact on native wages. Goldin has data only on the average rate of pay where the average includes both the foreign-born and the natives. If immigrants earn less money either because they were less skilled or discriminated against then average wages would be depressed on that account. We discuss these possibilities in the sections on discrimination and skills.

other (presumably, less-attractive) jobs.[29] In its crudest form this argument suggests a one-for-one crowding out, every job taken by a recent immigrant is a job lost to a resident American. Of course the crude form of the argument is a naive fallacy (it ignores the slopes of the supply and demand curves), the exposure of which has become a staple of elementary textbooks [Ehrenberg and Smith 1994: 346-358]. But there remain issues to be addressed.

We have already discussed the impact of immigration on the business cycle and the level of unemployment with the conclusion that if anything immigrant flows reduced the severity of America's unemployment problem.

The suggestion of Brinley Thomas that immigration caused Blacks to become "bottled up" in the low-productivity southern agricultural economy is a more interesting possibility. Certainly the failure, relatively speaking, of Blacks to migrate in any significant numbers from the stagnate and backward south to the dynamic and prosperous north in the fifty years between their emancipation and World War I is one of the major mysteries of late-nineteenth-century American history. There is no shortage of explanations in the literature. Roger Ransom and Richard Sutch emphasized the institutional structure of the crop-lean, tenant-farming system of post-Civil War agriculture which "locked in" Blacks with a form of "debt peonage" [1975, 1977]. Gavin Wright discussed the role of the peculiar and controlling labor markets of the South [19xx]. Robert Margo stressed the inadequate schooling system in the South which left most Blacks ill-prepared to compete in the North for urban jobs [19xx]. Stewart Tolnay and E. M. Beck explore the role of extra-legal coercion [1995]. Every writer has given attention to the racial discrimination Blacks faced in the urban north and their

29. Hatton and Williamson pose this issue when they ask whether the nineteenth-century immigrants were "crowding out the natives in the fast-growing East Coast regions?" [1995: 14]. They report a regression model which they interpret as implying that "an additional 100 foreign-born in-migrants to these northeastern states increased native-born out-migration by 38" [p. 19]. Since the residents who left eastern cites in this period went to the high-wage west, it is not at all clear that this "crowding out" was a bad thing for the native-born population who left.

poverty in the South. Whether the hypothetical absence of competition from European immigrants in this era would have been sufficient to enable Blacks to overcome these oppressive forces and begin their "great migration" before World War I is an open question. This is another topic that could benefit from new research.

We conclude that there is no reliable evidence that immigrants lowered all real wages during the era of unrestricted immigration nor that they raised the rate of unemployment. They may well have depressed wages in particular industries or particular cities, but if so such effects were probably transitory and equilibrating. As labor and capital flows worked to restore equilibrium, these impact disparities would have been eroded away. It is possible that immigration may have raised the migratory threshold for disadvantaged workers in the South and in poor rural areas, but this is far from an established finding of the profession.

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THE FISCAL IMPACTS OF IMMIGRANTS:

DID THEY PAY THEIR WAY?

One source of the modern opposition to immigration relates to the possible public welfare costs of the foreign-born. George Borjas and Stephen Trejo noted that in 1990, immigrants were more likely than the native-born to participate in cash-benefit government welfare programs and that the gap between immigrant and native welfare participation has been growing steadily since 1970 [Borjas and Trejo 1991]. Because they believe that immigrants' disproportionately high welfare participation is not offset by disproportionately high income and (presumably) tax payments, Borjas and Trejo conclude that immigrants in modern America do not "pay their way" [ummarized in Borjas 1994: 1704-1708].

It is important to note that Borjas and Trejo limit their discussion of social transfers to means-tested entitlement programs such as Food Stamps, Medicaid, low-income housing assistance, and Head Start. In doing so, they ignore the substantial social redistribution from income-earners to retirees through the Social Security System and from single young adults to families through the educational system. Recent immigrants are disproportionately single, young adults, and labor force participants. They are less likely than the native-born to use educational services, especially the more expensive higher-education services. Thus, they are certainly net contributors to the Social Security System and are probably net contributors to the educational system.

In their discussion of immigrants' contributions to the fisc, Borjas and Trejo simply assert that "immigrants do not receive a disproportionately high share of income, they also do not pay a disproportionately high share of taxes" [summarized in Borjas 1994: 1705]. This statement is probably true if the reference group is the employed, only. But because immigrants are so much more likely than the native-born to be concentrated in the wage-earning age groups and to be labor force participants and

income-tax payers, it is not clear that immigrants pay a disproportionately low share of taxes compared with the population as a whole. The population as a whole forms the denominator in calculations about relative welfare use, thus the population as a whole is the appropriate reference for evaluating the fiscal contributions of immigrants.

Here we examine the evidence on the fiscal impacts of immigrants in the early part of this century. We adopt a broad view of public redistributive schemes and their proportionate impacts on the native- and foreign-born. We focus on three services that account for the bulk of public expenditures in our own era: poverty relief, old-age relief, and educational services. We also assemble some evidence on immigrants' contributions to the support of these public services.

Poverty Relief in the Gilded Age

Before the New Deal legislation of the 1930s, publicly-funded welfare programs were small in scale, limited in geographic scope, and under local control. Throughout the century preceding the Great Depression, there was stiff public opposition to government-sponsored poor relief [Almy 1899-1890; Mohl 1983; Hannon 1984, 1985; Ziliak 1996]. In the view of many contemporary observers, the root of the problem facing public poverty relief was the massive increase in immigration. "The increase of pauperism amongst us" is due to "the increase of our foreign population," according to a writer quoted by Michael Katz [1986; 17]. In the view of the publically-funded Philadelphia Board of Guardians of the Poor in 1827:

> One of the greatest burthens that falls upon this corporation, is the maintenance of the host of worthless foreigners, disgorged upon our shores [Cited in Katz 1986: 17].

In 1900, Joseph Lee, a national leader of the movement for urban playgrounds, suggested that:

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> [T]he problems with which American philanthropy has at present to deal have been largely imported along with the greatly increased volume of immigration that has come during the last fifty or sixty years [quoted in Patterson 1981: 22].

We know of no scholarship that has systematically explored the relative propensity of the foreign-born to seek public charity relief in this era. Some statistical information on this matter, however, was collected by the first Immigration Commission, appointed by the Congress in 1907 to make a "full inquiry" into "all aspects" of immigration. The Commission was eager to explore these controversial allegations, especially since it noted that in earlier times:

> It is recorded that in some cases a considerable part of the immigrants arriving on a ship would be so destitute of means of support that it was necessary to transport them immediately to almshouses, and the earlier poorhouse records show that there were constantly being cared for large numbers of newly arrived foreign-born [U.S. Immigration Commission, I: 35].

To uncover the extent of the problem at the turn of the century, the Commission conducted its own investigation of "Immigrants as Charity Seekers." It went to "organized city (i.e., public) charity societies" in 43 different cities and collected evidence on "cases" that is, individuals or families requesting assistance at some time during the six-month period, December 1908 through May 1909.

The Commission itself was unable to calculate the relative propensity of the foreign-born to seek charity since it did not at the same time survey the population, but instead anticipated the results of the 1910 federal census of population. Nonetheless, the notable absence of recent immigrants from the public charity rolls was striking enough that the Commission concluded that at least this group of immigrants could not have been a burden.

> The number of those admitted [into the country] who receive assistance from organized charity in cities is relatively small. In the commission's investigation, which covered the activities of the associated charities in 43

> cities, including practically all the larger immigrant centers except New York, it was found that a small percentage of the cases represented immigrants who had been in the United States three years or under, while nearly half of all the foreign-born cases were those who had been in the United States twenty years or more. This investigation was conducted during the winter of 1908-9 before industrial activities had been fully resumed following the financial depression of 1907-8, and this inquiry showed that the recent immigrants, even in cities in times of relative industrial inactivity, did not seek charitable assistance in any considerable numbers. Undoubtedly conditions would have been otherwise had it not been for the large outward movement of recent immigrants following the depression, but however that may be, it is certain that those who remained were for the most part self-supporting [U.S. Immigration Commission 1911, Vol. I, p. 36].

The charity-seeking of *all* immigrants was more difficult to characterize given the absence of nativity-specific population figures, and thus the Commission avoided any judgment on the issue. Unlike the Commission, we have access to an electronic version of the 1910 population census, and thus we were able to explore the relative charity-seeking propensities of immigrants overall. The results are presented in the scatter diagram displayed in Figure 16. In the scatter diagram, each point plotted represents one of the 43 cities included in the Immigration Commission study. Along the horizontal axis we map the proportion of household heads that were foreign-born, calculated from the Public Use Microdata Sample (PUMS) from the 1910 census. Along the vertical axis we show the proportion of charity "cases" foreign-born. The majority of points fall below the 45-degree line, indicating that in most cities, the foreign-born disproportionately eschewed public charity. The unweighted average of the ratio of foreign-born charity seekers to foreign-born household heads across cities is 0.84 while the average ratio weighted by city-size is 0.92. Since the overwhelming proportion of all immigrants as well as all charity-seekers were city-dwellers, these results suggest that turn-of-the-century immigrants were not disproportionately heavy users of public welfare agencies.

One explanation for this pattern is the one the Commission itself suggested: a large fraction of immigrants came as sojourners to this country to work; when work was unavailable, they returned to their native lands. Another reason for the relative absence of immigrants from the rolls of city charities was the importance of immigrants' own efforts to help themselves and one another. These immigrant self-help organizations were noted at the time. A Massachusetts commission commented:

> The societies which are organized and maintained by the members of the different nationalities, and which flourish in some form in every community where there are large groups of immigrants, are a factor in helping the immigrant through the trials of immigration and the difficulties of adjustment to new conditions. The chief reason among all nationalities for the formation of these societies is insurance against sickness and death, but most of them combine with this some other objects. Nearly all of them outline an educational and civic program. They may lack the means to carry this out, yet the statement of these purposes has an influence upon the members [Massachusetts Commission of Immigration 1914: 202, quoted in Handlin 1959: 84].

Thus private, ethnic charity organized through fraternal societies, labor unions, and churches, played an important part in the poverty-relief system of the time.

Katz [1986: 45] estimates that roughly half of the income of all charitable institutions in New York State in 1900 came from private sources. He calls particular attention to the role of Catholics, a numerically-important segment of the new-immigrant community at that time.

> Catholics gave exceptionally large amounts for relief. Indeed, many of the nonpublic institutions were affiliated with the Catholic church. It is difficult to quantify the proportion of institutional, nonpublic relief provided by Catholic facilities in Buffalo, but it is unlikely that it was less than 50 percent. Given the relative poverty of the Catholic community, these efforts made on behalf of the needy are truly impressive [Katz 1986: 46].

Immigrants also purchased insurance to protect themselves and their families against the many contingencies that might put them at financial risk. For example,

Pittsburgh's local of the Brotherhood of Railroad Brakemen earmarked a portion of dues to compensate union members' families in case of a work-related death or disability [Kleinberg 1989: 273]. More systematic evidence of immigrants' participation in such "beneficial societies" is contained Table 6 which summarizes data collected by the labor bureaus in key industrial states in the late-nineteenth century. The Table displays the fraction of surveyed workers belonging to Beneficial Societies, by nativity. Though the numbers vary from survey to survey, overall we find about a fourth of all workmen belonging to such societies, with the membership rates generally a little higher for the foreign- than the native-born.

These benefit societies and the many labor and ethnic organizations from the period also promoted informal acts of charity. Kleinberg describes some such activities in Pittsburgh:

> There were spontaneous collections in the mill or at the gates on almost every payday. The workers and their families shared what they had, aware that they, too, might suffer a similar tragedy. The collective culture enshrined generosity and reinforced it through appeals in the labor press "to do the handsome thing" for disabled comrades. It was the trade unionists' duty to do everything in their power to make philanthropic gestures "a grand success financially" [Kleinberg 1989: 273].

Though the early-twentieth-century immigrant community may have been disproportionately needy, we have found no evidence that it placed a disproportionate burden on public charitable agencies or on private philanthropies.

Old-Age Support

During the age of mass immigration about the turn of the century, the only significant public program of old-age support was a federal pension system providing benefits for Union Army veterans of the Civil War.[30] By 1907 every male over the age

30. For descriptions of the establishment and evolution of this system see Oliver [1917], Glasson [1902, 1918], and McMurray [1922].

of 62 who had served in the Union army was eligible to receive a pension. Close to twenty percent of all males over 60 actually received pensions. In monetary terms these pensions amounted to approximately 30 percent of the average annual non-farm income of males [Ransom and Sutch 1996]. Since the pension was limited to those who served in the armed fo rces of the United States during the Civil War, it did not provide support for the bulk of immigrants, most of whom arrived in the United States after that war's end.[31] Up to 1935, then, the government-run pension system redistributed income from the foreign-born to the native-born.[32]

The first comprehensive public program of old-age support was established by the Social Security Act of 1935 which initiated a pay-as-you-go system in which the elderly are supported by the tax payments of those currently in the labor force. Redistribution between the native- and foreign-born can take place within such a system if the relative proportions of each group in the wage-earning and retirement age groups differ.[33]

In Figure 17 we plot the percentage of the population foreign-born, by age at 20-year intervals beginning in 1930, shortly before the Social Security Act was passed, and ending in 1990, the date of the latest federal census. The Figure shows that in 1930, and increasingly so up to 1970, the foreign-born fraction of the population in the retirement

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31. For analyses of the politics of this legislation see Quadango [1988]; Skocpol [1992]; Orloff [1993]; and Ransom, Sutch, and Williamson [1994].

32. Tontine and other private insurance would have redistributed resources from the foreign- to the native-born if, as seems likely, the foreign-born had higher mortality and default rates.

33. Borjas argues against the notion that the Social Security system redistributes resources to the native-born by focusing on an age difference between the native- and foreign-born in their point of entry into the system: "It is important to realize that the median age of immigration is 30, so that many immigrants pay into the Social Security system for a much shorter time span than natives, yet collect roughly the same benefits" [Borjas 1994: 1707-1708]. This consideration is irrelevant. Our pay-as-you-go system transfers resources to the group with proportionately more contributors than recipients. At the present time, the foreign-born are the disproportionate contributors. Only if immigration were cut off or reduced considerably would the Social Security System transfer resources from the native- to the foreign-born in comming decades.

age group was larger than the fraction in the wage-earning age groups. This is because the quotas, the Great Depression, and the Second World War dramatically reduced the inflow of immigrants beginning in the early 1920s to a level well below that which had prevailed up until that time. The radical reduction in the immigrant flows meant that the foreign-born fraction of the young-adult population was very low. Increasingly over time, the foreign-born were predominantly older persons who had migrated prior to the 1920s.

Under these conditions, the Social Security System effected a substantial transfer of resources from the native- to the foreign-born. Yet as the age distribution of the foreign-born in 1990 reveals, the resumption of immigration in the 1980s has reversed the direction of the flow of old-age benefits by raising the relative proportion of foreign-born in the working age groups. Today the Social Security System works to redistribute resources from the foreign-born to the native-born. Were the admission of immigrants to increase, the magnitude of the redistribution would be greater still.

Educational Services

In the period of massive immigration about the turn-of-the-century, America had the most extensive and best-funded public educational system in the world.[34] Financed through the property tax with attendance mandated by compulsory schooling and child labor laws, this system educated an increasing fraction of all youths over an increasing fraction of their lives [Goldin 1994a]. Did the immigrants pay their share of these public educational expenditures? To the best of our knowledge, this question has never been posed in the historical literature. Indeed, the concern of contemporary observers and of historians of the period has been the opposite one. The Immigration Commission, for example, sought to determine: "to what extent children of the various races of immigrants *are availing themselves* of educational facilities and what progress they make

34. For some international comparisons of school enrollment and literacy rates in the late-nineteenth century see O'Rourke and Williamson [1995].

in school work" [U. S. Immigration Commission, 1911, volume 2, p. 5, emphasis added]. The native-born of this period *encouraged* school attendance for the children of immigrants. According to Oscar Handlin:

> Toward mid-(nineteenth) century, an explosive fusion of conversion and reform transformed the mission of the schools in the view of many influential Americans. The schools, they argued, were less important as media for the transmittal of specific bodies of knowledge or skills -- Latin, grammar, writing, and the like. They were rather instruments for molding the thoughts and behavior of the next generation and thereby reshaping society [Handlin 1982: 7].

For many immigrant parents, on the other hand, schools were, "at best, institutions apart.... At worst, the school had been the representative of the state, which imposed on youth a set of values foreign to the parents" [Handlin 1982: 6].

Overall, the children of immigrants were less likely than the children of the native-born to be in attendance. While the differences were not very large among elementary-school-age children, at older ages and higher (and more expensive) levels of schooling, the children of immigrants were far less likely to be in school. Walter Licht [1992: 22], for example, found that 71 percent of 13-year-old sons of native white Americans were in school in Philadelphia in 1900. That rate compared with 60 and 55 percent for sons of the Irish and Russians, respectively. The daughters of immigrants fared even worse. Licht accounts for these ethnic differences in terms of the lower socioeconomic status of foreign-born parents. However Joel Perlmann, in a study of Providence, Rhode Island, found that large ethnic differences remained even after controlling for background factors. In 1880 the son of a Yankee was 5.8 times more likely than the son of an Irishman to begin high school and still 1.8 times more likely after controlling for father's occupation, family property value, number of siblings, and whether or not both parents were present. Of the specific ethnic groups Perlmann studies, only the children of Russian Jews (in 1915) faced better educational prospects than the children of the native born [Perlmann 1989: 204-205].

Yet another reason to doubt that immigrants received positive transfers through the educational system was that many immigrants sent their children to private, church-affiliated schools. In 1890, the first year for which national statistics are available, approximately 12 percent of all elementary and secondary school students were enrolled in private schools [U.S. Bureau of the Census 1975, series H418 and H426]. Virtually all of these pupils were in Catholic schools which served predominantly immigrant communities.

At the same time, as we noted above, immigrants tended to be home owners at greater rates than the native-born. Since the financing of the schools was based on the local property tax, this fact suggests that immigrants contributed a disproportionate share to school finances.[35] On the other hand, immigrant families tended to be larger to have more school-age children than the average native-born household head and home owner.

In an effort to gauge the direction of the net flow of public educational services we examined school attendance and home ownership patterns in large urban areas in the United States, using the 1910 PUMS. We restricted our search to large urban areas in an effort to control for school costs. Schools in rural areas spent far less per pupil, yet these were far more likely to enroll children of the native-born. We counted the number of children (through age 19) by the nativity of their fathers who were enrolled in school.[36] We then compared this count with the number of homeowners by nativity. We found a higher ratio of school child to home-owning household head among the foreign-born -- 4.7 school children per homeowner for the foreign-born as compared with a ratio of 3.7 for the native-born. Whether this implies a net transfer of resources from the native- to the foreign-born is not clear. If 20 percent of these urban children of foreign-born (and none of the children of native-born) fathers attended Catholic schools *or* if the

35. Borjas [1994: 1708] reports some figures on public expenditures for the education of the children of illegal immigrants but does not discuss immigrants' payments.

36. Unfortunately, the PUMS includes no information on whether these children were enrolled in public or private schools.

cost differential between an elementary and a high school education was large enough, then the imputed direction of the redistribution would be reversed. Though there is clearly room for further research, the educational system does not appear to have been an important arena for transferring resources during this period.

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Impact of Immigration on Population Growth: The Question of Race Suicide

> Foreign immigration into this country has...amounted not to a reenforcement of our population, but to a replacement of native by foreign stock....If the foreigners had not come, the native element would long have filled the places the foreigners usurped [Walker 1899: 422-25].

Francis Walker spoke for many of his contemporaries when he expressed his fear that the influx of immigrants during the age of mass immigration would overwhelm the native stock. There were two fears, actually. If the foreign-born had a relatively higher rate of natural increase, then they would dominate in the population sooner or later. Moreover, the presence of foreigners may have somehow discouraged the native-born from procreating. The rapid influx of immigrants, in other words, actually *depressed* the rate of natural increase among the native born.

Miriam King and Steven Ruggles report that fears about the differentially high fertility of the foreign-born were expressed as early as 1867. In the words of John Todd, a Congregrational minister:

> while our foreign population has large families, our own native American families are running out, and, at this rate, must and will entirely run out. The statistics presented to our legislators on this subject are fearful [Todd 1867; quoted in King and Ruggles 1990: 348].

King and Ruggles explored this first of the so-called "Walker Effects," using data from the Public Use Microdata Sample from the federal census of 1900. Contrary to the beliefs of contemporary observers, their analysis of the data showed no tendency for the "ethnics" as King and Ruggles refer to them, to have higher levels of fertility than hose of the native-born population. While the foreign-born themselves had higher levels of fertility than native-born, the *children* of the foreign-born had strikingly lower levels of fertility. Overall, these "ethnics" had *lower* rates of natural increase than the native-born. The explanation offered by King and Ruggles focuses on the geographic

distribution of the native and foreign groups. The foreign born and their children tended to live in urban sections of the Northeast where the fertility for *all* residents were the lowest in the nation. Whatever were the conditions depressing the fertility in these sections of the country, they affected the immigrants and the native stock to a similar degree.

The weight of scholarship leans heavily against the second of the alleged Walker Effects, that is, the purported depressing effect of immigration on the rate of natural increase of the native born. The best summary of the case against the Walker Effect is that by Brinley Thomas [1961].

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Table 1. Occupational Distribution of Immigrants to the United States, 1860-1910. Occupation Upon Arrival for Those Reporting an Occupation, Male and Female.

Decade	Total	Agri-culture	Skilled Labor	Unskilled Labor	Domestic Service	Pro-fessional	All Other Occu-pations
1861-1870	100.0	17.6	24.0	42.4	7.2	0.8	8.0
1871-1880	100.0	18.2	23.1	41.9	7.7	1.4	7.7
1881-1890	100.0	14.0	20.4	50.2	4.9	1.1	9.4
1891-1900	100.0	11.4	20.1	47.0	5.5	0.9	15.1
1901-1910	100.0	24.3	20.2	34.8	5.1	1.5	14.1

Note: The category "All Other" consists primarily of managers, sales and clerical workers, and self-employed proprietors and merchants.

Source: Ernest Rubin, "Immigration and the Economic Growth of the U.S.: 1790-1914," *Conference on Income and Wealth*, National Bureau of Economic Research [1957: 8. As reported in Elizabeth W. Gilboy and Edgar M. Hoover, "Population and Immigration," in Seymour E. Harris, editor, *American Economic History*, McGraw-Hill, 1961, Table 7, p. 269. An obvious error in the Domestic Service column for the last three decades has been corrected.]

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Table 2. Comparison of the Percentage of All Occupations that Were Agricultural in the United States with the Percentage of Immigrants Reporting an Agricultural Occupation Upon Arrival, 1860-1910.

Decade	Agricultural Occupations as a Percentage of United States Labor Force	Percentage of Immigrants Reporting an Agricultural Occupation Upon Arrival
1861-1870	52.7	17.6
1871-1880	51.8	18.2
1881-1890	46.4	14.0
1891-1900	41.3	11.4
1901-1910	35.2	24.3

Source: Stanley Lebergott, *Manpower in Economic Growth: The American Record Since 1800* [1964, Table A-1, p. 510]. The figures are averages of the data for the two census years that span each decade. That is, the figure for 1861-1870 averages the data reported in Lebergott for 1860 and 1870. The immigrant data is reproduced from Table 1.

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Table 3. Comparison of the Occupational Distribution on Non-Agricultural Workers in the U.S. Population with that Reported by Immigrants Upon Arrival for the Decade 1900-1910.

Occupation Classification	U.S. Labor Force	Immigrants
Skilled	16.8	26.7
Unskilled	39.3	46.0
Domestic Service	14.1	6.7
Professional	6.8	2.0
All Other	23.0	18.6

Note: For the U.S. labor force the occupational clasification for skilled corresponds to "craftsmen, foremen and kindred workers," unskilled are "operative and kindred workers and laborers except farm and mine" domestic service include "private household workers and [other] service workers," and professional include "professional, technical, and kindred workers."

Source: David L. Kaplan and M. Claire Casey, *Occupational Trends in the United States, 1900-1950*, as reported in U.S. Bureau of the Census [1975, Series D182-198]. The figures for immigrants are based on the data reported in Table 1.

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Table 4. Occupational Concentration of the Foreign Born Labor Force and the Children of the Foreign Born by Occupation, 1910. Index number with "All Occupations" set equal to 100.

	Foreign born	Foreign Stock
All Occupations	100	100
Accountants	62	131
Engineers	47	104
Lawyers	25	102
Physicians and dentists	45	86
Teachers	39	75
Domestics	173	87
Charwomen, porters	208	104
Janitors	168	102
Construction laborers	169	84
Transport laborers	224	58

Source: E. P. Hutchinson, *Immigrants and Their Children, 1850-1950* [1956, Table 39, pp. 204-206. Reproduced in Stanley Lebergott, *The Americans: An Economic Record* [1984, Table 26.4, p. 344].

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Table 5. Average Growth Rate of the Labor Force and the Contribution Made by Net Immigration, 1870-1940.

Period	Percent per Decade		Proportion of Labor Force growth due to Immigration (Percent)
	Growth Rate of the Labor Force	Contribution of Net Migration	
1870-1880	29.3	6.2	21.2
1880-1890	29.2	9.9	33.9
1890-1900	21.8	5.9	27.1
1900-1910	22.8	9.5	41.7
1910-1920	14.2	3.7	26.1
1920-1930	15.7	2.8	17.8
1930-1940	8.3	-0.2	--

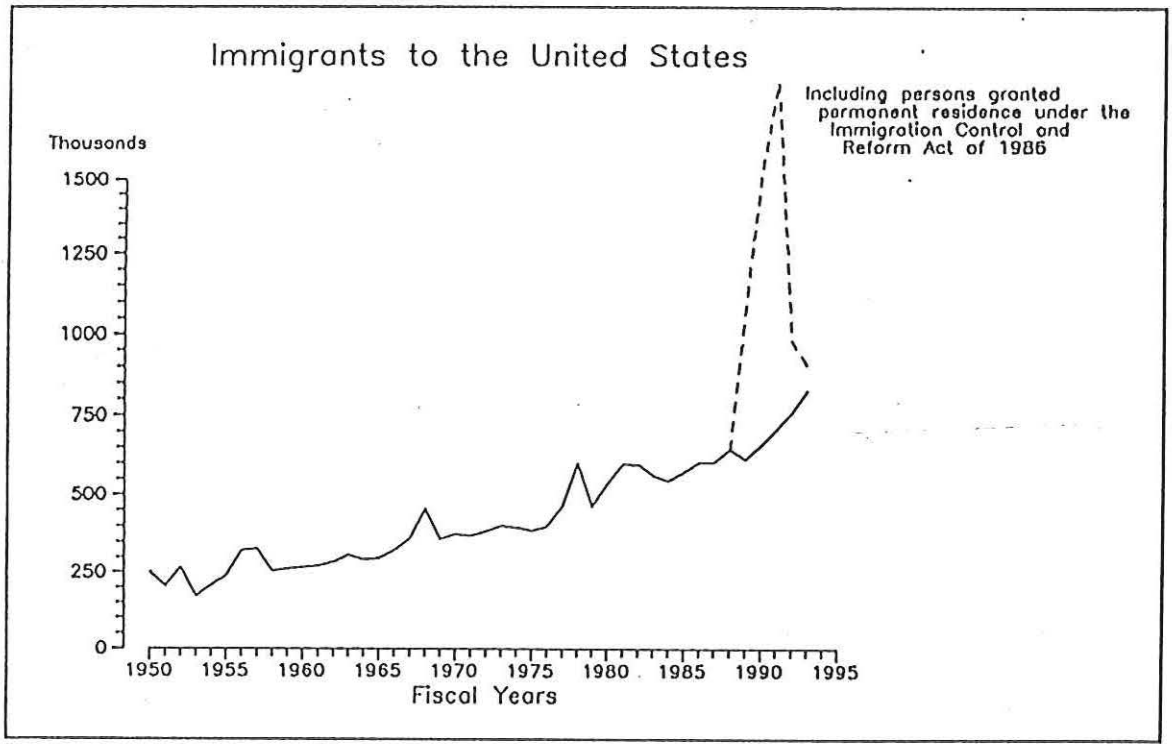
Source: Richard A. Easterlin. *Population, Labor Force, and Long Swings in Economic Growth: The American Experience*. National Bureau of Economic Research, 1968, Table A-3: 190.

Table 6

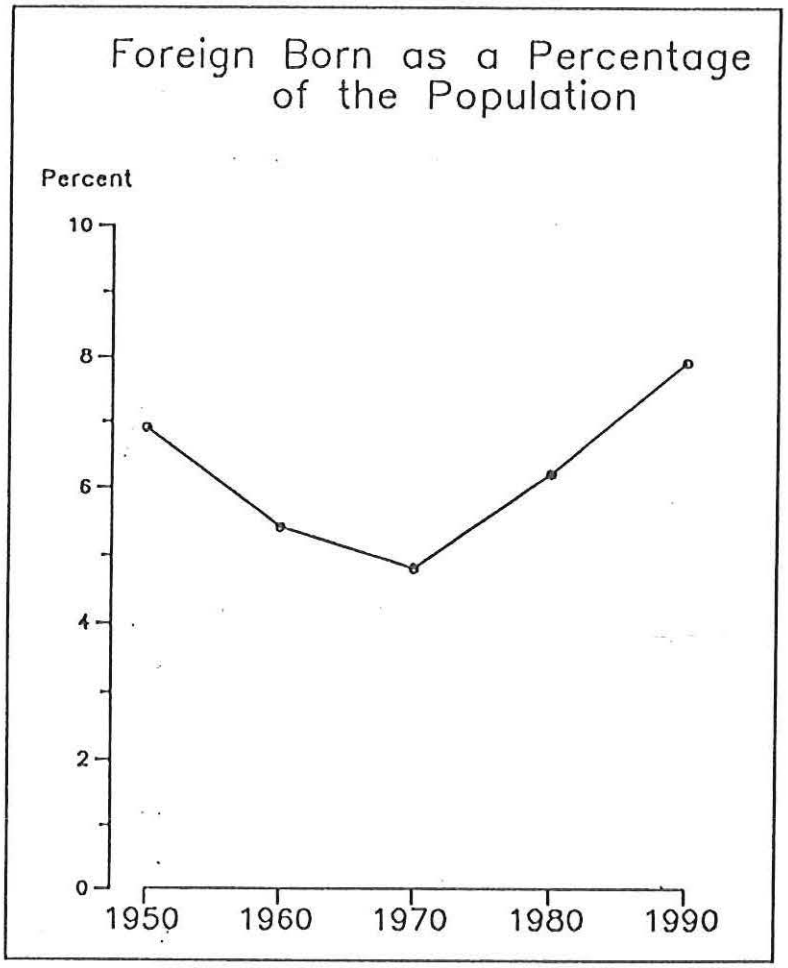
Membership in Beneficiary Societies by Nativity
Various Surveys of Male Workers, 1884-1894

Year	State	Survey of	Percent Belonging to Benefit Society	
			Native-Born	Foreign-Born
1844	Iowa	Teachers	16.8%	35.7%
1884-1887	Kansas	Wage Earners	26.5	25.9
1888	Michigan	Stone Workers	5.4	10.7
1889	Michigan	Furniture Workers	21.9	25.5
1890	Michigan	Detroit Iron Workers	21.6	33.8
1890	Michigan	Iron Workers outside of Detroit	21.2	26.4
1890	Maine	Wage Earners	51.3	39.9
1892	Missouri	Wage Earners	48.3	58.8
1892	California	Wage Earners	47.8	60.2
1894	Michigan	Farm Laborers	14.7	14.7

Sources: Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: Survey of 3,493 Wage-Earners in California, 1892; Reported in the Fifth Biennial Report of the California Bureau of Labor Statistics.* Berkeley: Institute of Business and Economic Research, 1993; Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: Survey of 347 Teachers in Iowa, 1884; Reported in the First Biennial Report of the Iowa Bureau of Labor Statistics.* Berkeley: Institute of Business and Economic Research, 1993; Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: A Survey of 1,165 Workers in Kansas, 1884-1887; Reported in the First, Second, and Third Annual Reports of the Kansas Bureau of Labor and Industrial Statistics.* Berkeley: Institute of Business and Economic Research, 1993; Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: A Survey of 1,084 Workers in Maine, 1890; Reported in the Fifth Annual Report of the Maine Bureau of Industrial and Labor Statistics.* Berkeley: Institute of Business and Economic Research, 1993; Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: A Survey of 719 Stone Workers in Michigan, 1888; Reported in the Sixth Annual Report of the Michigan Bureau of Labor and Industrial Statistics.* Berkeley: Institute of Business and Economic Research, 1993; Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: A Survey of 5,419 Workers in the Furniture Industry of Michigan, 1889; Reported in the Seventh Annual Report of the Michigan Bureau of Labor and Industrial Statistics.* Berkeley: Institute of Business and Economic Research, 1993; Susan B. Carter, Roger L. Ransom, Richard Sutch, and Hongcheng Zhao. *Codebook and User's Manual: A Survey of 3,920 Workers in the Ironworking Industry of Detroit, 1890; Reported in the Eighth Annual Report of the Michigan Bureau of Labor and Industrial Statistics.* Berkeley: Institute of Business and Economic Research, 1993;



Carter and Sutch *Figure 1*



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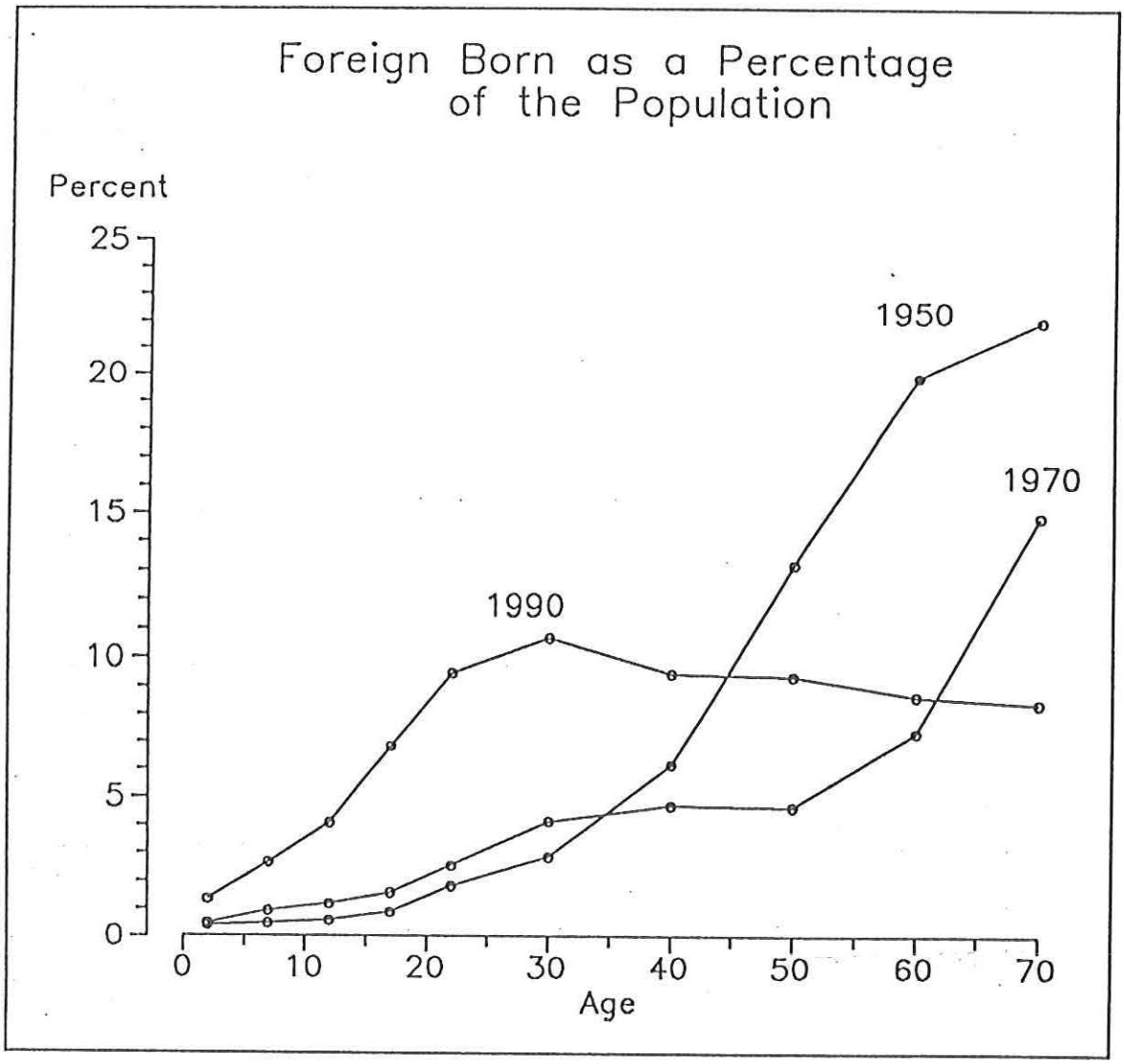

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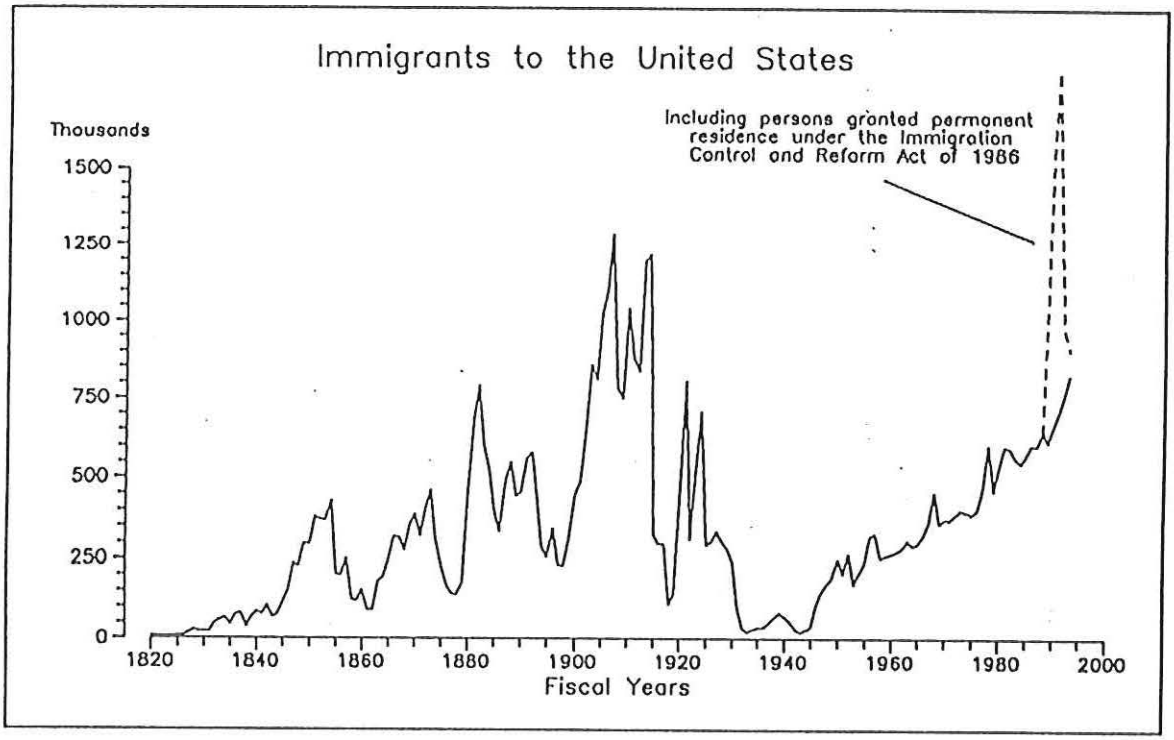

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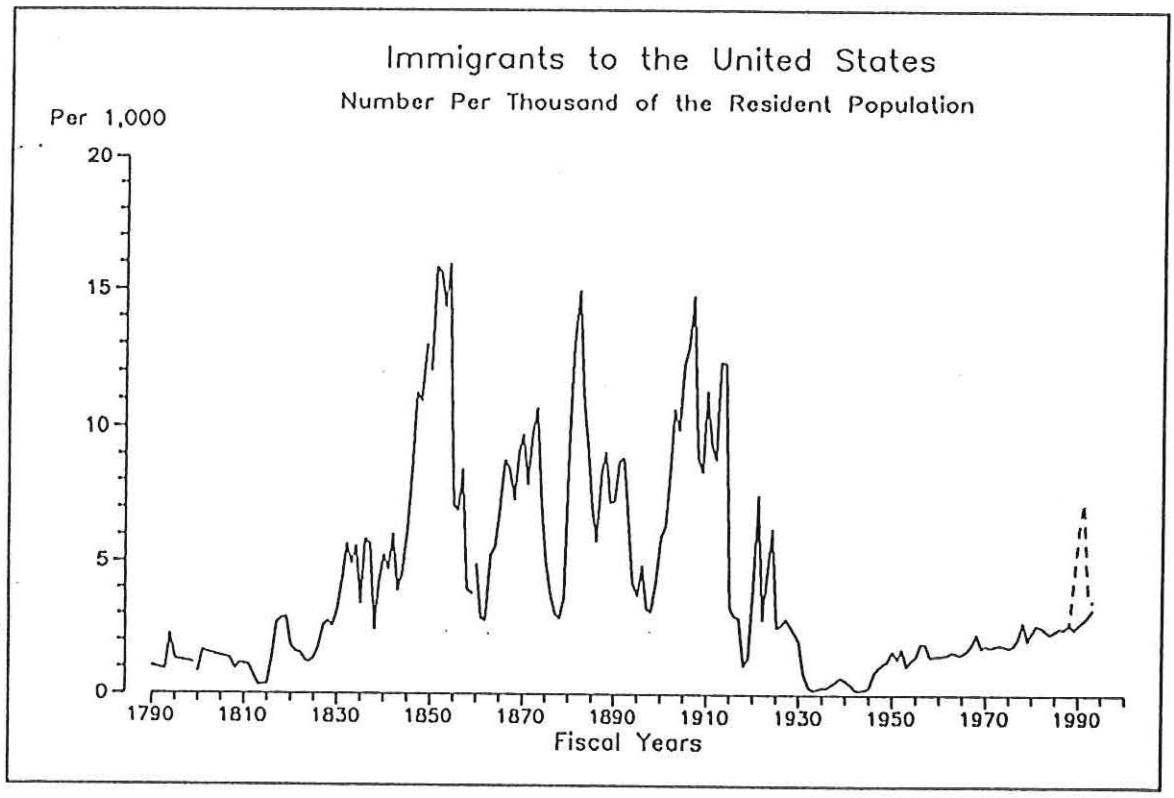

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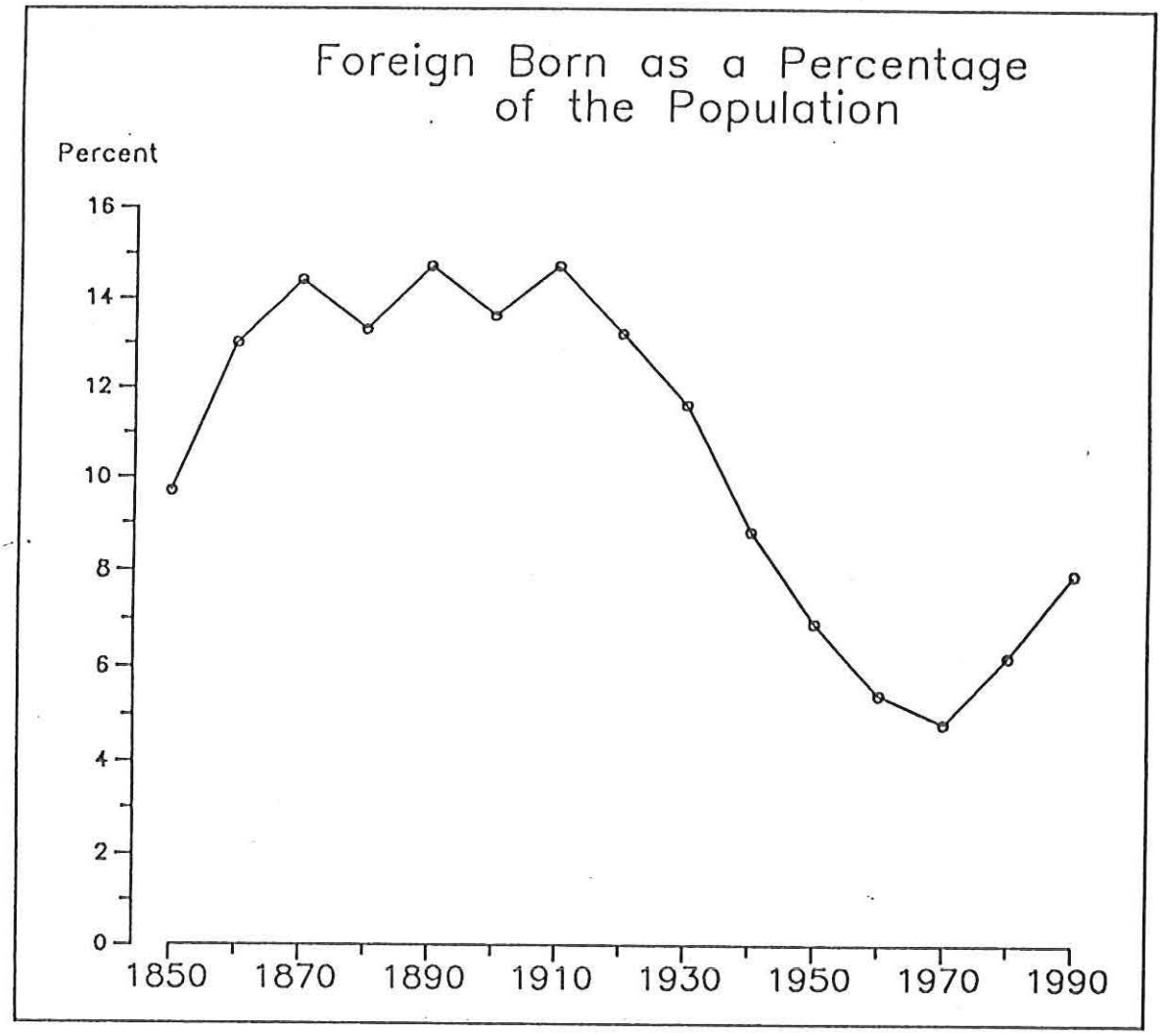

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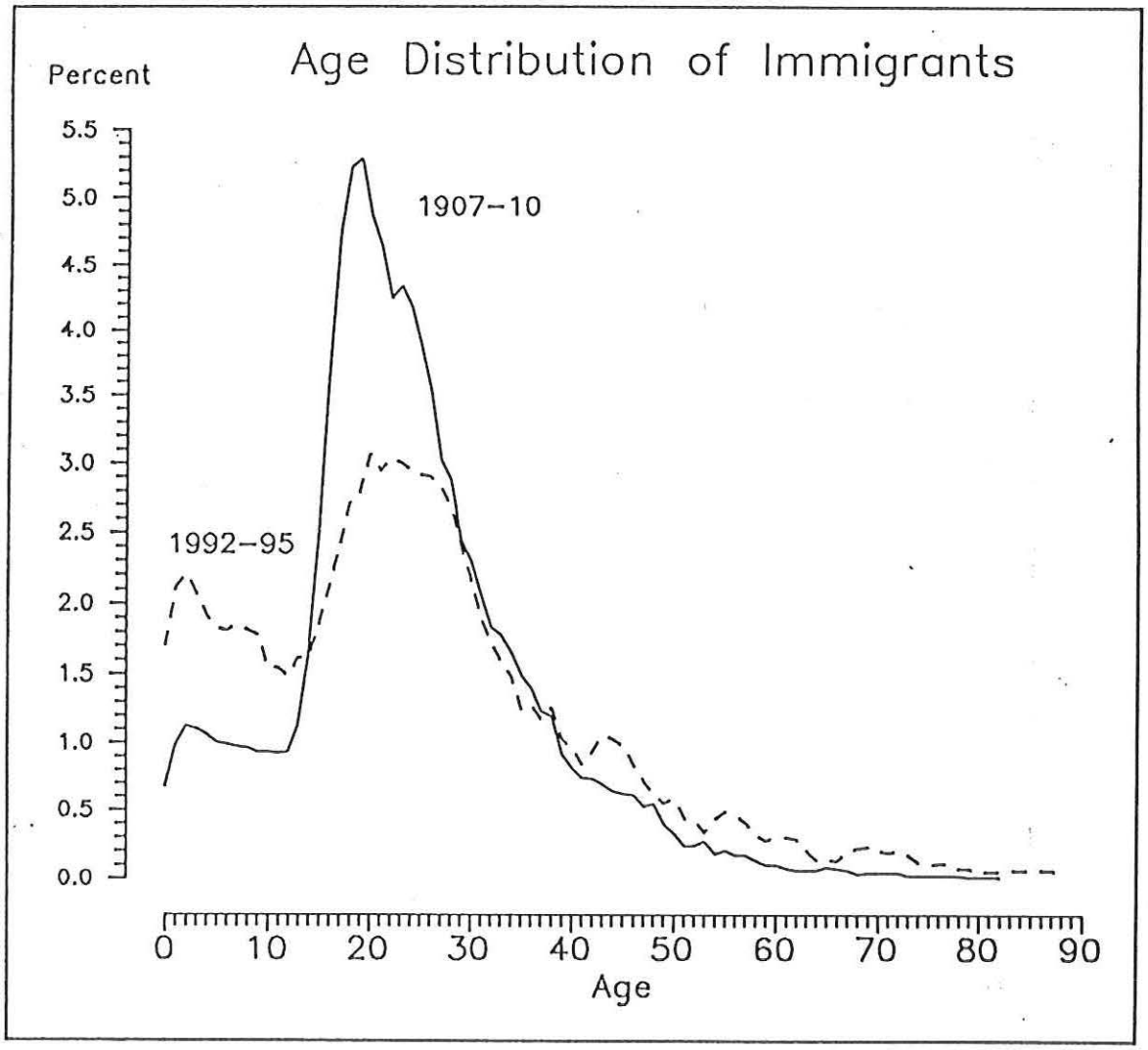

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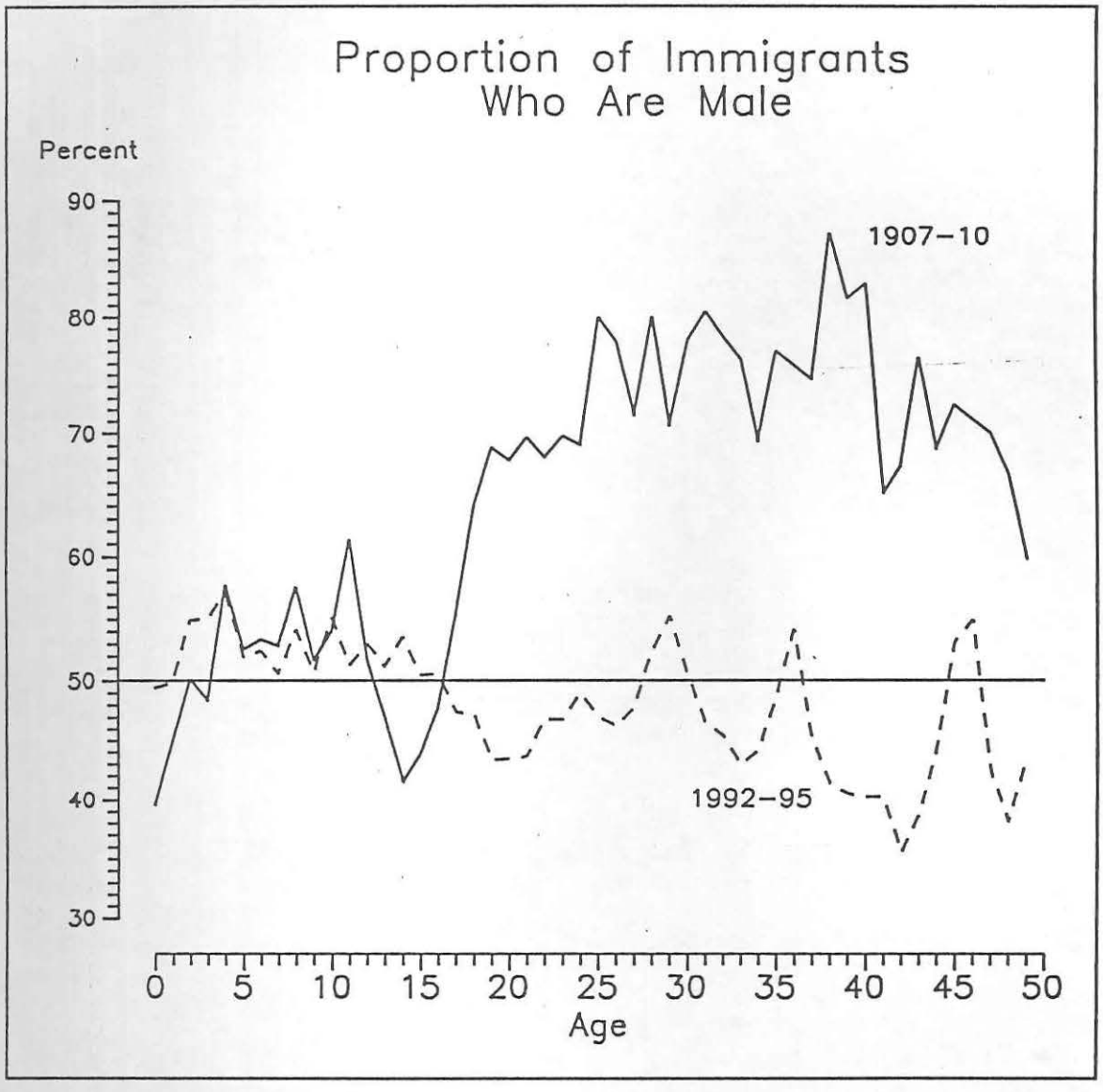

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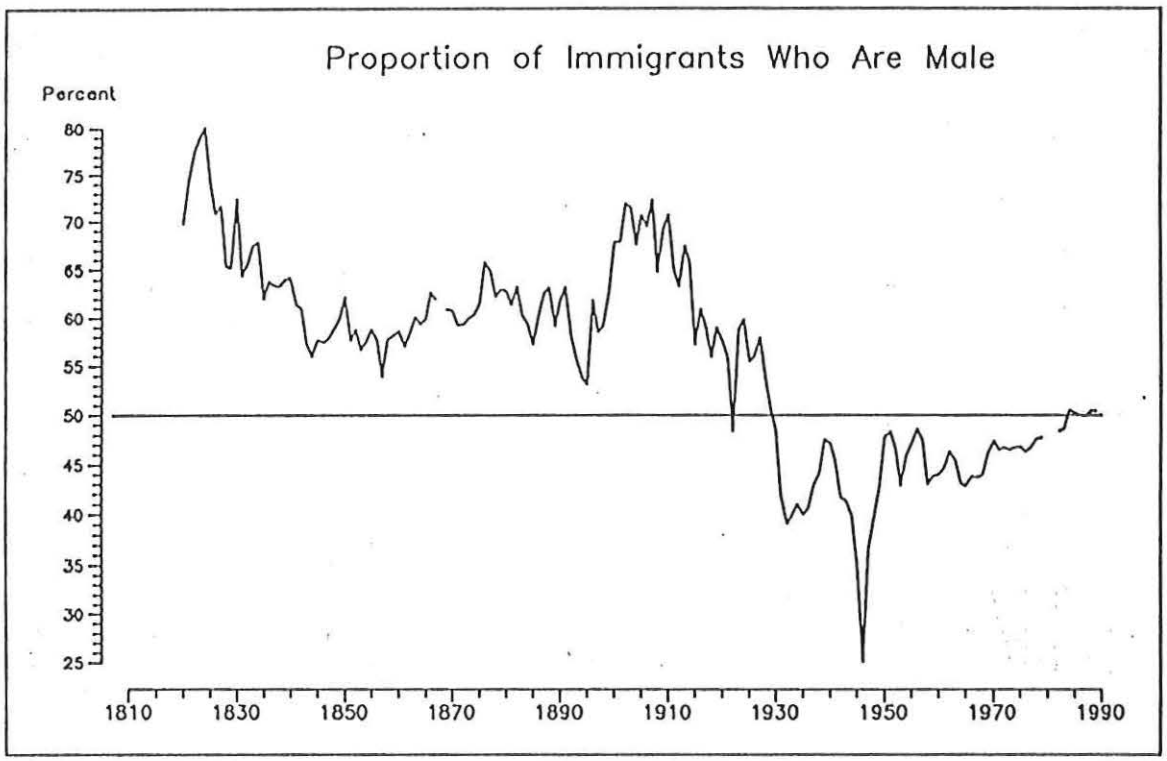

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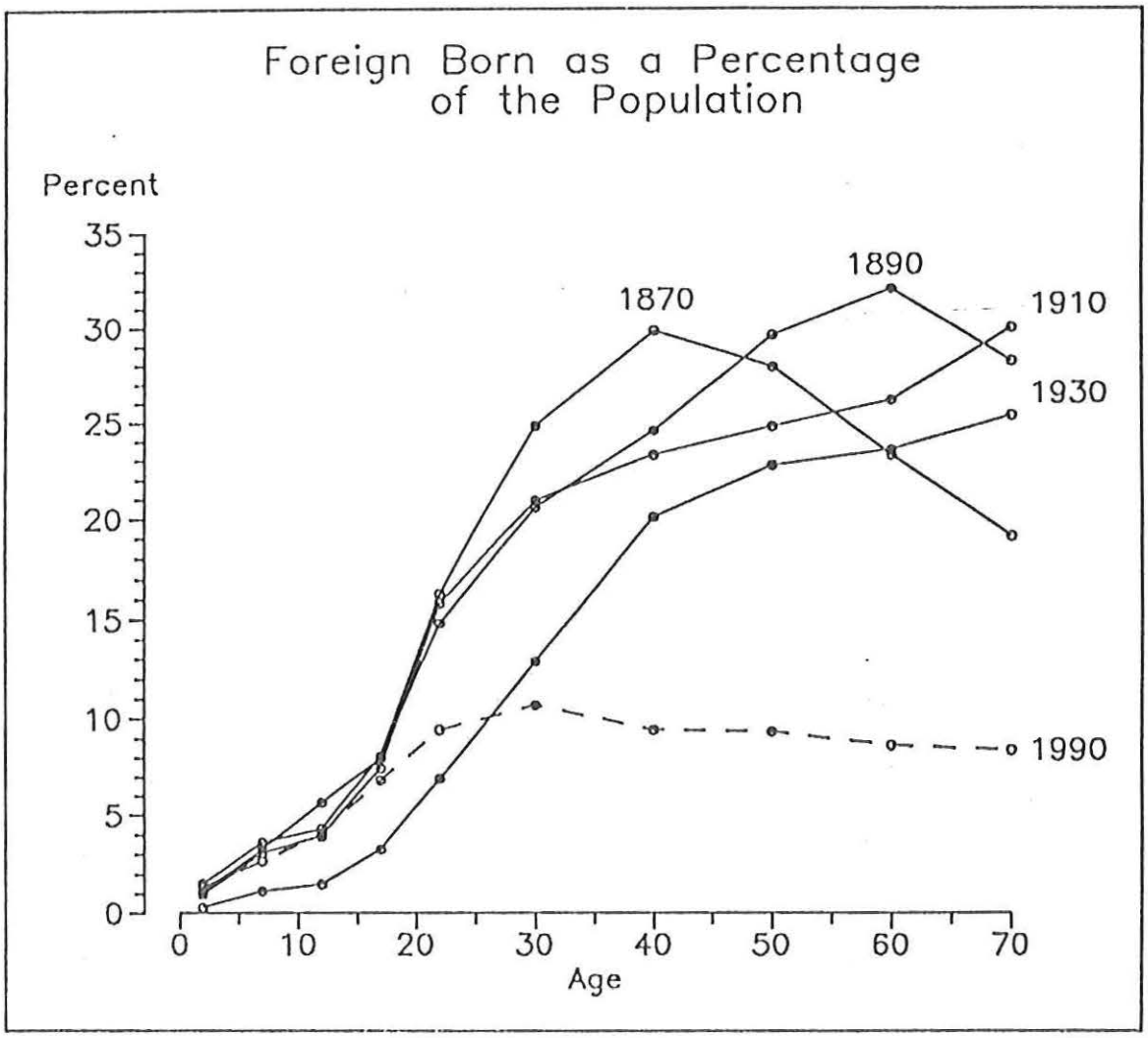

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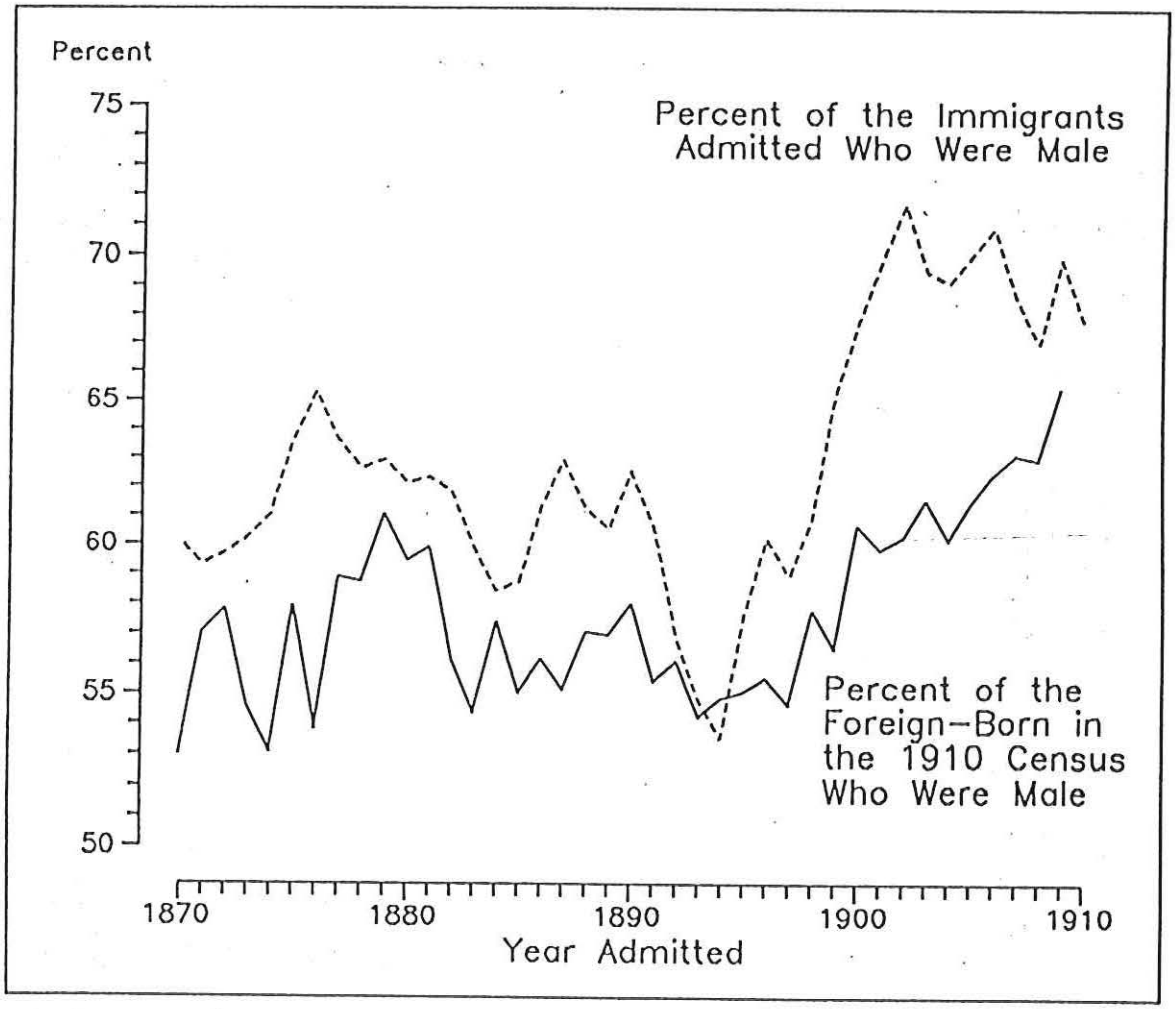

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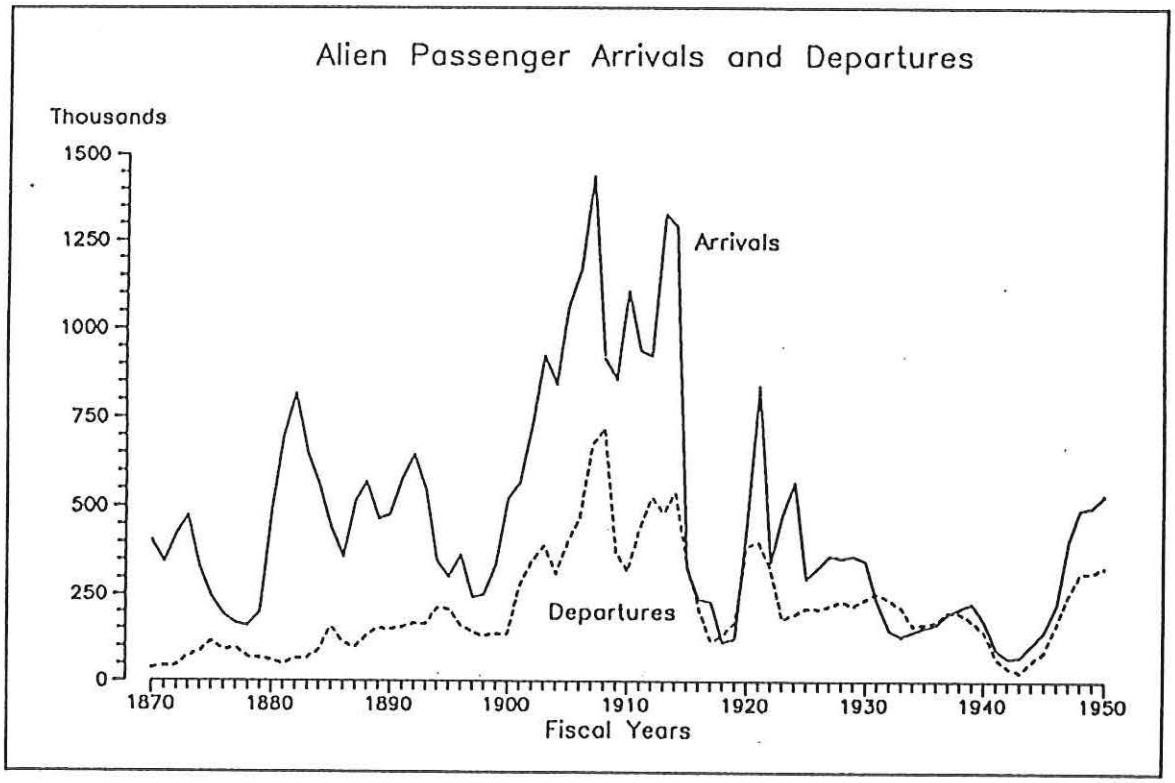

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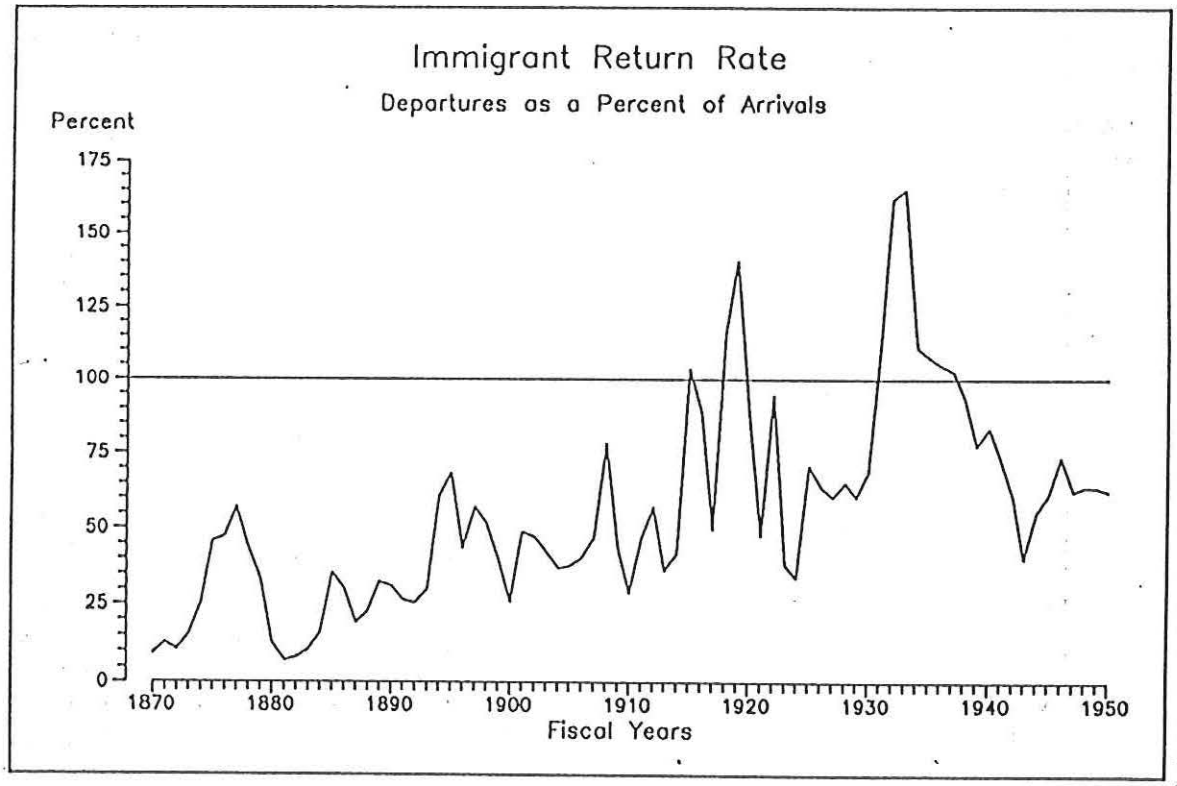

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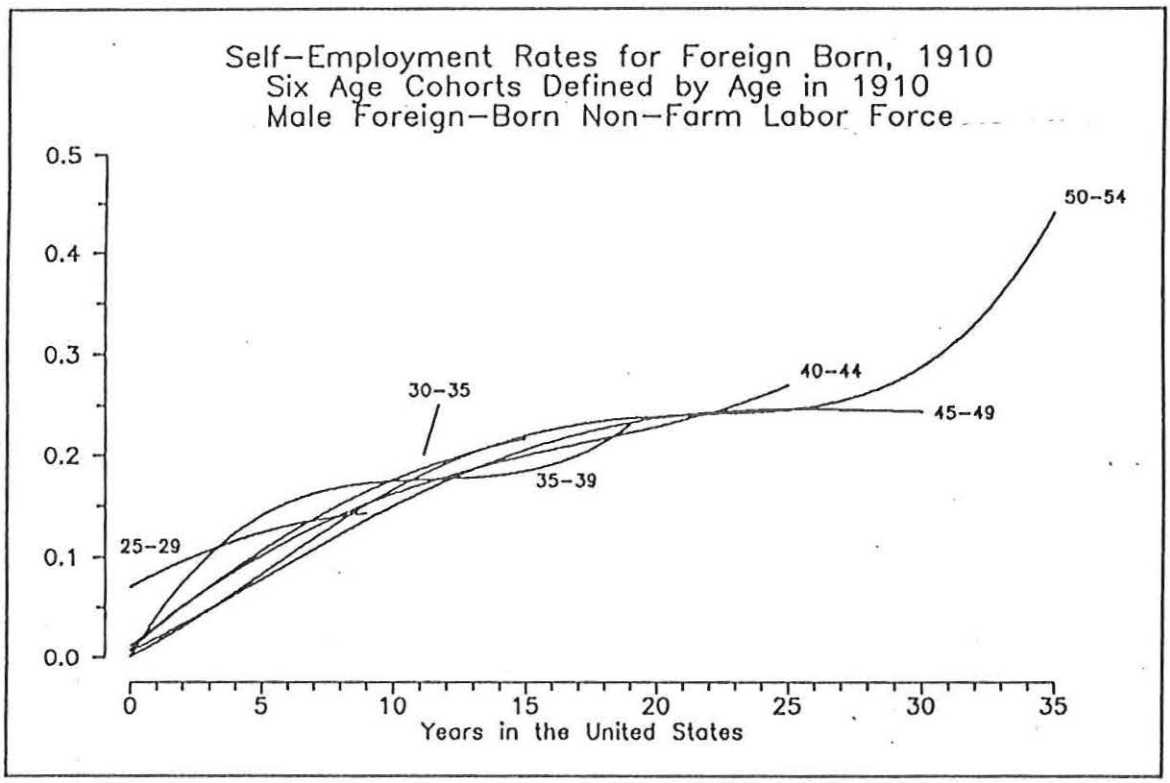

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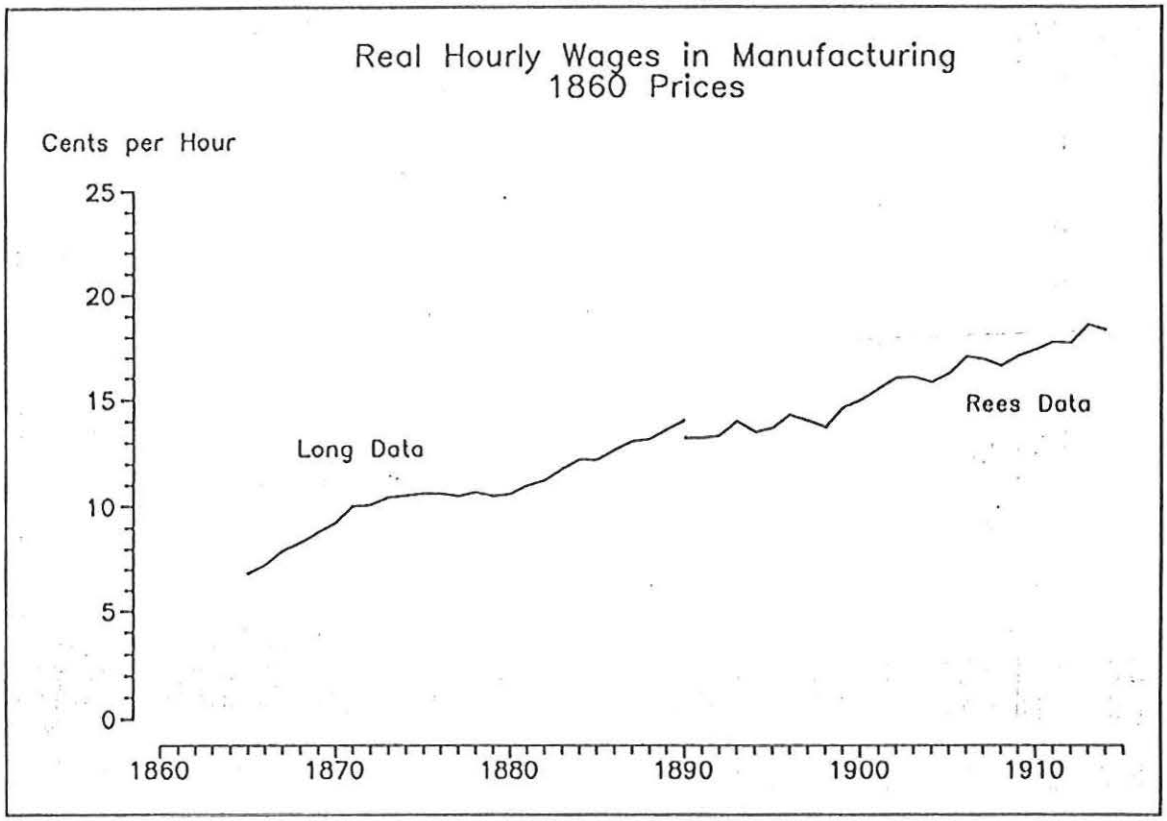

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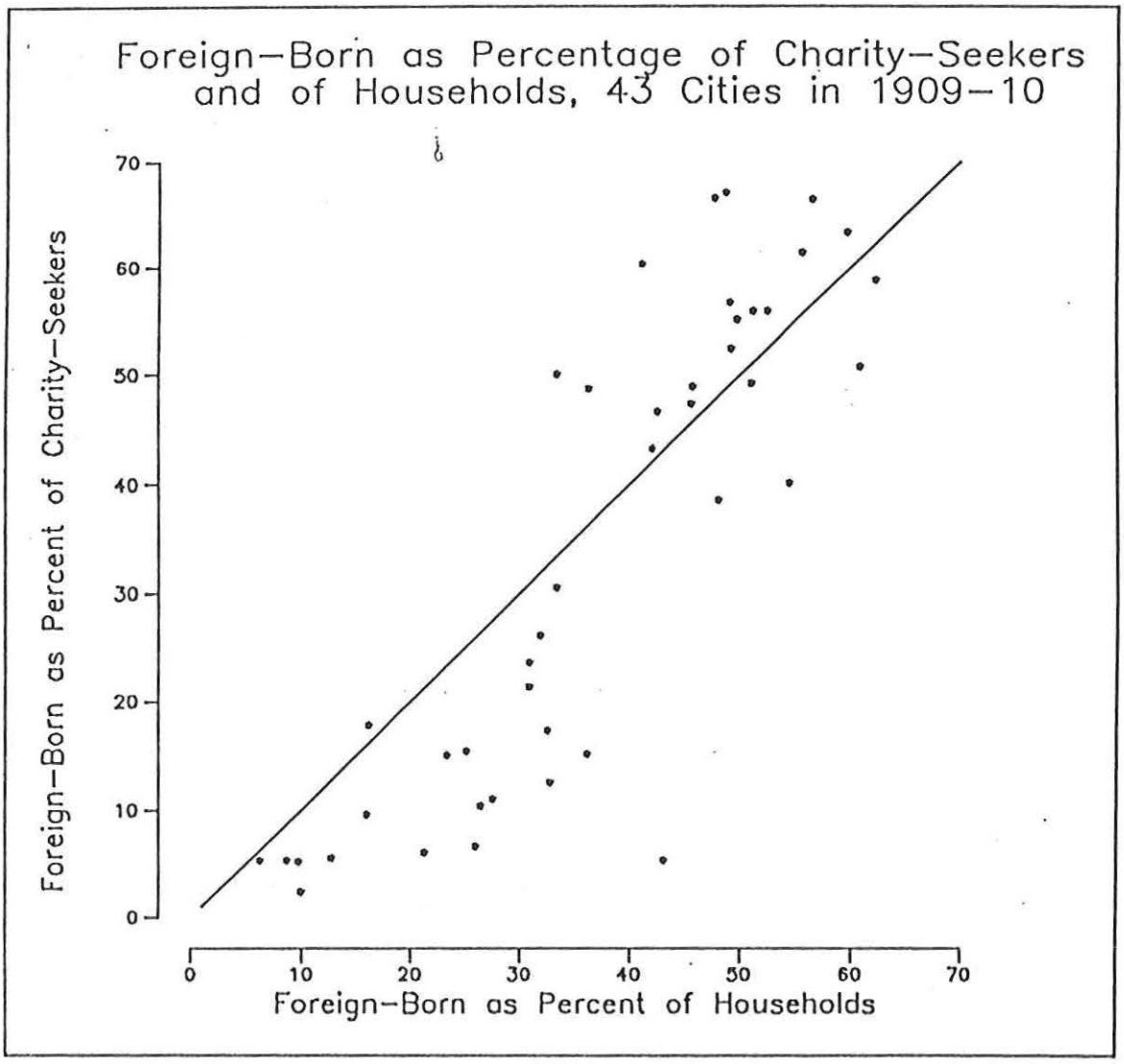

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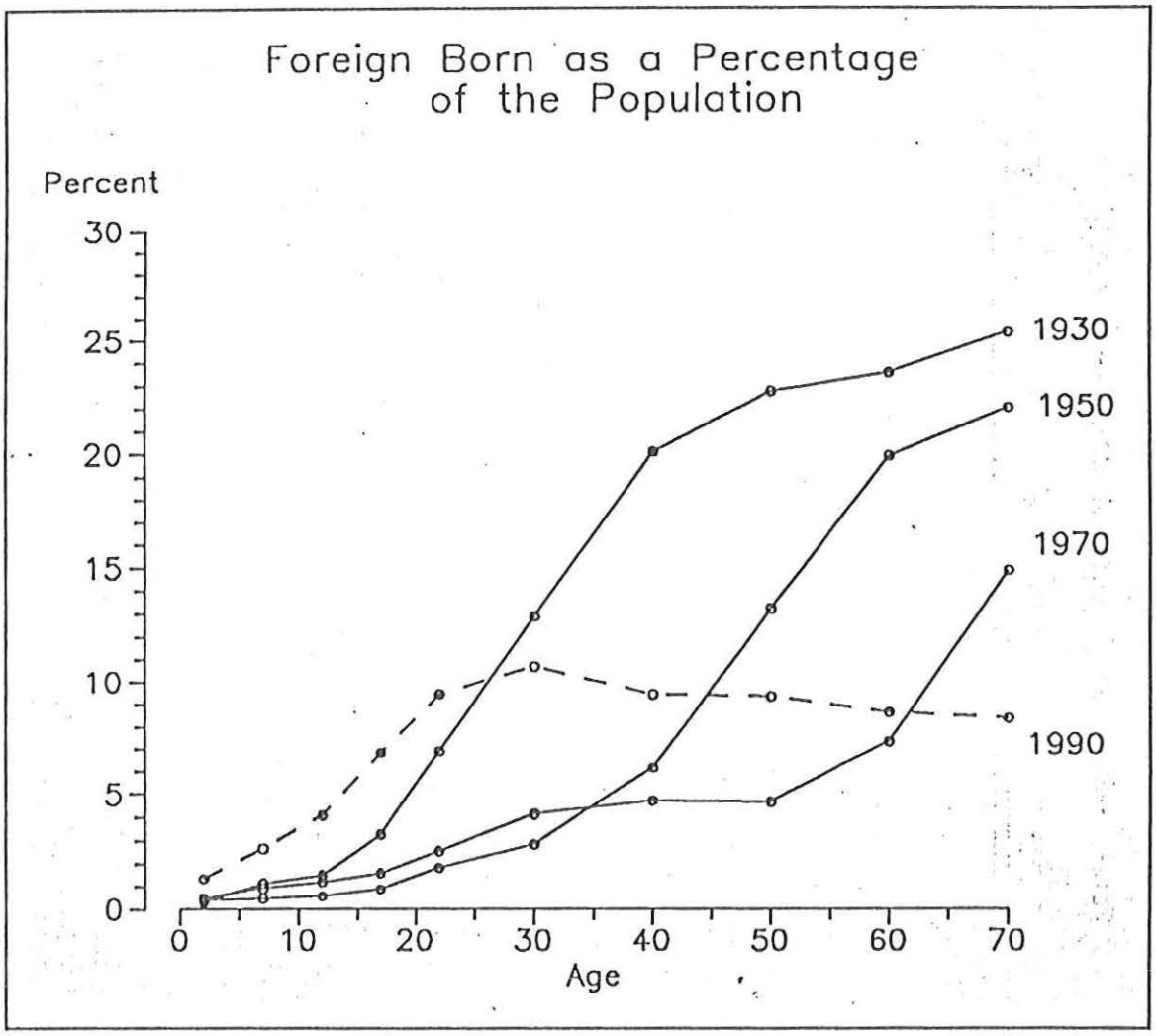

Carter and Sutch *Figure 17*