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Part II

The Comparison and Some General Implications of Its Results

1. Introduction

The flow of people from abroad added millions of workers, consumers, and family heads to the population of this country. This movement directly affected the size and structure of the country's population and had far-reaching influences through the chain-reaction of internal migration and economic mobility which it stimulated. According to many historians the development of the United States has been dominated by the character and movement of the frontier *within* the country. One may argue that it has also been affected by the relation of the country to the rest of the world—for a long time the frontier outpost, and more recently, the giant economic leader of the older civilization of Europe, the ancestral home of most of its population.

Since migration across our borders is so strategic in the economic development of this country, it is a shock to find that the basic quantitative records of this movement are subject to numerous errors. The records have not been made consistent with others relating to the foreign born, and, perhaps as a consequence, the long-term aspects of migration in relation to economic growth have not been analyzed adequately. We have annual data on arrivals of alien passengers back to 1820, and immigrants and nonimmigrants have been distinguished since 1869; but even these series are incomplete, if only because for most of the period they do not include immigration by land. We have data on emigration, but only back to 1908. We have census of population enumerations of foreign born residents since 1850; but they are affected by varying treatment of nonimmigrant aliens, and are generally believed to

understate the true number of foreign born. We have, again from the census of population, data on the foreign born labor force since 1870, but they are subject to biases similar to, and perhaps larger than, those in the data on all foreign born.

Under these circumstances, careful examination of the scope and character of the series and a systematic check on their consistency with one another are indispensable before analysis can be undertaken. In this review of the basic series a systematic comparison of data on migration with those on the foreign born is one of the first steps. The analytical relationship between the two series is obvious, and some attempts to cross-check them for selected census decades have been made.[1] Yet despite a clear realization of the potential value of the task,[2] it has not been undertaken on a systematic basis for a period long enough to permit study of economic trends.

It is to this task that our efforts have been devoted, and Part III describes in detail the data and devices employed and the results of the comparison. In Part II an attempt is made to present to the general reader, less interested in details of estimation, the nature of the statistical experiment conducted and, particularly, some of the findings relating to the long-term movements in migration and the foreign born, and their bearing upon other long-term trends in the American economy.

2. *The Comparison*

During any interval between two population censuses the number of foreign born residents at the initial date is increased by immigration and diminished by deaths and emigration. Hence, incoming aliens must be added to and deaths and departing aliens subtracted from the foreign born at the beginning of the census period. The resulting estimated number of foreign born at the

1 See Appendix A.

2 See, e.g. the statement by Walter F. Willcox, "There is, perhaps, no important or promising field of American immigration statistics so little worked as the attempt to relate the immigration statistics to the foreign born statistics." (*International Migrations,* National Bureau of Economic Research, 1931, Vol. II, p. 90.) Commenting upon the failure of the government agencies issuing the two sets of data to establish agreement, Professor Willcox adds, "In so large a field a private student cannot go far."

end of the period can then be compared with the number yielded by the census enumeration of that date. If the three sets of statistics—foreign born, migration, and mortality—are all true, or at least subject to errors of similar size and sign, the *estimated* number of foreign born at each census date should equal the *enumerated.*

The successive steps in the comparison are set forth in Table 1. Lines 1–12 describe the sequence as it has been followed in the detailed calculations, which are explained in full in Part III. Lines 14–20 recapitulate the procedure in terms of total additions

TABLE 1

ILLUSTRATIVE CALCULATION OF SURVIVAL AND MIGRATION FOR A SINGLE CENSUS PERIOD, 1900–1910

(*thousands*)

1.	Foreign born whites, census, June 1, 1900	10,214
2.	Survivors of line 1, July 1, 1903	9,536
3.	Arrivals, all aliens, June 1, 1900–July 1, 1905	4,158
4.	Departures, all aliens, June 1, 1900–July 1, 1905	1,739
5.	Net balance (line 3 — line 4)	2,420
6.	Line 2 + line 5	11,956
7.	Survivors of line 6, July 1, 1907	11,108
8.	Arrivals, all aliens, July 1, 1905–Apr. 15, 1910	5,422
9.	Departures, all aliens, July 1, 1905–Apr. 15, 1910	2,557
10.	Net balance (line 8 — line 9)	2,865
11.	Line 7 + line 10	13,973
12.	Survivors of line 11, Apr. 15, 1910; equal to *estimated* foreign born whites on that date	13,330
13.	Foreign born whites, census enumeration, Apr. 15, 1910	13,346

Recapitulation for the Census Period

14.	Foreign born whites, at beginning of decade (line 1)	10,214
15.	Total inflow (line 3 + line 8)	9,580
16.	Gross total (line 14 + line 15)	19,794
17.	Deaths [(line 1 — line 2) + (line 6 — line 7) + (line 11 — line 12)]	2,169
18.	Departures (line 4 + line 9)	4,296
19.	Total draft (line 17 + line 18)	6,465
20.	Foreign born whites, at end of decade (line 16 — line 19)	13,330

Because of rounding, detail will not necessarily add to total.

Source: Table B–5.

and subtractions. The figures were taken from the work sheets for the 1900–1910 decade, one for which the computations are most detailed.

Table 1 conceals a great mass of detail. Mortality rates could not well be applied to either the resident foreign born or the migration population *en gros,* without distinction of age and sex. The calculations were made for numerous age groups, for each sex separately. In fact, for the one decade lines 1–12 were repeated some thirty times for the 15-odd age groups by which males and females were classified.

These computations could have been made for each year in the decade since the data on arrivals and the estimates of departures are available and the death or survival rates can be interpolated annually. But because of the approximate character of these rates and the assumptions involved in estimating volume, sex, and age of departures, the laborious procedure was limited to only two periods within each decade, usually quinquennia.[3] This meant that the cumulative total of arrivals and departures over a five-year period had to be treated as if it were for a single year of that period, the middle one.

That an attempt to follow even such a condensed procedure for the several age groups of each sex in the foreign born and migrant populations back to 1870 would run into numerous difficulties with inadequate, inconsistent, and recalcitrant data need not be emphasized; and, since these difficulties are discussed in Part III, there is no need to deal with them in detail here. The major ones, however, are briefly listed. First, the census data are limited to foreign born whites—no consistent and long series, with detailed age and sex classes, is available for total foreign born, including nonwhites. This limitation is, however, of minor importance since the number of nonwhite foreign born in 1930, the census year in which total foreign born was at its peak, was only about 0.2

[3] For the last period in the calculations, 1930–1940, we felt it was adequate to center total net migration in the middle of the decade. The volume of migration was quite small and not very different in the first and the second halves. For 1870–1900 we also centered net migration in the middle of the decade because the death rates used were rough, if reasonable, approximations, and refinement of the calculations by further splitting of the intercensal periods did not seem warranted.

million out of 14.2 (see Part III, Sec. 2a). Second, the data on arrivals (as well as departures) include nonwhites but for most of the period do not cover movement across land borders. Third, the data on departures of aliens are available only since 1908, and must be estimated prior to that date on the basis of departures of all passengers (including American citizens); and the sex and age classifications are particularly difficult to make for the earlier decades. Fourth, specific death rates for foreign born whites are available back to 1900 only, and had to be extrapolated for earlier periods largely on the basis of trends in the death rates for Great Britain.

Despite these difficulties and the other numerous gaps and inconsistencies that necessitated extensive statistical patching, the comparison of the estimated and enumerated series does not show enormous and bizarre disparities. Column 2 of Table 2 gives the estimate that flows directly from the systematic calculations indicated in Table 1; and column 4 shows the disparity between the census enumeration and the estimate before any allowance for the identifiable sources of discrepancy. For some of the latter (the movement to and from Canada, arrivals and departures of nonwhite aliens, alien seamen, etc.) a rough approximation can be made. The revised estimate in column 3 and the revised difference in column 5 take account of these identifiable sources of discrepancy, the effect of which can be estimated only roughly and not even consistently through all the decades.

The summary comparison in Table 2 (available for each age and sex class) suggests the following conclusions (see also Chart 1). First, the census enumeration falls short of the unadjusted migration-survival estimate by percentages ranging from 1 to 4, and exceeds the estimate significantly at only one point, in 1900. The shortage of the census enumeration, after allowance has been made in the estimate for known sources of discrepancy, is reduced in most cases; and the census enumeration yields a slightly larger number of foreign born than the estimate in three of the seven comparisons (for the totals).

Second, the proportional (and of course, absolute) discrepancies between the census enumeration and the migration-survival esti-

TABLE 2

COMPARISON OF CENSUS ENUMERATIONS AND MIGRATION-SURVIVAL ESTIMATES OF FOREIGN BORN WHITE POPULATION, 1880–1940

(*absolute figures in thousands*)

Date	*Census Enumeration* (1)	*Estimate* (2)	*Revised Estimate* (3)	*Difference* (1 − 2) (4)	*Revised Difference* (1 − 3) (5)	*Percentage Difference Is of Col. 2* (6)	*Percentage Revised Difference Is of Col. 3* (7)
			Total				
June 1, 1880	6,560	6,638	6,538	−78	+22	−1.2	+0.3
June 1, 1890	9,122	9,489	9,507	−367	−385	−3.9	−4.0
June 1, 1900	10,214	9,705	10,190	+509	+24	+5.2	+0.2
Apr. 15, 1910	13,346	13,330	13,318	+15	+27	+0.1	+0.2
Jan. 1, 1920	13,713	14,198	14,076	−485	−363	−3.4	−2.6
Apr. 1, 1930	13,983	14,241	14,236	−257	−253	−1.8	−1.8
Apr. 1, 1940	11,419	11,541	11,630	−121	−211	−1.1	−1.8
			Males				
June 1, 1880	3,522	3,640	3,555	−118	−33	−3.2	−0.9
June 1, 1890	4,952	5,306	5,295	−354	−343	−6.7	−6.5
June 1, 1900	5,515	5,144	5,419	+371	+96	+7.2	+1.8
Apr. 15, 1910	7,524	7,504	7,490	+20	+34	+0.3	+0.4
Jan. 1, 1920	7,528	7,819	7,786	−291	−258	−3.7	−3.3
Apr. 1, 1930	7,502	7,622	7,644	−120	−141	−1.6	−1.8
Apr. 1, 1940	6,011	6,007	6,096	+4	−85	+0.1	−1.4
			Females				
June 1, 1880	3,038	2,998	2,983	+40	+55	+1.3	+1.8
June 1, 1890	4,170	4,183	4,212	−13	−42	−0.3	−1.0
June 1, 1900	4,699	4,561	4,771	+138	−72	+3.0	−1.5
Apr. 15, 1910	5,822	5,826	5,828	−4	−6	−0.1	−0.1
Jan. 1, 1920	6,184	6,379	6,290	−194	−105	−3.0	−1.7
Apr. 1, 1930	6,481	6,618	6,592	−137	−111	−2.1	−1.7
Apr. 1, 1940	5,408	5,534	5,535	−126	−126	−2.3	−2.3

Because of rounding, detail will not necessarily add to total.
Source: Table 10.

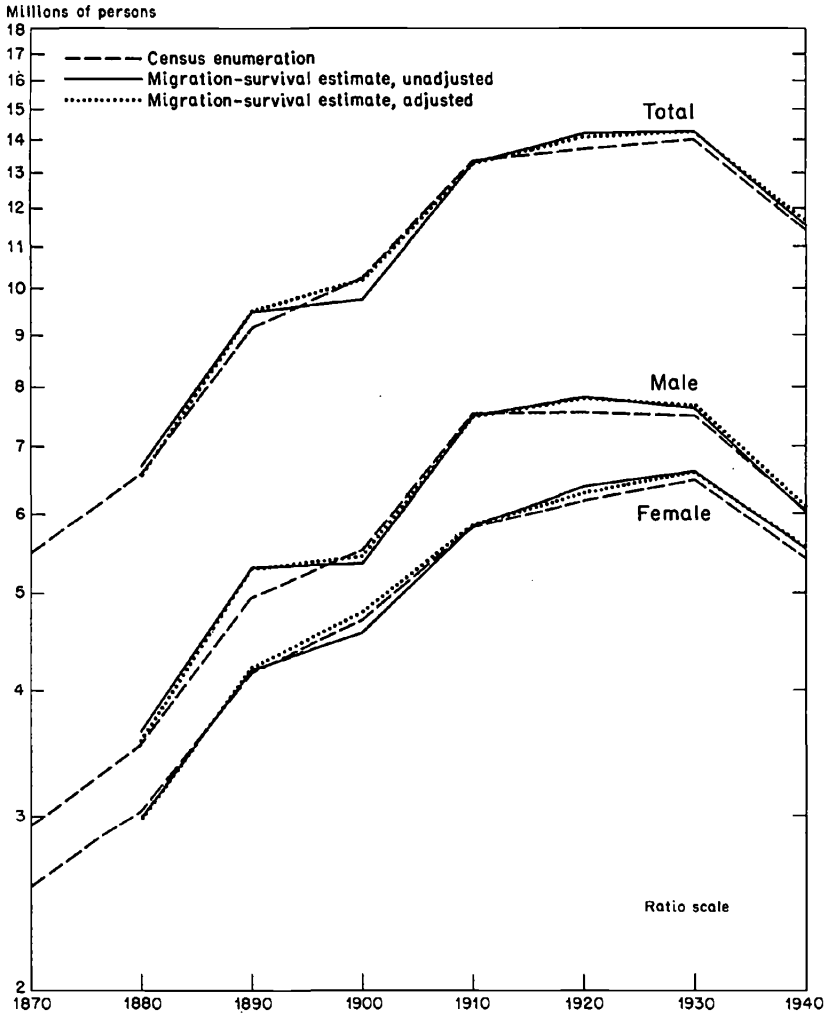
mate are larger for foreign born males than for females. But even for the former, the largest unrevised shortage is 7 per cent, in 1890. Most differences, for males and females taken separately, are less than 4 per cent; and the majority of these are less than 3 per cent.

The comparisons in Table 2 confirm the belief that census enumerations tend to understate the number of foreign born. One explanation is that they reflect the assimilation process and the inclination of some foreign born groups to claim native birth. But the tendency is far from a marked one. For the present purpose the most relevant aspect of the comparison is the limited magnitude of the discrepancy. This is all the more significant since the series on migration and deaths, the former completely and the latter partly independent of the census data on foreign born, account for such a large part of the totals. Total additions (arrivals) and deductions (departures and deaths) during the 1900–1910 decade amounted to about 16.0 million (Table 1, lines 15 and 19). The census figure of foreign born in 1900 was about 10.2 million (Table 1, line 14). In all decades, at least through 1910, the migration-survival flows were appreciably larger, relatively, than either the initial or terminal census enumeration of foreign born. In the light of this large proportion of the migration-survival flow the relatively small discrepancy between the estimate and the census enumeration becomes significant.

Several qualifications must, however, be noted. First, the comparison is from decade to decade and accepts the census enumeration of foreign born at the beginning of each decade. If the census totals are consistently short of the migration-survival estimates, should we not cumulate these shortages to derive the true discrepancy in 1940, for example? While the answer to this question is "yes," the cumulative discrepancy between census enumerations and migration-survival estimates cannot be derived by *adding* the successive differences in column 4 or 5 of Table 2. It is much smaller than either of these totals since the totals would have to be reduced by deaths of the foreign born population (suggested by the estimate and missing in the census enumeration). Thus, even if we argue that 78 thousand foreign born were not included in the census enumeration of 1880, few of them would have survived by 1940 to swell the shortage in that year. Yet, the survival calculations underlying the estimates given in columns 2 and 3 were not applied to the group missing at each terminal census date. In other words, if we tried to guess at the cumulative shortage in the

CHART 1, PANEL A

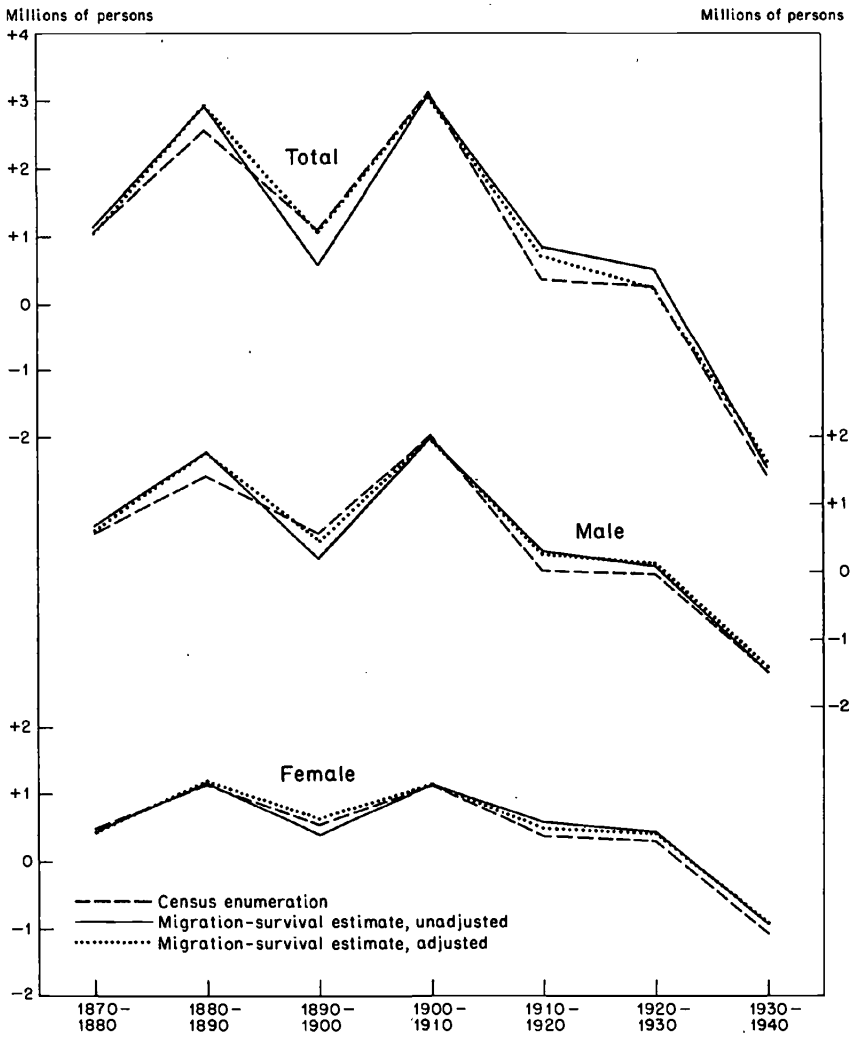
CENSUS ENUMERATIONS AND MIGRATION-SURVIVAL ESTIMATES OF FOREIGN BORN WHITE POPULATION, CENSUS DATES, 1870–1940



census enumeration of foreign born in 1940, and used column 4 for the purpose, we would assume that the differences in 1880–1910 were so reduced by mortality by 1940 as to have little effect; and would allow for only part of the discrepancy in 1920 and 1930. Roughly speaking, the cumulative discrepancy in 1940 in either

CHART 1, PANEL B

CHANGES BETWEEN CENSUS ENUMERATION AT BEGINNING OF CENSUS PERIOD AND CENSUS ENUMERATION AND MIGRATION-SURVIVAL ESTIMATES AT END OF CENSUS PERIOD, 1870–1940



column 4 or 5 would fall far short of half a million, which is less than 5 per cent, for total foreign born.

Another qualification is suggested by comparing the decadal

changes in the number of foreign born, i.e. first differences in column 1, between columns 1 and 2, and between columns 1 and 3. Since these changes can be small in any decade, the *percentage* differences between them can be quite large. But percentage discrepancies of changes are probably not significant; and since the size of the discrepancy varies from census date to census date, there will be substantial differences between changes in *estimated* and *enumerated* foreign born. The important point is that these series of changes move in unison: when there is a large increase or decrease in the enumerated foreign born there is also a large increase or decrease from the enumerated to the estimated foreign born; and when there is a small change in one series there is also a small change in the others (Chart 1, Panel B). The only systematic, and interesting, difference is that the *estimated* series appear to be more sensitive than the census *enumeration* series—the fluctuations in the decade changes in the former are of wider amplitude than those in the decade changes in the latter.

But the chief qualification on the consistency of the two series is revealed by studying the discrepancies by different age groups (see Table 11). The outstanding conclusion is that for the youngest age group, under 15 years of age, the census enumerations substantially *exceed* the migration-survival estimates. This discrepancy holds for males in six of the periods and for females in all seven, and particularly in the early census years, 1880–1900. In contrast, the census enumerations are short of the migration-survival estimates for the middle age groups, between 25 and 65 years of age; and there is a tendency toward excess for the advanced age group, 65 and over.

The discrepancies in the middle age groups, from 25 to 65 years of age, are important since the foreign born sector of the labor force is recruited largely from them and in greater proportion from the males than from the females. The shortage of the census enumerations is marked in 1880 and 1890. Consequently, at least for these dates the foreign born component of the labor force may be understated by more than 7 per cent. This discrepancy, and the effect of its variations on changes in the foreign born labor force from census date to census date, must be taken into account

in any analysis of the contribution of migration and the foreign born to the growth of the labor force in this country; and via the latter to the longer-term trends in the growth of the economy at large.

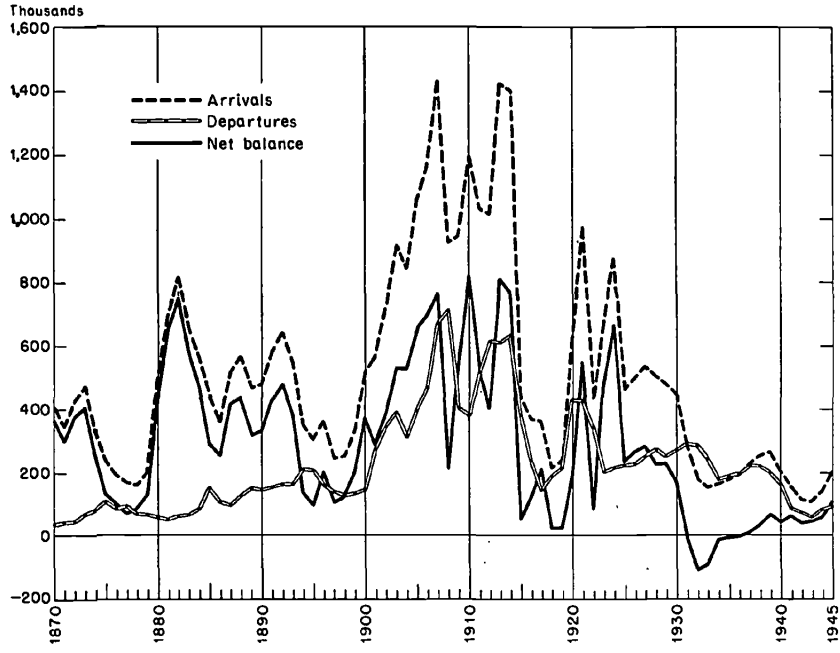
Despite these qualifications, the census enumerations and the migration-survival estimates of foreign born are on the whole consistent. However, there may be downward biases in both; even the migration-survival estimates may understate the true number of foreign born because of possible shortages in the migration figures themselves. Such shortages, if they exist, will not be revealed by comparison with the census enumerations if the latter are undercounts. Admittedly, the analysis and comparisons cannot reveal errors in both series when the errors are in the same direction. But for practical purposes the important question is the probable magnitude of such errors—over and above those that can be identified and have been used to revise the differences in Table 2. It is the assumption, supported by some evidence on emigration from Europe in comparison with the reported immigration here, that the errors cannot be so large as to vitiate the long-term trends and the towering long swings revealed by the record of immigration and net changes in foreign born as the two series stand.

3. Arrivals and Departures

Arrivals of all alien passengers (available from the official data) and departures of alien passengers (official since 1908 and estimated back to 1870) are plotted on Chart 2, together with the difference between the two, an approximation to net immigration. It might have been preferable to confine both arrivals and departures to immigrants and emigrants, excluding the entrance and departure of alien visitors and the departure of resident aliens intending a temporary visit abroad. But it is not possible to do so for the full period nor is it desirable here, since the census data on foreign born prior to 1930 include aliens in the country temporarily. Besides, while data are available since 1908, the distinction between an immigrant and a nonimmigrant had no legal meaning prior to the 1920's; and that between an emigrant and a nonemigrant may even now not be too reliable since it depends upon a

CHART 2

ARRIVALS, DEPARTURES, AND NET BALANCE OF ALIEN PASSENGERS, FISCAL YEARS ENDING JUNE 30, 1870–1945



declared intention that need not necessarily be fulfilled.[4] However, we do make use of the distinction between immigrants and other alien passengers in the data since 1908 and present alternative calculations in the tables that follow.

The major impression of Chart 2 is that arrivals, departures, and, naturally, the net differences are subject to marked fluctuations, both over short periods closely associated with business cycles in this country, and in towering swings ranging in duration from 11 to 25 years. The longer record of arrivals, available back to the 1820's, indicates that both the cycles and the long swings were prominent even before the Civil War. The data on immi-

[4] Before the distinction was made by law, an alien arriving with a declared intention to visit could legally remain as a resident. Likewise, a departing resident alien could declare his intention to visit abroad temporarily and never return. On this and other intricacies of the data see Part III and discussion in Willcox, *op. cit.*, pp. 85–87.

grants since 1908 suggest a similar picture, except that the absolute volumes and the ratio of departures to arrivals are significantly smaller. It follows that the secular, long-term trends in the flows of people into and out of the country are obscured not only by sensitive responses of these flows to business cycles but also by longer and in some respects even more prominent swings.

The comments that follow on the underlying trends, the long swings, and the responses of the flows to business cycles are intended merely as a sketch of the major findings, but, more important, they suggest some major problems for further research. They can scarcely do justice to the record and to the full variety of facts and questions which it suggests.

a. The Underlying Trends. Since there are long swings of wide amplitude in the flows of immigrants and of all alien passengers, the underlying trends can best be discerned if we date these swings and take averages for the periods marked off by them—either from peak to peak or from trough to trough. Each average represents a level in which the fluctuations that constitute a swing have been canceled out, and the movement of these averages should reveal the characteristics of the underlying secular trend.[5]

Table 3, which was calculated along these lines, carries us back to the 1820's, before the period covered by the new estimates. The detailed estimates could not be extended for years before 1870 since relevant data on departures and mortality of foreign born are almost completely lacking. We have made rough assumptions concerning ratios of departures to arrivals for such long swings as can be established before the 1870's; but these assumptions, based on the ratios and their movements since the Civil War, can hardly be in such error as to vitiate the marked trends which the record indicates. It therefore seemed justifiable to extend the view

[5] The characteristics of the long swings will emerge more clearly in Section b. Since there is no secure technique for describing these swings accurately, it is difficult to establish the precise dates of their peaks and troughs. The use of single-year dates in Table 3 may suggest greater precision than is intended here. It may have been preferable to determine the peaks and troughs of the long swings from the data for quinquennia rather than single years. But this procedure would have complicated the calculation of average values for nonoverlapping periods. The major conclusions suggested by Table 3 would not, however, be affected by such modifications in the dating procedure.

TABLE 3

AVERAGE VOLUME PER DECADE OF ARRIVALS, DEPARTURES, AND NET BALANCES, TROUGH TO TROUGH AND PEAK TO PEAK LONG SWINGS, ALL ALIEN PASSENGERS, 1823–1932, AND IMMIGRANTS, 1910–1932

(absolute figures in thousands)

A. Trough to Trough Swings

	ALL ALIEN PASSENGERS						IMMIGRANTS
	1823–1838[a]	*1838–1861*[b]	*1862–1877*[c]	*1878–1897*[c]	*1897–1918*[c]	*1918–1932*[c]	*1918–1932*[c]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Arrivals	358	1,969	2,892	4,840	8,172	5,153	3,463
2. Departures	36	197	434	1,229	3,846	2,765	1,156
3. Net balance	322	1,772	2,458	3,611	4,326	2,388	2,307
4. Departures as percentage of arrivals	(10.0)	(10.0)	(15.0)	25.4	47.1	53.7	33.4
5. Net balance as percentage of arrivals	(90.0)	(90.0)	(85.0)	74.6	52.9	46.3	66.6
6. Total population	13,258	23,522	39,839	60,063	87,979	115,153	115,153
7. Arrivals as percentage of population	2.7	8.4	7.3	8.1	9.3	4.5	3.0
8. Departures as percentage of population	0.3	0.9	1.1	2.0	4.4	2.4	1.0
9. Net balance as percentage of population	2.4	7.5	6.2	6.0	4.9	2.1	2.0
10. Foreign born population		2,245	5,567	8,658	12,374	13,972	13,972
11. Arrivals as percentage of foreign born population		87.7	51.9	55.9	66.0	36.9	24.8
12. Departures as percentage of foreign born population		8.8	7.7	14.2	31.1	19.8	8.3
13. Net balance as percentage of foreign born population		78.9	44.2	41.7	35.0	17.1	16.5

TABLE 3 (*Continued*)

B. Peak to Peak Swings

	ALL ALIEN PASSENGERS					IMMIGRANTS
	1834–1854[b]	*1854–1872*[b]	*1873–1884*[c]	*1884–1910*[c]	*1910–1924*[c]	*1910–1924*[c]
	(1)	(2)	(3)	(4)	(5)	(6)
1. Arrivals	1,736	2,427	4,037	6,313	7,310	5,891
2. Departures	174	303	756	2,536	3,756	2,010
3. Net balance	1,562	2,124	3,281	3,777	3,554	3,881
4. Departures as percentage of arrivals	(10.0)	(12.5)	18.7	40.2	51.4	34.1
5. Net balance as percentage of arrivals	(90.0)	(87.5)	81.3	59.8	48.6	65.9
6. Total population	19,827	34,066	48,982	72,717	102,747	102,747
7. Arrivals as percentage of population	8.8	7.1	8.2	8.7	7.1	5.7
8. Departures as percentage of population	0.9	0.9	1.5	3.5	3.6	1.9
9. Net balance as percentage of population	7.9	6.2	6.7	5.2	3.5	3.8
10. Foreign born population	2,000	4,136	6,814	10,294	14,065	14,065
11. Arrivals as percentage of foreign born population	86.8	58.7	59.2	61.3	52.0	41.9
12. Departures as percentage of foreign born population	8.7	7.3	11.1	24.6	26.7	14.3
13. Net balance as percentage of foreign born population	78.1	51.4	48.2	36.7	25.3	27.6

[a] Years ending Sept. 30.
[b] Years ending Dec. 31.
[c] Years ending June 30.

Because of rounding, detail will not necessarily add to total.

Note: Figures in parentheses are approximate. See notes below for the specific items.

(*Continued on page 24*)

The turning points were established by observation of the gross and net arrivals; the peak year 1884, derived from a 9-year moving average, is the only one that does not coincide with the turning points in the annual series.

Panel A

Line 1:

Col. 1: Average of annual data given in Imre Ferenczi, *International Migrations*, Vol. I (National Bureau of Economic Research, 1929), Table I, p. 377. For 1832–1838 the figures reported for calendar years were adjusted to years ending Sept. 30 by straight-line interpolation.

Col. 2: *Ibid.* For 1843–1850 the figures reported for years ending Sept. 30 were adjusted to calendar years by straight-line interpolation.

Col. 3: *Ibid.* for 1862–1868. The figures reported for calendar years were adjusted to years ending June 30 by straight-line interpolation. For the year ending June 30, 1869, the estimate is the sum of the number of immigrants reported in *ibid.*, Table II, p. 384, and the number of nonimmigrant aliens admitted; the latter is an average of the number for 1868 (derived from *ibid.*, Tables I and IV) and for 1870 (derived from Table B–1 and *ibid.*, Table II). For 1870–1877 the figures are derived from Table B–1.

Cols. 4–7: From Table B–1.

Line 2:

Cols. 1–3: Product of line 1 and line 4.

Cols. 4–7: From Table B–1.

Line 4:

Cols. 1–3: Rough extrapolation of cols. 4–7.

Line 6:

Averages of estimates for calendar years. For 1823–1869 from *Historical Statistics of the United States, 1789–1945*, Bureau of the Census, Series B 31; for 1870–1919, unpublished estimates derived as the sum of foreign born population (Table B–6) and native born population (derived by logarithmic straight-line interpolation between census dates); for 1919–1932 from *ibid.*

Line 10:

Col. 2: Census figures for 1850, from *ibid.*, Series B 193. Includes white and free colored population only.

Col. 3: Census figure for 1870. See note to col. 2.

Cols. 4–7: From Table B–6.

Panel B

Line 1:

Col. 1: For source see notes to Panel A, line 1, col. 1. For 1844–1850 the figures reported for years ending Sept. 30 were adjusted to calendar years

Col. 2: For source for 1854–1867 see notes to Panel A, line 1, col. 1. The estimates for 1868 and 1869 are derived similarly to that for 1869 in Panel A (see notes to Panel A, line 1, col. 3). For 1870–1872 the figures are from Table B–1.

Cols. 3–6: From Table B–1.

Line 2:

Cols. 1 and 2: Product of line 1 and line 4.

Cols. 3–6: From Table B–1.

Line 4:

Cols. 1 and 2: Rough extrapolation of cols. 3–6.

Line 6:

See notes to Panel A, line 6.

Line 10:

Col. 1: Rough estimate.

Col. 2: Census figure for 1860, from *Historical Statistics of the United States, 1789–1945*, Series B 193.

Cols. 3–6: From Table B–6.

to cover the longer period, and get a better perspective of the secular trends.

It might be expected that the volumes of both arrivals and departures would tend to grow—given the growth of this country and of its attractive and absorptive capacity, and given a correlative increase in the total of foreign born, resident and transient, the pool from which departures take place. Of particular interest here is the rate of this growth in comparison with the country's total population and its foreign born component.

If we try to abstract from visitors and read the major conclusions in terms of immigrants and emigrants alone, the following results may be discerned.

First, the really sizable influx began during the twenty to twenty-five years preceding the Civil War, i.e. between the mid-1830's and 1860. The percentage of transients among the arrivals of that period must have been quite small, probably not over 5 per cent. The percentage of departures, while roughly estimated, is, if anything, on the high side. Hence, net immigration is probably understated. For these reasons the levels of net balance shown for the long swings of 1838–1861 (trough to trough) and 1834–1854 (peak to peak) are, if translated into those of net *immigration,* fairly close to the true level, and perhaps slightly short of the latter.

Second, both arrivals and departures have moved upward since that time. But when these movements are adjusted for the nonimmigrant component, and related either to total or foreign born population in the country, the *relative* magnitude of both total arrivals and net immigration declines from the level established during 1835–1860, and the latter thus represents the highest secular level. While the ratio of total arrivals to total population is higher in 1897–1918 than in 1838–1861, an allowance of about 15 per cent of arrivals for nonimmigrants in the later period (suggested by the figures for 1908–1914, when total arrivals were 7.9 million and immigrants 6.7 million) would reduce the percentages in those years to levels below those in the early period.[6] This conclusion is conspicuously shown by the ratio of net arrivals, roughly

[6] For 1897–1918, the ratio of arrivals to total population would become 7.9 per cent, and for 1838–1861, 8.0 per cent (8.4 per cent reduced by 5 per cent).

equivalent to net immigration because of the cancellation of transient arrivals and departures, to total population. And it is even more striking when we compare arrivals and net immigration with the resident foreign population: the percentage of the former to the latter is at its secular peak in the two to two and a half decades preceding the Civil War, and falls far short of this level during all the long swings that follow.

Third, the proportion of departures to arrivals has been rising. Complete data are not available before the 1870's; and those given in Table 3 should be adjusted for the inclusion of nonimmigrants. During 1908–1914 (years free from war and restrictive immigration), the ratio of departures to arrivals for immigrants alone was 30.8 per cent and for all aliens 48.8 per cent. On the basis of these figures and the entries in Table 3, line 4, it is clear that the ratio of departing to arriving immigrants must have risen appreciably from the 1870's onward, let alone the period prior to the Civil War. We know that the proportion of nonimmigrant arrivals was small in the 1870's and 1880's. If we assume that it was not much higher than 10 per cent, and that all the nonimmigrants departed, the ratio of immigrant departures to arrivals can be calculated. Thus, for 1878–1897, gross immigration was 4.36 million per decade, and departures, 0.74 million per decade. The ratio is about 17 per cent, compared with a similar ratio of well over 30 per cent for the immigrant-emigrant flow in the long swing of 1897–1918 or the even higher ratio for 1918–1932. This increase in the turnover of the immigrant flow is important in its bearing upon the constitution of the foreign born population and particularly in its effect upon the adaptation of the flow to the changing conditions in this country.

b. The Long Swings. Just as we established the underlying trends by average values for each observed long swing, so we can study the latter by distinguishing the observed short-term cycles and calculating averages for them. These averages would presumably be free from fluctuations that characterize short-term cycles and their movements would reveal the long swings. Since our major interest is in *net* arrivals, we set the dates of the shorter

cycles in that series and on the basis of these dates computed averages—for complete cycles, from trough to trough and from peak to peak—for arrivals, departures, and net inflow of alien passengers.[7] For the more recent periods we made similar calculations for immigrants and emigrants (Table 4 and Chart 3).

There was a swing in arrivals from a low average of 319 thousand per year for the cycle of 1871–1877 to a peak of 534 thousand in the cycle of 1882–1888 and back to a trough of 318 thousand in the cycle of 1895–1897. The fluctuation in *net* arrivals was even wider: from a first trough of 241 thousand to a peak of 433 thousand and then to a trough of 153 thousand. The amplitude in the other long swings is appreciably wider.

Three conclusions may be drawn with respect to the long swings in the inflow of aliens or immigrants. First, arrivals of alien passengers and of immigrants were subject to long swings of wide magnitude, three such swings being observable during the period from the early 1870's through the early 1940's. If we center the average of each cycle at its midpoint, as was done in Chart 3, the dates of the turning points in the long swings in arrivals are not too different from those for the annual data used in Table 3.[8]

Second, there is no negative correlation between arrivals and departures, although one would expect that conditions favoring a long *upswing* in arrivals would also favor a long *downswing* in departures, and vice versa. During the first long swing, departures do rise to a date almost coincident with the *trough* in arrivals; but there is no downswing in departures during the upward phase, i.e. from the early 1870's to the middle or late 1880's. In the second swing, departures move parallel rather than opposite to arrivals, though with some lag. After World War I, departures describe

[7] For a flexible description of movements underlying any discernible short-term fluctuations, the averaging procedure indicated should be followed for periods determined by the fluctuations observed in the specific series. Hence, the use in Table 4 of periods set by cycles in the net arrivals alone rather than by the specific cycles may not yield the best description of the underlying swings in total arrivals and in departures. However, specific cycles in total and net arrivals are fairly synchronous. Furthermore, it was desirable to derive movements in the departure series which would assure the arithmetic consistency of total and net arrivals. This could be done only by using the same set of cycle periods for all three series.

[8] See note 5 above.

TABLE 4

AVERAGE VOLUME PER YEAR OF ARRIVALS, DEPARTURES, AND NET BALANCE DURING CYCLES ESTABLISHED IN NET BALANCE, ALL ALIEN PASSENGERS, 1871–1942, AND IMMIGRANTS, 1908–1943

(*thousands*)

TROUGH TO TROUGH CYCLES				PEAK TO PEAK CYCLES			
Period	*Arrivals*	*Depar-tures*	*Net Balance*	*Period*	*Arrivals*	*Depar-tures*	*Net Balance*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			A. All Alien Passengers				
1. 1871–1877	318.7	78.0	240.7	1873–1882	345.3	76.8	268.5
2. 1877–1886	473.0	79.6	393.4	1882–1888	534.4	101.2	433.2
3. 1886–1889	497.4	118.2	379.2	1888–1892	531.7	149.3	382.4
4. 1889–1895	495.7	169.4	326.2	1892–1896	424.0	185.2	238.8
5. 1895–1897	317.8	165.2	152.5	1896–1900	317.5	138.0	179.5
6. 1897–1901	377.0	153.2	223.8	1900–1903	671.3	295.3	376.0
7. 1901–1904	784.6	342.4	442.3	1903–1907	1,061.7	427.2	634.4
8. 1904–1908	1,136.9	513.0	623.8	1907–1910	1,062.4	547.1	515.3
9. 1908–1912	1,035.9	419.0	544.9	1910–1913	1,120.0	543.2	576.8
10. 1912–1915	1,185.3	581.8	603.5	1913–1917	774.8	409.5	365.2
11. 1915–1918	350.9	225.3	125.5	1917–1921	435.2	280.9	154.3
12. 1918–1922	539.7	334.9	204.8	1921–1924	678.2	289.1	389.0
13. 1922–1925	666.0	234.3	431.8	1924–1927	554.4	229.5	324.9
14. 1925–1932	436.8	261.2	175.6	1927–1939	287.9	238.0	49.9
15. 1932–1940	203.8	209.9	−6.1	1939–1941	209.4	155.6	53.8
16. 1940–1942	155.9	104.4	51.5				
			B. Immigrants and Emigrants				
1. 1908–1912	870.6	272.0	598.6	1910–1914	1,011.2	297.5	713.7
2. 1912–1915	999.6	293.4	706.2	1914–1917	460.8	172.9	287.9
3. 1915–1918	271.0	115.1	155.8	1917–1921	308.0	165.8	142.2
4. 1918–1922	396.6	201.6	195.0	1921–1924	529.5	147.5	382.0
5. 1922–1925	510.6	101.4	409.2	1924–1927	373.3	81.6	291.7
6. 1925–1932	247.2	72.5	174.7	1927–1939	117.7	54.9	62.8
7. 1932–1943	46.0	33.9	12.1				

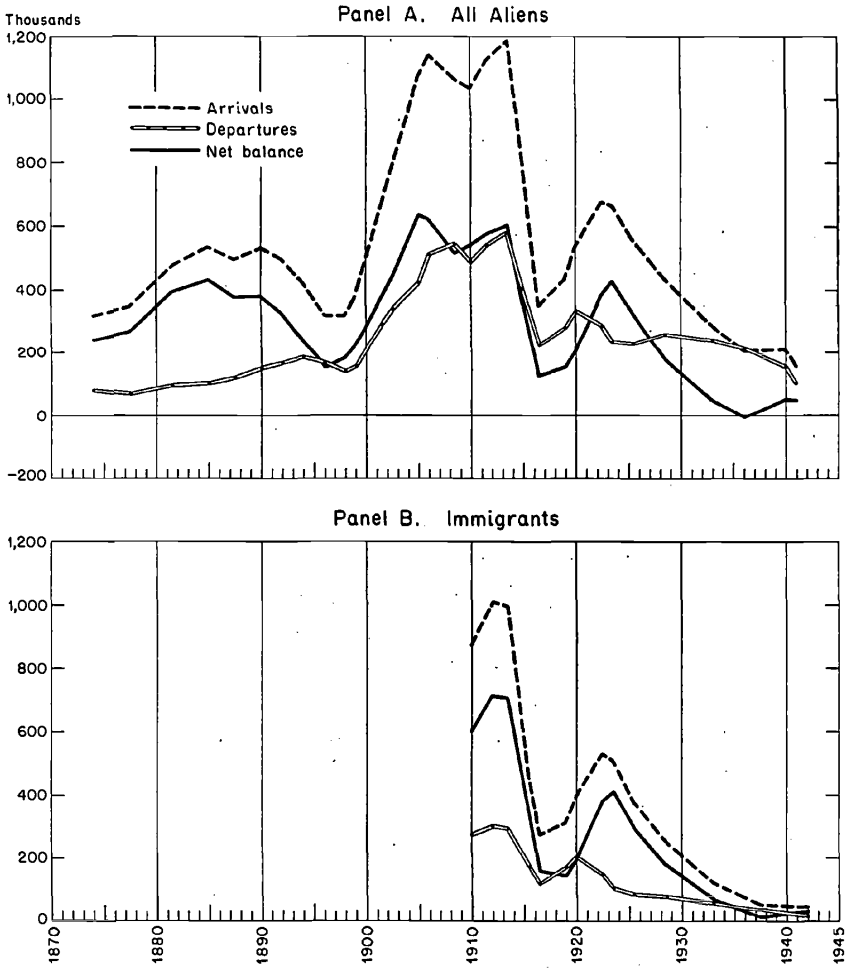
Source: Table B–1.

two swings, one with a peak in the early 1920's and the other with a peak in the late 1920's.

A partial explanation may lie in the fact that as transportation and other conditions affecting migration were improved, the flow into and out of the country became easier and departures tended

CHART 3

AVERAGE VOLUME PER YEAR OF ARRIVALS, DEPARTURES, AND NET BALANCE DURING CYCLES (TROUGH TO TROUGH AND PEAK TO PEAK) ESTABLISHED IN NET BALANCE, ALL ALIEN PASSENGERS, 1871–1942, AND IMMIGRANTS, 1908–1943



to be swelled by large arrivals. The growth of arrivals greatly augments the pool from which departures are likely to occur. In other words, attractive conditions may induce a large volume of immigration, but a sizable number of the immigrants may shortly find conditions not to their liking and may be willing or forced

to leave.[9] From 1895 through 1915 particularly, the easy flow into the country was accompanied by a large increase in departures. After World War I, changes in the law began to affect departures if only because they affected arrivals—but not necessarily at the same time.

Third, net arrivals reveal swings with characteristics of their own, since net arrivals (or immigration) are the difference between the inflow and the outflow, and the outflow is characterized by different amplitudes and somewhat different timing from the inflow. These swings are of far wider amplitude, particularly on a relative basis, than those in gross arrivals and departures. What is of even more interest, during the first two swings peak net arrivals tend to precede peak gross arrivals. Thus, the peak level in net arrivals is reached in 1882–1888, not in 1888–1892; in 1903–1907, not in 1912–1915. Also, the first clearly marked trough in net arrivals is in 1895–1897 and precedes that in gross in 1896–1900.

While the differences in timing are minor, they are unmistakable. Furthermore, they are not unexpected. Departures are more resistant than arrivals to pressures of worsened conditions in this country. Because of this difference in responsiveness, net arrivals are bound to show a wider relative amplitude than gross arrivals, and perhaps some lead at the peaks. Beginning with World War I, this "normal" relationship of gross and net flows is completely disturbed and the timing sequence not only disappears but is reversed: here the peak in net inflows (in 1922–1925) follows that in gross (in 1921–1924).[10]

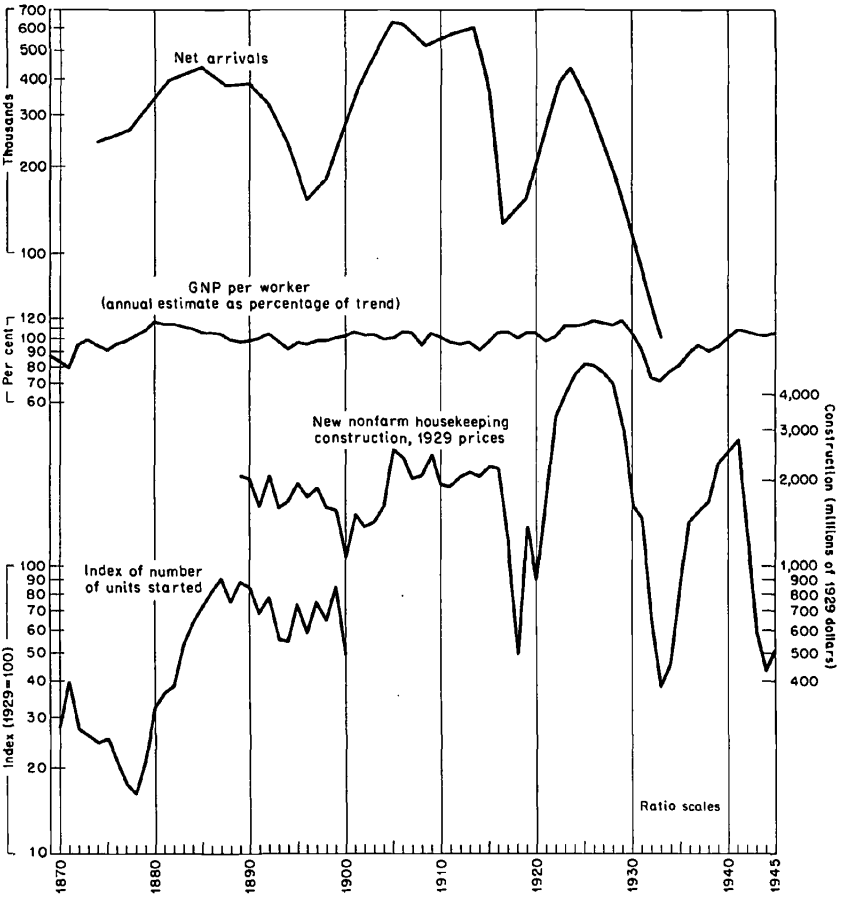
The causes and consequences of these long swings in migration

[9] The *Annual Reports of the Commissioner of Immigration,* Bureau of Immigration and Naturalization, contain data on the period of residence of emigrants for years since 1908; and we can take the period 1908–1914 as typical of "normal" nonwar and nonrestricted conditions. During that period, of some 2 million emigrants about 10 per cent did not report length of residence. Of the 1.8 million who did, 77 per cent had been in the country less than 5 years, and an additional 18 per cent, from 5 to 9 years.

[10] These statements apply to gross immigration, emigration, and net immigration as well as to gross arrivals, departures, and net arrivals of all alien passengers. Panels A and B of Table 4 indicate almost complete agreement between the long swings in in- and outflow of alien passengers and of immigrants in the decades for which we have data for both. We assume that a similar agreement existed in the earlier decades.

CHART 4

NET ARRIVALS, GROSS NATIONAL PRODUCT PER WORKER, AND RESIDENTIAL CONSTRUCTION, TOTAL VALUE IN 1929 PRICES AND INDEX OF NUMBER OF UNITS STARTED, 1869–1945 (1929 = 100)



constitute a wide and as yet inadequately explored subject, and it would be impracticable and presumptuous to attempt to deal with it here. But the intriguing and far-reaching character of the problem may be suggested by the graphic comparison shown in Chart 4. The top line is net arrivals, based on averages for successive short-term cycles, and identical with the solid line given in Chart 3. The second to top line, based on an approximation to annual gross

national product per worker in 1929 prices, represents the general level of economic production per worker. In view of the strong upward trend in this series, the data are annual values—not averages for successive short cycles—expressed as relatives of trend values read from a second-degree potential equation fitted to the logs. Of the two lines at the bottom, one represents the annual volume of expenditures for private nonfarm housekeeping units in 1929 prices, and the second the index of the number of urban housekeeping dwelling units started.[11] These series have not been modified in any way since the long cycles are readily apparent.

All three series, net arrivals, gross national product per worker, and residential construction, show long swings of approximately the same duration. One should note in passing that the series are completely independent statistically since they are based on entirely different bodies of primary data.[12] Nor is there anything about the technique used in deriving them that would introduce similar long swings.

Of even more interest is the timing, although comparison is difficult because of the different ways in which the series were treated and because of the problems involved in assigning specific dates to the turns in the long swings. But it would seem that, before wars and legislation affected net immigration, the long swings in net immigration tended to *follow* those in gross national product per worker, and to *precede* those in the constant dollar volume of residential construction. Thus the first peak in product per worker indicated is in the late 1870's, that in net immigration in the middle 1880's, and that in residential construction in the late 1880's. The next trough in product per worker is in the middle 1890's (1894), in net immigration somewhat later (cycle 1895–1897), in residential construction around 1900. The following peak in product per worker is about 1907, in net immigration

[11] David M. Blank, *The Volume of Residential Construction, 1889–1950,* Technical Paper 9 (National Bureau of Economic Research, 1954), Table 11, p. 42, and Table 18, p. 69.

[12] The only exception is that labor force used to get gross national product *per worker* overlaps with urban population figures used as bases to "blow up" samples to totals in estimating the Blank series on total residential construction. This, however, has little bearing upon the comparison.

either about that time or somewhat later, in residential construction, when smoothed by a nine-year moving average, at about 1910 but with a plateau formation until 1914. Finally, the trough in product per worker is in 1914, those in net immigration and residential construction sometime during World War I. In the 1920's and 1930's, while general agreement in the long swings exists, the sequence is upset, with net immigration preceding not only construction but also national product per worker.

At the present stage of analysis, and in the present connection, this chart and comparison must remain an intriguing picture and guess. But there are reasons for expecting similar long swings in the three aspects of economic and social activity with the timing suggested for the years prior to World War I. The dominant proportion of national product, even of gross product, is flow of goods to consumers; and the swings in the product, on a per worker basis, suggest variations in the rate of increase in consumer real income per worker.

To the extent that immigration depends upon the superior economic opportunities that this country offers we should expect long swings in product per worker to be reflected, with some lag, in a greater influx of people and more net immigration.[13] These additions to the country's population presumably need housing; and since they are sufficiently numerous and mostly in the age groups associated with the founding of new families they should have a marked effect on new residential construction, again possibly with some lag.

Yet, plausible as these relations seem, they require more exploration. Can we assume that variations in the *rate of increase* of product per worker, given the generally higher level of income in this country, necessarily affect the flow of immigrants? To what extent can we claim that such variations in the rate of growth of product per worker influenced people abroad, and what was the mechanism of this influence? Was it the assistance of foreign born already here that induced relations or friends to come, or was it

[13] In this connection, see also the rough correspondence between long swings in immigration and in number of native born of *native* parentage noted below (Table 9 and discussion relating to it).

some effective grapevine of letters and reports? Was there any connection between the rapidity of growth in this country and a similar course in countries of would-be emigration, so that dislocation of industrialization widened the source of emigration in agreement with the timing of the fluctuations in the rate of growth here? Furthermore, can we assume that the newly arrived immigrants, with their relatively low purchasing power, had a truly major effect on residential construction? Were the swings in residential construction perhaps associated with those in the number of native born of native parentage—touched upon below? Alternatively, were the residential construction swings delayed beyond those in product per worker because, particularly in pre-World War I days, the economy did not have the capacity to accelerate the rates of growth of both consumer goods and some capital equipment *and* also of residential construction, so that construction swings had to wait until the limited capacity permitted an upswing? This argument might explain why the swings in residential construction lagged behind those in national product before World War I and coincided with them in post-World War I days.

These questions should not be interpreted to mean that the association suggested by Chart 4 is necessarily illusory. They are rather intended to indicate both that the mechanism of these long swings is complex and that their further exploration promises to shed light on the past behavior of this country's economy—and perhaps also of other economies. The only hypothesis urged here is that immigration, arrivals, and departures may have played a significant part in this mechanism.

c. Response to Business Cycles. Even though only annual data are available through most of the period, cyclical fluctuations in arrivals, departures, and net inflow can be studied in some detail. This is hardly the place to do so, particularly since this aspect of the migratory flows appears to have been studied most, notably by Harry Jerome in his *Migration and Business Cycles* (National Bureau of Economic Research, 1926). Instead, we limit ourselves to a brief comment based largely on measures of the consistency with which arrivals, departures, and net balance responded to cycles in general business conditions.

TABLE 5

INDEXES OF CONFORMITY TO BUSINESS CYCLES, ARRIVALS, DEPARTURES, AND NET BALANCE, 1871–1939

	EXPANSION (1)	CONTRACTION (2)	FULL CYCLE: *Trough to Trough* (3)	FULL CYCLE: *Peak to Peak* (4)	COMBINED (5)
A. All Alien Passengers					
Arrivals					
1. 1871–1915 (11 ref. cycles)	+82	+45	+64	+64[a]	+64
2. 1915–1939 (6 ref. cycles)	0	0	+33	+60[b]	+45
3. 1871–1939 (17 ref. cycles)	+53	+29	+53	+62[c]	+58
Departures					
4. 1871–1915 (11 ref. cycles)	+27	−45	−27	−45[a]	−36
5. 1915–1939 (6 ref. cycles)	−33	0	−33	−60[b]	−45
6. 1871–1939 (17 ref. cycles)	+6	−29	−29	−50[c]	−39
Net Balance					
7. 1871–1915 (11 ref. cycles)	+64	+64	+82	+64[a]	+73
8. 1915–1939 (6 ref. cycles)	+33	0	0	+60[b]	+27
9. 1871–1939 (17 ref. cycles)	+53	+41	+53	+62[c]	+58
B. Immigrants and Emigrants, 1915–1939					
10. Arrivals	0	0	0	+60[b]	+27
11. Departures	−67	−17	−67	−20[b]	−46
12. Net balance	0	0	+33	+60[b]	+45

[a] Eleven reference cycles, 1873–1918.
[b] Five reference cycles, 1918–1937.
[c] Sixteen reference cycles, 1873–1937.
Source: Table B–1.

We use the reference chronology of business cycles in this country, established by the National Bureau of Economic Research, to calculate measures of conformity (Table 5). In general, a plus sign indicates that the series moves with business cycles: rises during reference expansions; declines during reference contractions; shows a decline in the rate of change from expansion to the following contraction, and a rise in the rate of change from contraction to the following expansion. Perfect positive conformity, i.e. the expected behavior observed in each reference cycle phase in the

period, yields indexes of +100; and perfect negative conformity, i.e. declines during expansions, and rises during contractions, etc., yields indexes of −100. Indexes close to 0 signify inconsistent response to business cycles.

The indexes in Table 5 were computed separately for the cycles preceding World War I, for those following it, and for the full period—to reveal the effects of war and legislation on short-term responsiveness of arrivals and departures. If we accept indexes of about 30 or larger as significant, particularly for periods including a fair number of reference cycles, the major conclusions can easily be summarized.[14]

First, arrivals change fairly consistently with business cycles (see lines 1–3). This is particularly true for periods preceding World War I although even after the war and subsequent legislation, which obviously disturbed this positive association, the differential response still remains (see lines 2 and 10, cols. 4 and 5). In view of the repeatedly claimed effect of the "pull" on the short-term changes of immigration flows this was to be expected.

Second, departures move invertedly to business cycles, i.e. tend to contract during expansions and expand during contractions. While this also should have been expected, it is the exceptions that are interesting. An entry of +27, rather than minus, for line 4, column 1, i.e. during reference expansions prior to World War I, reflects the rising long-term trend in departures, already commented upon above—a trend which more than cancels the short-term downward movements during reference expansions. Another point of interest is that the inverted conformity of departures to business cycles is at least as consistent during the period beginning with World War I as prior to it. Perhaps departures are more sensitive to economic conditions than the more rigidly controlled (by law) arrivals.

As already suggested (see note 9), there is some evidence to indicate that most of the departures were from the pool of the newly or recently arrived. The magnitude of the movement during business cycles is not measured in Table 5, nor do we need to measure

[14] An index of 30 means that the series moved consistently with or against reference cycles in 4 out of 6, 7 out of 11, or 11 out of 17 cases.

it here: Chart 2 demonstrates clearly that the fluctuations were quite substantial. We also know from the age and sex structure of these flows that a considerable proportion of the arrivals and departures were members of the labor force and largely men. We thus get a glimpse of the mechanism of adjustment of the labor force to changing economic conditions which, however problematical in some of its social concomitants, was not necessarily without some economic advantages. This is a highly disputable thesis to which justice cannot be done here. We merely wish to suggest that the opposite conclusion, viz. that the easy influx and outflow of labor aggravated the magnitude of business cycles in this country, is far from firmly established. There is something to be said for the ability of an economy to increase additions to its labor force during prosperous times and to reduce them, if not necessarily convert them into declines, during periods of contraction.

4. Intradecade Flows

In the preceding section we considered migration flows alone. But changes in the foreign born resident population, and hence its contribution to changes in labor force or total population, are determined not only by the net balance of arrivals and departures but also by deaths. Estimates of deaths were made along the lines indicated in Section 2 (see particularly Table 1) and we can use them to build up the total flow for each census decade.

However, stocks at the beginning and the end of census intervals and flows (migration and death) during the intervals are in some instances for periods shorter or longer than a decade, depending upon the date for which the census was taken. To facilitate comparison of flows among decades we adjusted the estimates to cover 10-year periods. Furthermore, our calculations permit us to break the 1910–1920 decade at 1915, separating the prewar and prerestrictive legislation decades from those which follow. Comparison of the decade estimates for 1910–1920 and 1915–1925 thus reveals the effect of war and legislation on the flows. Finally, in the last two decades the flows are limited to immigrants and emigrants—excluding the transients, who were proportionately much more numerous than in the earlier decades.

The general impressions concerning the relative magnitudes of arrivals and departures conveyed by Table 6 (Panel A, cols. 2 and 4, and first four columns of Panel B) only confirm what has already been indicated—the upward trend in the ratio of departures to arrivals or to the total pool on which outflow could draw—the sum of foreign born and arrivals. This trend continues through the first half of the second decade in this century, but then ceases primarily because of the restrictive effects of war and legislation. We also find that the ratio of *net* arrivals to initial foreign born population is higher in the 1880's than later; but we know from the analysis in Table 3 that the secular peak in the ratio in fact precedes the Civil War.

The new data in Table 6 relate to deaths, calculated for both the initial census population of foreign born and the net balance of arrivals over departures. Offhand, one would expect that the ratio of deaths to the total for which it is calculated, i.e. the sum of initial foreign born and net arrivals, would decline because of the reduction in mortality rates over the period. But the calculations yield ratios that fluctuate with some tendency to rise toward the end (Panel B, fifth column). Further thought suggests that death rate trends are a product of several factors, of which the general decline in death rates is only one. To begin with, the foreign born population ages during the decade, and if there were no new immigrants, this aging process might result in a rapid *rise* in the death rate. Secondly, the relative contribution of the net balance of arrivals over departures during the successive decades is a variable one, with respect both to totals and to the proportions of sexes and ages—which are subject to markedly different mortality rates. Finally, the downward movement of age and sex specific mortality rates is not necessarily constant from decade to decade. A full analysis of the various factors involved is beyond our competence here. But in this complex of factors the aging of the foreign born population is perhaps dominant and is largely responsible for whatever upward drift there is in the ratios in the fifth column of Panel B. The large increases in this ratio in 1890–1900 and 1930–1940 are due to the relatively low net immigration, which could

TABLE 6

MIGRATION AND DEATHS BY DECADES, TOTAL ALIEN MIGRATION, 1870–1920, AND IMMIGRANTS AND EMIGRANTS, 1920–1940

A. Absolute Totals (thousands)

Period	*Foreign Born, Initial Census Total*[a]	*Arrivals*	*Gross Total (1 + 2)*	*Departures*	*Deaths*	*Total Draft (4 + 5)*	*Calculated Residual, End of Decade (3 − 6)*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1870–1880	5,494	3,000	8,493	730	1,124	1,855	6,638
1880–1890	6,560	5,536	12,095	1,043	1,564	2,607	9,488
1890–1900	9,122	4,124	13,246	1,591	1,948	3,540	9,706
1900–1910[b]	10,214	9,702	19,916	4,350	2,196	6,546	13,370
1910–1915[b]	13,346	11,613	24,959	5,859	2,590	8,449	16,510
1915–1920[b]	14,681	3,166	17,847	2,190	2,250	4,440	13,407
1920–1930[b]	13,713	4,158	17,871	1,148	2,495	3,643	14,228
1930–1940	13,983	571	14,554	467	2,547	3,014	11,540

B. Ratios (per cent)

Period	*Arriv. ÷ Init.* (2 ÷ 1)	*Arriv. − Depart. ÷ Init.* [(2−4) ÷ 1]	*Depart. ÷ Arriv.* (4 ÷ 2)	*Depart. ÷ Gross Tot.* (4 ÷ 3)	*Deaths ÷ (Init. + Net)* [5 ÷ (3−4)]	*Total Draft ÷ Gross Tot.* (6 ÷ 3)
1870–1880	54.6	41.3	24.3	8.6	14.5	21.8
1880–1890	84.4	68.5	18.8	8.6	14.2	21.6
1890–1900	45.2	27.8	38.6	12.0	16.7	26.7
1900–1910	95.0	52.4	44.8	21.8	14.1	32.9
1910–1915	87.0	43.1	50.5	23.5	13.6	33.9
1915–1920	21.6	6.6	69.2	12.3	14.4	24.9
1920–1930	30.3	21.9	27.6	6.4	14.9	20.4
1930–1940	4.1	0.7	81.8	3.2	18.1	20.7

[a] Census dates are June 1, 1870, 1880, 1890, and 1900; Apr. 15, 1910; Jan. 1, 1920; Apr. 1, 1930 and 1940. The 1915 figure is for Jan. 1 (derived from Table B–6).

[b] For periods of less or more than 10 years, the flows are adjusted to a decade basis. Hence the estimates in col. 7 are for dates different from those of the census: they are at dates exactly 10 years from the date of the entry in col. 1. The adjustment factors are 9.875 for 1900–1910; 4.708 for 1910–1915; 5 for 1915–1920; and 10.25 for 1920–1930.

Because of rounding, detail will not necessarily add to total.

Source: For col. 1 and data underlying cols. 2, 4, and 5, Tables B–4 and B–5.

not sufficiently counteract the effects of the higher age of the initial foreign born population.[15]

Before World War I, the sum of deaths and departures grew more than proportionately to the total pool from which they were drawn (sixth column of Panel B). Consequently, it took an increasing number of arrivals to yield a unit addition to the foreign born in the country. Thus, from 1870 to 1880 the total of foreign born increased 1,145 thousand and gross arrivals amounted to 3,000 thousand; so that less than three arrivals resulted in one additional foreign born resident. In 1900–1910, the ratio was 9,702 thousand arrivals to an increase of 3,156 thousand, or more than three arrivals per person added to foreign born; and in 1920–1930, it was 4,158 to 515, or about 8 to 1—despite the fact that for this decade we counted immigrants alone, not all alien passengers. In general, the ratio will increase rapidly as net migration recedes in importance and deaths mount with the aging of the resident foreign born population. It is therefore not surprising to find the ratio climbing from 3 to 1 in 1900–1910 to 8 to 1 in 1920–1930. What is more significant is the rise from 2.6 to 1 in the early decades to 3.1 to 1 in 1900–1910.

The trends in the mechanism of intradecade flow revealed in Table 6 also affected the structure of the foreign born population with respect to length of residence in the United States. We may assume, as already indicated, that departures are overwhelmingly from recent arrivals. This assumption is supported by a comparison of the composition of arrivals by the country of origin with that of departures by the prospective countries of residence. For 1908–1914, the major groups of arrivals by country of origin were: Austria-Hungary, 22 per cent; Italy, 21 per cent; Russia and Finland, 20 per cent; whereas the major countries of "old" immigration accounted for much lower percentages—the United Kingdom for about 9 and Germany for about 3. For the same period, the major groups of departures, by countries of future residence were:

[15] In 1910, despite a large influx of net immigrants in the preceding decade, the median age of the foreign born white population was over 37 years. At the same time, the median age of the native born white population was only slightly over 21 years; and of the immigrating population, in the middle 20's.

Austria-Hungary, about 26 per cent; Italy, about 32 per cent; Russia and Finland, about 10 per cent; whereas the major countries of "old" immigration showed much smaller percentages—the United Kingdom, about 3 per cent and Germany, about 2 per cent. In 1910, to show the contrast, of the *resident* foreign born population, Austria-Hungary accounted for only 10 per cent; Italy, for about 10 per cent; Russia and Finland, for about 10 per cent; whereas the United Kingdom accounted for 19 per cent and Germany for 17 per cent.[16] We shall, therefore, commit no grievous error by assuming that *all* departures during a decade are from arrivals in the same decade. On this assumption and roughly apportioning total deaths between the initial foreign born population and the net balance of arrivals over departures, we calculated the number of the initial foreign born population in each decade that survived and were in the country at the end of the decade (Table 7). This calculation yields maximum estimates of such survivors and, therefore, minimum estimates of the proportion of foreign-born at the end of the decade who were in the country only a decade or less.[17] But the differences between the minimum and true estimates are not so large as to invalidate the results of the calculation.

To repeat, the percentages in Table 7 of the foreign born population that have been in the country 10 years or less are underestimates.[18] But even at that, they are quite large at some dates.

16 The data on arrivals apply to immigrants alone; they and departures are taken from Imre Ferenczi, *International Migrations,* Vol. I (National Bureau of Economic Research, 1929), pp. 390–392 and 472. The data on composition of the foreign born are from Niles Carpenter, *Immigrants and Their Children,* Bureau of the Census Monograph VII, 1927, p. 79. See also note 9.

17 The maximization of the number of resident survivors of the foreign born initial population is due not only to the assumption that none left the country via migration but also to our estimate of deaths. We apportioned total deaths for each decade between the initial foreign born population and the net balance of arrivals over departures on the basis of number without regard to age composition—primarily to avoid laborious calculations. Since the initial foreign born population is significantly older than the net balance of arrivals over departures, the procedure underestimates the deaths of the former and overestimates the deaths of the latter.

18 A check is available, since Carpenter, *op. cit.,* gives data for 1910 and 1920 of the distribution of foreign born population by number of years in the country. Apportioning the nonreporting proportionately to those reporting, Carpenter shows the

(Continued on page 42)

TABLE 7

ESTIMATED MINIMUM PROPORTION OF FOREIGN BORN POPULATION WHO WERE IN THE COUNTRY 10 YEARS OR LESS, 1880–1940

(absolute figures in thousands)

Period	*Foreign Born, Initial Census Total*	*Rough Estimate of Deaths*	*Survivors (1 − 2)*	*Estimated Foreign Born, End of Decade*	*% in Country over 10 Years (3 ÷ 4)*	*% in Country 10 Years or Less (100.0 − col. 5)*
	(1)	(2)	(3)	(4)	(5)	(6)
1870–1880	5,494	998	4,496	6,638	67.7	32.3
1880–1890	6,560	1,334	5,225	9,488	55.1	44.9
1890–1900	9,122	1,843	7,279	9,706	75.0	25.0
1900–1910	10,214	1,783	8,431	13,370	63.1	36.9
1910–1920	13,346	2,106	11,240	13,407	83.8	16.2
1920–1930	13,713	2,212	11,501	14,228	80.8	19.2
1930–1940	13,983	2,547	11,436	11,540	99.1	0.9

Because of rounding, detail will not necessarily add to total.

Col. 1: Table 6, Panel A, col. 1.

Col. 2: Derived from Tables B–4 and B–5. For 1870–1900, mortality of residents at the beginning of the period is estimated directly for males and females. For 1900–1940, deaths, male and female, were distributed between foreign born in the country at the beginning of the period and net arrivals during the period on the assumption of the same death rate for both, and further adjusted to strict 10-year periods (see Table 6, note b).

Col. 4: Table 6, Panel A, col. 7.

Thus in both 1890 and 1910, they were about 40 per cent of all foreign born. Since at both dates the proportion of foreign born population to the total was close to 15 per cent, 6 per cent of total population, largely adult, were in the country 10 years or less—a sizable proportion, particularly if concentrated in a few areas.

The share of the labor force was probably even greater. The newly arrived foreign born were, in general, in age and sex classes that participated more heavily in the labor market than the older resident foreign born. Therefore, those in the country less than ten years might have constituted close to half of the foreign born labor force in 1890 and 1910. At the same dates, all foreign born gainfully engaged were well above 20 per cent of the total labor

following percentages of foreign born in the country 10 years or less: 1910—37.7; 1920—22.5 (see *ibid.*, Table 35, p. 58). The 1910 figure in Table 7 is quite close to that in the census monograph; the 1920 figure is short because a substantial proportion of departures during 1910–1920 was from the old resident, rather than the more newly arrived, foreign born.

force in the United States. This means that in 1890 and 1910, over 10 per cent of the total labor force of this country were adults who had been in the country for 10 years or less.

Whatever may be said about the social advantages and disadvantages of this process by which large segments of the labor force were recent arrivals, it obviously created a situation that had consequences in a variety of fields—relation between labor and capital, union organization, distribution of income, adaptability to environment, and the like. The sharp break occurred with World War I, and the transition was virtually completed with the 1930–1940 decade of the Great Depression. By 1940, the proportion of recently arrived residents to either the total foreign born population or the foreign born labor force, and hence to total population or labor force, had dwindled to insignificance.

5. Contribution to Increase of Population and Labor Force

Having considered the magnitudes of the flows and their effect on the foreign born population, we may conclude with a brief glance at their contribution to the increases in total population and in the labor force. Analysis of labor force estimates is beset with particular difficulties since the concepts and accuracy of enumeration shift from one census date to the next. No attempt has been made to improve the basic figures: the major conclusions would scarcely be affected and the statistical adjustment of the census totals for gainfully engaged or labor force, subdivided by nativity status, would be extremely difficult.

Rather than study the customary proportionate shares of the foreign born component in the total at successive census dates, we compare the *changes* in both. The question then is: How much of the increase in total population and labor force through the successive decades can be assigned to the increase in foreign born? The increases in both total and foreign born are net: they are results of gross additions, by natural birth and immigration, and of drafts, by death and emigration. Furthermore, the calculation of the contribution of the foreign born is purely arithmetical; no attempt is made to guess what would have happened had there been no immigration and foreign born. The latter is practically

impossible since immigration was such an important factor both in the internal growth of the country's economy and in its relations with the rest of the world; to visualize the course of events without it is beyond the imagination of an analyst. The experience of countries in the Western Hemisphere that, despite abundant natural resources, did not benefit from international migrations, may offer a clue. But since it would serve no useful purpose, we have not pursued the question here.

In the simpler and more tangible terms, the question is answered in Table 8. For both population and labor force we derive changes from one census date to the next in the totals and in the foreign born component (cols. 1 and 2), and then take the ratio of change in foreign born to change in total. Since the changes in foreign born are much more variable than those in the total, the decade ratios of the former to the latter are also variable. We have, therefore, added the changes for two successive decade intervals and recalculated the ratios in column 6.

Obviously, a foreign born person can become a resident of this country only by immigration; hence a net increase in foreign born that swells the country's increase in total population is the net residual effect on population of migration streams. Viewed in this light, Table 8 shows that in the 1850–1860 decade, for example, close to one-quarter of the total increase in population was contributed by net immigration (in excess of deaths of already resident foreign born). If one may infer from the data for the later decades for which changes in both total population and the labor force are available, this would mean that in the early decades perhaps as much as a third of total additions to the labor force was contributed by net immigration. If we take a cumulative total from say 1870 to 1910, of the 52 million net increase in total population, about 7.9 million, or more than a seventh, was contributed by the increase of foreign born; and of the 25 million net increase in labor force about 5 million, or a fifth, was contributed by the increase in foreign born. Thus, in purely arithmetical terms, let alone more far-reaching analytical implications, the share of the migration processes in the long-term increase in population and labor force is sufficiently large to merit thoroughgoing analysis.

TABLE 8

PROPORTION OF CHANGES IN FOREIGN BORN TO CHANGES IN TOTAL POPULATION AND LABOR FORCE, CENSUS INTERVALS, 1860–1940

(*absolute figures in millions*)

CENSUS YEAR	CHANGE FROM PRECEDING CENSUS YEAR			CHANGE FROM SECOND PRECEDING CENSUS YEAR		
	Total	*Foreign Born*	(2) *as %* of (1)	*Total*	*Foreign Born*	(5) *as %* of (4)
	(1)	(2)	(3)	(4)	(5)	(6)
			A. Total Population			
1860	8.25	1.89	22.9			
1870	8.37	1.43	17.1	16.63	3.32	20.0
1880	10.34	1.11	10.8	18.71	2.54	13.6
1890	12.79	2.57	20.1	23.13	3.68	15.9
1900	13.05	1.09	8.4	25.84	3.66	14.2
1910	15.98	3.17	19.9	29.02	4.27	14.7
1920	13.74	0.41	2.9	29.72	3.58	12.0
1930	17.06	0.28	1.7	30.80	0.69	2.2
1940	8.89	−2.61	−29.3	25.96	−2.33	−9.0
			B. Gainfully Occupied or Labor Force			
1880	4.88	0.79	16.2			
1890	5.35	1.61	30.1	10.23	2.40	23.5
1900	6.33	0.64	10.1	11.68	2.25	19.3
1910	8.30	2.07	24.9	14.63	2.71	18.5
1920	5.06	−0.06	−1.2	13.36	2.01	15.0
1930	6.40	−0.34	−5.3	11.46	−0.40	−3.5
1940	3.96	−1.61	−40.7	10.36	−1.95	−18.8

Source: Panel A, cols. 1 and 4 from *Historical Statistics of the United States, 1789–1945*' Bureau of the Census, Series B 2; cols. 2 and 5 from *ibid.*, Series B 193. Panel B, cols. 1, 2, 4, and 5 from Simon Kuznets and Raymond Goldsmith, *Income and Wealth of the United States, Trends and Structure*, Income and Wealth, Series II, International Association for Research in Income and Wealth (Cambridge, England, 1952), Table 44, p. 197.

Table 8 also confirms the impression conveyed by Table 3 that the largest proportional contributions of the migration streams to the growth of the economy occurred just before the Civil War. Thus, the peak share in Panel A, column 3, is for the decade 1850–1860; and it is quite likely that if both population and labor force were available by nativity classes for earlier periods, the secular

peak ratio might have emerged in both in the interval from 1840 to 1860.

Table 8 reveals the variations in the decade changes in both total and foreign born components of population and labor force. Some of these changes are due to the use of census dates which do not mark off exactly equal time intervals, and we have made the necessary adjustments in Table 9. But even so, the additions to population and labor force do not form an even progression. The fluctuations in them reflect the long swings which affect not only migration but many other processes in the economy. In view of their importance, not only in the analysis of long swings in residential construction but of these long alternations in the rate of secular growth of the economy at large, the few details in Table 9 may be of interest.

Here, after adjusting the absolute change to a strict per decade basis we calculated, wherever the changes in the successive decades were positive, link relatives (lines marked b) to see whether the rate of growth was steady. This simple analysis was carried through for several components of total population by nativity, and the results are illuminating. The additions to the native born white population of native parentage show fluctuations from decade to decade similar in timing to, if narrower in amplitude than, those in the additions to foreign born population (compare lines 1b and 4b). Swings in the foreign born population clearly reflect long swings in gross and net immigration. Obviously, whatever conditions favored upswings in the rate of immigration also favored upswings in the rate of net additions to native born population of native parentage, i.e. essentially births to native born parents. In contrast, fluctuations in additions to native born population of foreign parentage differ in timing from those in additions to native born of native parentage or to foreign born—at least until the last decade (compare line 2b with lines 1b and 4b). There may be a significant lag of about one decade in the effect of additions to foreign born on additions to native born of foreign parentage. Hence upswings and downswings in additions to foreign born will be reflected in similar movements about a decade later in additions to native born of foreign parentage.

TABLE 9

ABSOLUTE CHANGES IN POPULATION AND LABOR FORCE BY NATIVITY COMPONENTS ON A STRICT DECADE BASIS, 1870–1940

(absolute figures in thousands)

Item	*1870–1880*	*1880–1890*	*1890–1900*	*1900–1910*[a]	*1910–1920*[a]	*1920–1930*[a]	*1930–1940*
			Total Population				
1a. Native born whites, native parentage	5,404	6,661	7,271	9,138	9,722	12,420	13,464
1b. Link relative		123	109	126	106	128	108
2a. Native born whites, foreign parentage	2,417	2,474	3,345	2,803	3,383	2,404	−2,484
2b. Link relative		102	135	84	121	71	...
3a. Total native born whites (1a + 2a)	7,821	9,135	10,616	11,941	13,105	14,824	10,980
3b. Link relative		117	116	112	110	113	74
4a. Foreign born	929	2,570	1,091	3,215	417	276	−2,609
4b. Link relative		231	42	295	13	66	...
5a. Total population	10,338	12,792	13,047	16,179	14,152	16,648	8,894
5b. Link relative		124	102	124	87	118	53
			Gainfully Occupied or Labor Force				
6a. Native born (8a − 7a)	4,090	3,740	5,690	6,309	5,274	6,576	5,570
6b. Link relative		91	152	111	84	125	85
7a. Foreign born	790	1,610	640	2,096	−62	−332	−1,610
7b. Link relative		204	40	328	...	...	...
8a. Total	4,880	5,350	6,330	8,405	5,212	6,244	3,960
8b. Link relative		110	118	133	62	120	63

[a] For factors used to adjust to a strict decade basis, see Table 6, note b.

Lines 1 and 2: Underlying data from *Statistical Abstract, 1931*, Table 7, p. 4, and *Statistical Abstract, 1946*, Table 33, p. 34. The 1870 figures are adjusted for undercount. Native born whites of mixed parentage are apportioned half to native and half to foreign born parentage.

Lines 4 and 7: Table 8, col. 2. Population in 1870 is adjusted for undercount.

Lines 5 and 8: Table 8, col. 1.

The effect on fluctuations in additions to *total* native born whites, whether of foreign or native parentage, is curious (lines 3a and 3b). Since the swings in additions to native born whites of foreign parentage lag one decade behind the swings in additions to foreign born, they also lag one decade behind the swings in additions to native born whites of native parentage. The swings in additions to the two components of native born whites, therefore, tend to cancel out; and, as a result, up to the 1930's, the series of additions to *total* native born whites fluctuates least in its rate of growth from decade to decade (compare line 3b with the other b lines for population). Even additions to the entire population, which includes, besides the components in lines 1–4, the native born nonwhites, show wider fluctuations in the rate of growth than additions to the narrower group of total native born whites.

The mechanism by which long swings in additions to population were damped because of the lag between the swings in arrivals of foreign born and their effect on native born of foreign parentage is important to any analysis of the consequences to long cycles of residential construction, to the process of urbanization and territorial distribution, and the like. One point in this connection is that the damping effect ceased after 1920–1930, so that in 1930–1940 everything converged and additions to total population were reduced sharply. The bearing of the sharp decline in the rate of population growth upon the severity of the depression, at least in residential construction, is obvious.

The fluctuations in additions to the labor force raise some questions to which we have no easy answer. The changes in the foreign born component are a direct and immediate reflection of changes in total foreign born, since new entries are largely of working age and promptly become members of the labor force. Consequently, the movements of entries in lines 7b and 4b are very similar, with one significant difference. The foreign born in the labor force show an absolute decline in advance of the total foreign born population. This is due to changes in the character of immigration in the 1910's and particularly the 1920's and later: partly because of war but largely because of legislative changes, immigration became more a matter of bringing in relatives and

dependents, and the ratio of males and of persons fit for or expecting to join the labor force dropped appreciably.

The puzzle lies in the fluctuations of additions to the native born labor force. Offhand, one would expect these fluctuations to reflect those in additions to the native born population (line 3b), with a two-decade lag: the former are largely affected by births, whose maturity and entrance into the labor force should not occur until after a lapse of about two decades. True, line 3b refers to whites only, and line 6b to all races; and there are quirks in the definition and coverage of gainfully occupied and labor force from census date to census date that do not affect total population by nativity. But even so it is curious that the additions to the native born labor force fall off in 1900–1910 compared with 1890–1900, whereas additions to native born whites are greater in 1880–1890 than in 1870–1880—an excess that would be even larger if the 1870 census figure of native born whites were corrected for undercount. Likewise, the proportional additions to the native born labor force rise from 1910–1920 to 1920–1930, whereas those to the total native born population decline from 1890–1900 to 1900–1910.

Whatever the explanation of the fluctuations in additions to the native born component of the labor force, they serve to cancel some of the fluctuations in the additions to the foreign born component —again at least until the last decade or two. While the cancellation of fluctuations here assumes a different locus than in the case of total population, it again smooths out fluctuations, in this case in additions to the total labor force (compare line 8b with lines 6b and 7b). Here also both components converge to produce a particularly sharp decline in additions in 1930–1940 compared with those in 1920–1930.