

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Migration and Business Cycles

Volume Author/Editor: Harry Jerome

Volume Publisher: NBER

Volume ISBN: 0-87014-008-6

Volume URL: <http://www.nber.org/books/jero26-1>

Publication Date: 1926

Chapter Title: The Pre-War Quarter Century: 1890-1914

Chapter Author: Harry Jerome

Chapter URL: <http://www.nber.org/chapters/c5269>

Chapter pages in book: (p. 89 - 122)

## CHAPTER V

### THE PRE-WAR QUARTER CENTURY: 1890-1914

#### Characteristics of the Period.

The twenty-five years from 1890 to the outbreak of the World War include a most fascinating period of American industrial history, and one which in many ways affords the richest field for study of the relations of migration to industrial activity. The decade of the eighties witnessed the virtual passing of the frontier with an abundant area of free and fertile land available for the homesteader. While railroad construction activities did not in the following decades reach the magnitude which they had attained in the eighties, and though the first years of the nineties were characterized by prolonged depression and business uncertainty, toward the end of the decade there began a sharp recovery in industrial activity, accompanied by an equally remarkable increase in the volume of immigration, which reached its peak in the calendar year 1913 with a recorded total of 1,387,318 immigrant aliens and 229,585 nonimmigrant aliens. It will be remembered, also, that it is in the nineties that the "old" immigration from northern and western Europe ceased to be the predominating element in the immigrant stream, yielding in numbers to the rising tide of immigrants from southern and eastern Europe.

#### Data Available for Quantitative Analysis.

This quarter century also affords much more adequate data for the purposes of our study than are available for the earlier decades. While the years during and following the Great War have witnessed a remarkable development in the variety and adequacy of statistics of production and employment, even in the preceding quarter century to which we now wish to turn our attention we find at hand statistics which facilitate the close study of cyclical movements in industry. Monthly estimates of pig iron production, usually considered a good index of industrial activity, are available in some form throughout the entire period; and, as noted in a previous chapter, it has been possible to weld together a monthly index of factory em-

ployment in one or more states which are notable immigrant centers. Monthly statistics of immigration, classified by country of origin beginning in July, 1888, and by sex from July, 1892, are available; and toward the end of the pre-war period the monthly immigration statistics become more and more detailed, so that for the last five or six years of the period they are available by race, country of origin, occupation, and other bases of classification. Also, beginning in July, 1907, monthly statistics of emigration were published, so that it becomes possible thereafter to give a relatively complete picture of the net movement of migration.

With its relative abundance of immigration statistics, accompanied by reasonably adequate measures of industrial activity and with little in the way of war or legal restriction to interfere with the free interplay of industrial forces and immigration, the quarter century from 1890 to 1914 affords an exceptional opportunity for the analysis of these phenomena.

#### **Method of Analysis.**

The approach in this chapter is, first, by comparisons over the entire quarter century between the cyclical fluctuations in the monthly statistics of male immigration on the one hand and pig iron production and factory employment on the other. Then, to facilitate the study of certain significant details which are apt to be unduly subordinated in comparisons covering as long a period as a quarter century, and particularly to make possible the satisfactory analysis of emigration series which are not available prior to July, 1907, the entire period from 1890 to 1914 has been broken up into shorter segments, each of which includes at least one major or minor industrial depression and one or two years of the preceding period of prosperity and of the succeeding period of recovery. These selected depression periods are: the severe depression of 1894, the depression of 1904, the major depression of 1908, the minor depression of 1911, and the decline beginning in 1913.

This concentration upon short periods facilitates the focusing of attention upon certain details in the reaction of migration to employment which are apt to be overlooked in the more inclusive picture. In the last three of these short periods we introduce comparisons with emigration and with the net results of immigration and emigration. The analysis, however, of the movement of various separate elements in the immigrant current, such as studies by race or occupation, is largely postponed to a subsequent chapter.

As will be noted more in detail in connection with the immediate discussion of each period, the method of analysis differs somewhat from period to period in order to make the most profitable use of data available.

### QUARTER-CENTURY COMPARISONS

In Chart 13 we have depicted the fluctuations of *male immigration and factory employment*. Both series represent deviations from computed trends with the normal seasonal movement eliminated, and hence represent the cyclical fluctuations to the extent that these can be statistically isolated. In plotting these curves the scale unit for each curve is the typical measure of its fluctuations, or the standard deviation, so that the curves are brought into convenient form for comparison of the timing of the cyclical fluctuations. It should be remembered, however, in interpreting these curves, that the method used conceals the fact that the fluctuations in the migration curve are relatively more violent. An approximate measure of the relative violence of fluctuation of the two series is found in their average deviations from trend, which are, respectively, 24.74 per cent for male immigration and 3.40 for employment.

#### **Immigration Fluctuations Lag Behind Employment Changes.**

These series and others subsequently discussed have been examined for the degree of consistency in their timing by two methods. In the first place a graphic comparison was made by plotting the curves on separate sheets and superimposing them over an illuminated chartbox with varying degrees of lag assigned to the migration curve. Then, in significant cases, coefficients of correlation have been calculated as one means of testing the conclusions reached from the graphic comparisons.

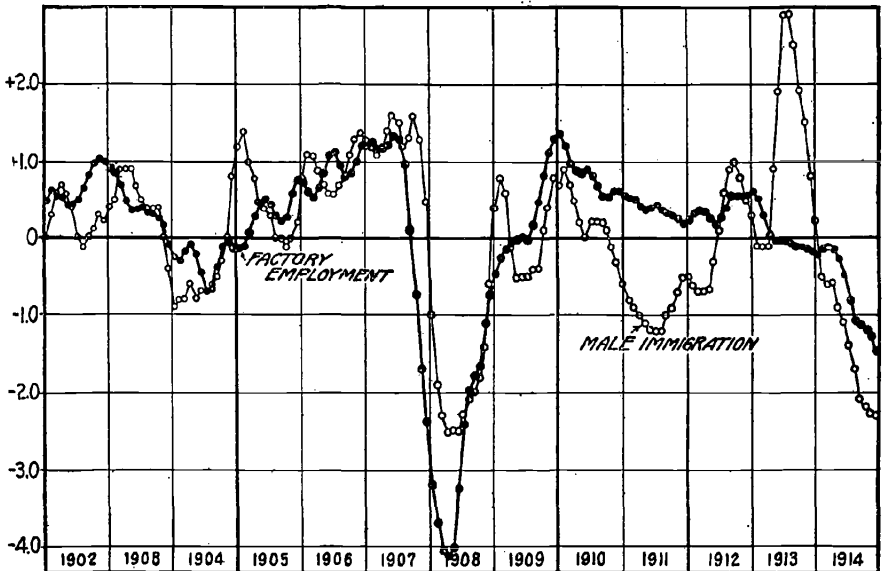
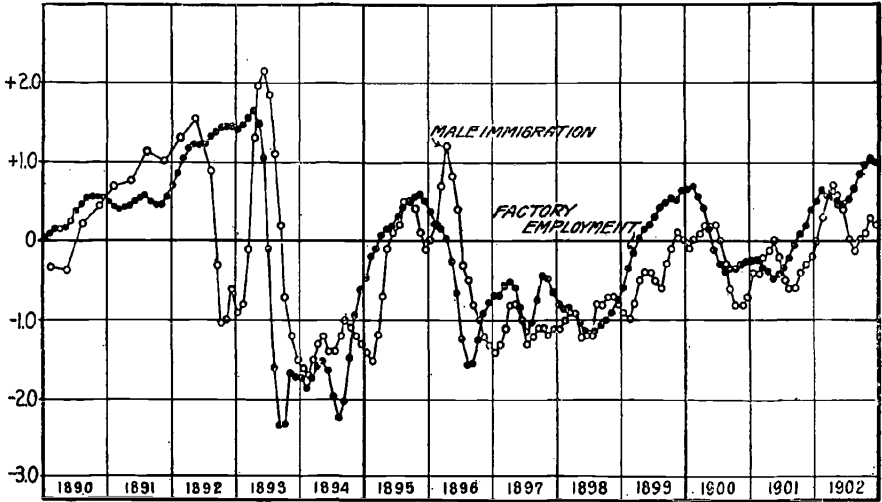
It is quite obvious upon a brief examination of Chart 13 that in general contour the fluctuations of male immigration and factory employment bear a marked resemblance. Both show a decided depression in 1894, a checkered recovery through the late nineties, a mild depression in 1904, a boom in 1906 and 1907, followed by the severe depression of 1908, a new high in early 1910, and a sharp decline in 1914.

There are also a few striking differences which challenge attention. The sharp drop in immigration in the latter part of 1892, a temporary crest in the latter part of 1904 and the first months of 1905,

### CHART 13

## CYCLICAL FLUCTUATIONS IN MALE IMMIGRATION AND FACTORY EMPLOYMENT: 1890-1914.

*Three-month moving averages of deviations from trend, corrected for seasonal variation. Unit=one standard deviation*



\*The numerical data for the male immigration curve are in Appendix Table III. The employment curve represents a three-month moving average of data in Appendix Table V, expressed in multiples of their standard deviation, 4.55 per cent.

and the marked boom in 1913 find no close counterparts on the employment curve. Also the depression of 1911 is more clearly defined on the immigration curve. Various minor irregularities may also be detected, but none of these differences appear sufficient to overcome the presumption raised by the general similarity in movement, that fluctuations in the two series are to a large extent cause and effect or are dominated by common causes.

When the curves are closely examined to determine the extent to which the major turns in the two curves coincide, it appears that they agree most closely when it is assumed that the fluctuations in immigration lag from two to four months after the corresponding fluctuations in the employment curve. This statement is not, of course, to be interpreted as meaning that the lag is always from two to four months. For example, the high points in 1893 and the low points in 1908 appear to be approximately simultaneous.<sup>1</sup>

#### **Indexes of Industrial and Commercial Activity.**

The employment curve used in the above comparison is constructed from limited material and, as noted, there are some relatively large fluctuations in migration, notably in 1892, 1905, 1909, 1911, and 1913, for which the factory employment curve does not afford adequate explanation.

#### **Pig Iron Production.**

For additional evidence we turn first to a comparison with an index of pig iron production corrected for computed trend and seasonal variation by methods described in Chapter III. In Chart 14 this series is plotted together with the male immigration curve for the quarter century 1890-1914. As in the comparison with the factory employment curve, in most of their major movements the two curves agree, especially in the second half of the period. The immigration curve appears to lag at the major turn from one to four months, although there are a number of instances, particularly at the turning points of moderate booms or depressions, where the immigration curve turns first.<sup>2</sup>

An examination of the pig iron curve affords some explanation of certain immigration fluctuations which we noted as contrary to

<sup>1</sup>The conclusion reached from visual inspection of the charts is supported by the mathematical computation of coefficients of correlation with various intervals of lag. When it is assumed that there is no lag, a coefficient of  $+ .66$  is obtained; when immigration is assumed to lag two months, the coefficient is  $+ .76$ ; four months,  $+ .72$ ; and six months,  $+ .55$ .

<sup>2</sup>With no lag assumed, the correlation of the monthly indices is  $+ .63 \pm .02$ .

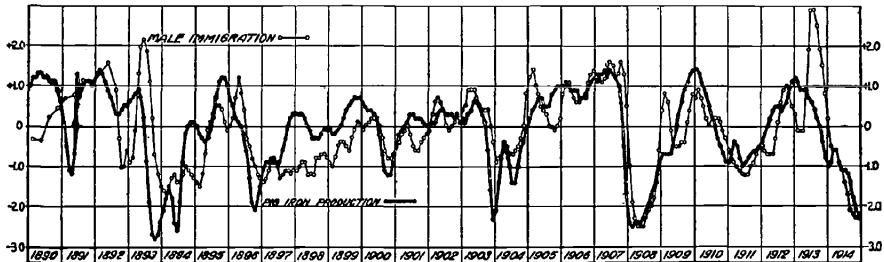
the course of the employment curve. A drop in the pig iron curve in 1892 suggests a recession in industrial activity which may account for the immigration slump later in that year; also, pig iron production shows a decline in 1911 which harmonizes well with the migration slump in that year.

In some respects pig iron production is a better index of employment opportunity than our index of factory employment. Iron is basic to many industries, including, for example, building construction, for which we have no adequate direct statistics of

CHART 14

### CYCLICAL FLUCTUATIONS IN MALE IMMIGRATION AND PIG IRON PRODUCTION: 1890-1914.

*Three-month moving averages of deviations from trend, corrected for seasonal variation. Unit=one standard deviation*



•The numerical data for the male immigration curve are in Appendix Table III; the pig iron curve represents a three-month moving average of the data in Appendix Table VI, expressed in multiples of their standard deviation, 17.13 per cent.

employment. It also has a wider geographic scope than the employment index. The evidence, therefore, of similarities to the pig iron curve should strengthen the conclusion previously reached to the effect that male immigration fluctuates in rather close sympathy with employment; but lags somewhat, though apparently only two to four months.

#### Clearings index.

A comparison was also made between male immigration and an index of business prepared by Mr. Carl Snyder of the Federal Reserve Bank of New York.<sup>3</sup> This index is based on bank clearings outside of New York deflated by a general index of prices designed

<sup>3</sup>*Journal of the American Statistical Association*, September, 1924, p. 335.

to represent the best estimate of the course of prices of those goods and services which constitute the bulk of clearings. Mr. Snyder has demonstrated that this curve may be interpreted as a measure of the volume of trade and ordinarily anticipates the fluctuation of production.

This index does not differ materially from those for factory employment and pig iron production, though the lag between its changes and those in migration is somewhat greater. The maximum correlation, judging from visual inspection, is obtained when a lag of about four months is assigned to immigration.

## SHORT-PERIOD IMMIGRATION AND EMIGRATION STUDIES

### The Period from 1892 to 1902, inclusive.

This period was marked by a prolonged depression, with a temporary recovery in 1895, followed toward the end of the decade by the beginning of an era of industrial expansion, accompanied by rising immigration. Aside from the growth movement, which has been approximately eliminated by the device of expressing the data as deviations from an eighty-four month moving average, the features just mentioned may be observed by reference to Chart 13 on page 92.

We have previously noted the approximate similarity in the general contour of the immigration and the factory employment curves. While immigration evidences a slump in the latter part of 1892 and early in 1893 which is not shown on the employment curve, it quickly recovers and reaches a high point in 1893 about two months after the employment curve reaches its crest. Both show clearly the decline in 1893 and the subsequent depression. Both recover in 1895 and decline again in 1896, but the migration decline begins about five months later than the employment decline and continues for about five months later. Both series experience a long rise beginning in 1898.

### The Depression of 1893-1894.

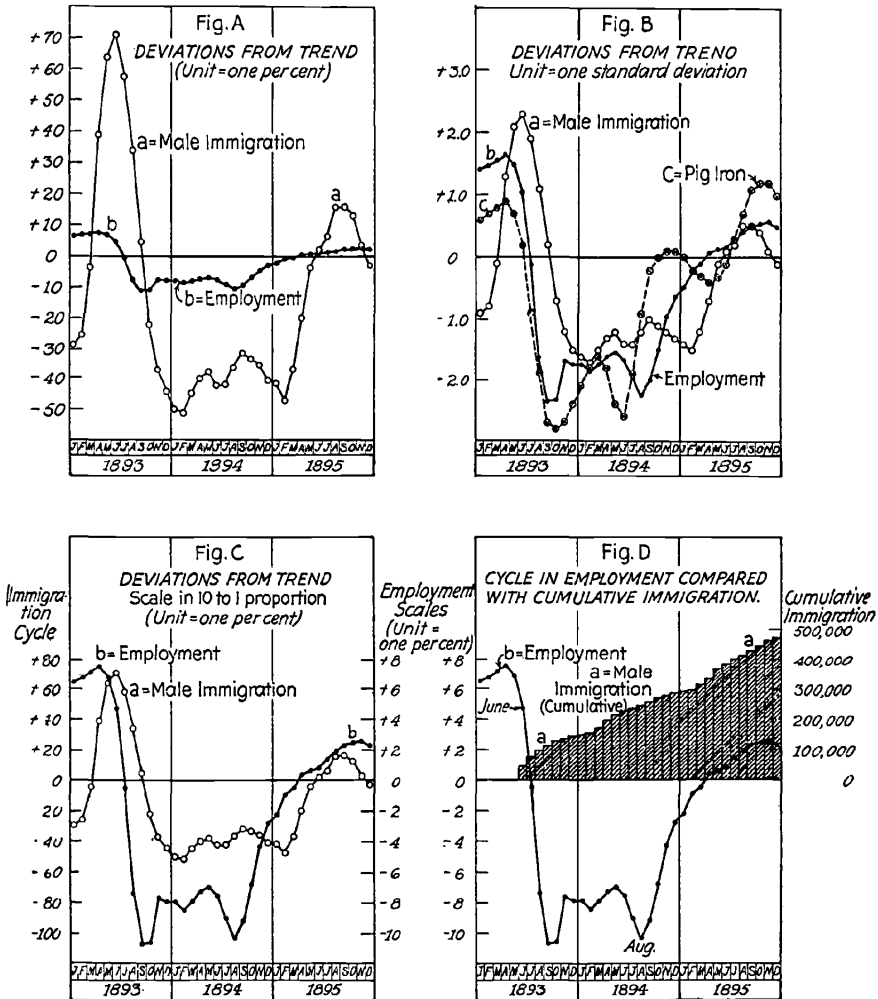
Because of the relatively scant data upon which comparisons of industrial activity and immigration are based in the nineties, too much importance should not be attached to conclusions reached by a study of this period until they are substantiated by reference to the more complete information available in later years. However, the depression of 1893-94 affords an opportunity to illustrate and compare various available methods of analysis and presentation.



CHART 15

DEPRESSION OF 1893-94.

Four Methods of Comparing Immigration and Economic Conditions



\*Based upon data in Table 20 and Appendix Table VI.  
 Fig. A=Percentage deviations from trend (Unit=one per cent).  
 Fig. B=Deviations from trend (Unit=one standard deviation).  
 Fig. C=Deviations from trend (Adjusted scales, ratio 10 to 1).  
 Fig. D=Deviations of employment from trend, and cumulative immigration.

TABLE 20.—FACTORY EMPLOYMENT AND MALE IMMIGRATION IN THE DEPRESSION OF 1893-1894

YEAR AND MONTH	THREE-MONTH MOVING AVERAGE OF PERCENTAGE DEVIATIONS FROM TREND <sup>a</sup>		NUMBER OF IMMIGRANTS <sup>b</sup> (THOUSANDS)	
	FACTORY EMPLOYMENT	IMMIGRATION	IN SPECIFIED MONTH	TOTAL NUMBER SINCE JUNE, 1893
1893				
Jan.....	+6.4	-28.7	8.8	.....
Feb.....	+6.7	-25.6	8.2	.....
Mar.....	+7.1	- 3.7	28.7	.....
Apr.....	+7.5	+39.1	51.8	.....
May.....	+6.8	+63.8	65.2	.....
June.....	+4.7	+71.0	43.6	.....
July.....	-0.5	+57.7	29.4	73.1
Aug.....	-7.4	+33.9	23.3	96.3
Sept.....	-10.7	+4.8	16.9	113.3
Oct.....	-10.6	-21.9	14.4	127.6
Nov.....	-7.7	-37.0	10.6	138.3
Dec.....	-7.9	-44.1	7.3	145.6
1894				
Jan.....	-7.9	-49.7	5.9	151.4
Feb.....	-8.5	-51.0	6.3	157.7
Mar.....	-7.9	-44.8	13.1	170.8
Apr.....	-7.3	-39.9	24.4	195.2
May.....	-7.0	-37.5	19.7	214.9
June.....	-7.5	-42.1	12.8	227.6
July.....	-9.0	-41.8	9.6	237.2
Aug.....	-10.3	-36.0	8.9	246.1
Sept.....	-9.2	-31.1	11.5	257.6
Oct.....	-6.8	-32.9	12.5	270.1
Nov.....	-4.3	-35.2	8.2	278.3
Dec.....	-2.8	-40.4	8.3	286.6
1895				
Jan.....	-2.2	-41.6	5.5	292.1
Feb.....	-0.9	-46.8	6.3	298.5
Mar.....	-0.5	-36.6	11.6	310.1
Apr.....	+0.4	-19.8	26.3	336.4
May.....	+0.6	- 3.6	28.9	365.3
June.....	+0.8	+ 2.4	19.6	384.9
July.....	+1.4	+66.4	15.4	400.3
Aug.....	+1.9	+15.9	14.5	414.8
Sept.....	+2.3	+16.0	17.3	432.1
Oct.....	+2.5	+13.3	16.1	448.2
Nov.....	+2.6	+ 3.8	13.6	461.8
Dec.....	+2.3	- 2.6	10.8	472.7

<sup>a</sup>Computed from Tables II and IV (in appendix) by methods described in Chapter III.<sup>b</sup>Compiled from Table II (in appendix).

In Chart 15 we have the relation of factory employment to male immigration in the three years 1893 to 1895 presented in four different ways. These four charts, though based on the same fundamental data, do not look closely similar nor do they convey the same impression.

In Fig. A, the series are expressed as percentage deviations from their computed trends. The impression received from this section of the chart is that fluctuations in employment are relatively minor as compared with those of immigration. This is literally correct, but the resulting impression is misleading, for the chart conveys no suggestion of the fact that a one per cent fluctuation in employment involves a much larger number of men than a one per cent change in immigration. Nor is it easy to determine from Fig. A whether the fluctuations of the two series are substantially similar in timing and direction. Ease of comparison in timing and direction of movement is obtained by presentation in the form shown in Fig. B; that is, with the data expressed as deviations from their trends measured in terms of the typical deviation of each respective series. This latter method, which has been used in several of the charts in this book, has the distinct advantage of throwing the curves close together and thus facilitating comparison of their changes in direction, but, to avoid false impressions, it should be noted that the numerical significance of a given change is almost entirely concealed. On such a curve the change in immigration may appear exactly equal to that in employment, but we cannot tell from the curve whether the number of men represented by the change in employment is equal to the number affected by the change in immigration or, possibly, one hundred times as great.

For reasons which will be more obvious as we note the many possible bases of comparison, it is practically impossible to select scales which will give a precise and unquestionably true impression of the relative numerical importance of the changes in employment and immigration. However, if we are turning our attention to the relation of changes in the *volume* of employment and immigration, in terms of the number of persons affected, rather than to the timing and direction of such changes, then a more accurate impression is probably obtained by the use of charts similar to those found in Fig. C and Fig. D of Chart 15.

In Fig. C the fluctuations in employment are emphasized by the use of a larger scale than that used for immigration, so that a deviation of one per cent in employment appears as great as a ten per

cent deviation in immigration. This ratio of ten to one is somewhat arbitrarily chosen,<sup>4</sup> nor could the correct ratio be determined without full knowledge of the number of immigrants destined for gainful employment as compared with the number of persons employed in the occupations and geographical areas affected by immigration. However, the visual impression received from Fig. C probably comes closer to a correct interpretation of the relative numbers involved than is furnished by either of the two methods first considered.

But another question arises which is not answered by any of the three graphs so far considered; that is, what is the cumulative immigration during the period of declining employment? In Fig. D we have a comparison between the employment curve shown in Fig. C and a bar chart showing the cumulative number of male immigrants beginning in June, 1893, the first month in which the employment curve shows a decided cyclical drop. Though, as just noted, the employment curve begins to drop sharply in June, immigration continues to some extent, and, while it also declines sharply, in no month of these three years were there less than five thousand immigrant males arriving. By the end of September, 1894, when the employment curve first begins to show a decided recovery, over 270,000 males had immigrated. Obviously, even such a severe depression as that of 1893-1894 did not operate to check immigration completely, and it seems unquestionable that some of these 270,000 newly arrived immigrants from June, 1893, to September, 1894, found employment with great difficulty or replaced others who were forced into the ranks of the unemployed.

However, in interpreting the significance of cumulative immigration in depression periods, it should be noted that, as in Chart 15, the cycle curves ordinarily represent deviations from an upward trend, and this trend in employment may be more than sufficient to offset such upward trend as is present in the available number of workers other than immigrants. In such case, at least part of the cumulative immigration is absorbed by the trend in employment.

In the following pages no one of the four methods of graphic comparison illustrated in Chart 15 has been used exclusively; but in each case the method of presentation has been determined by the

<sup>4</sup>Based upon consideration of the fact that in the early nineties the number of persons engaged in manufacturing was between 4,000,000 and 5,000,000 and the annual immigration then averaged somewhat less than ten per cent of that number; hence the number of persons represented by a one per cent change in factory employment was roughly approximate to the number involved in a ten per cent change in immigration.

character of the data and the particular aspect of the problem which is under consideration. If the reader will note the type of chart used in each instance, it will facilitate his interpretation of the facts portrayed.

#### **Emigration during the Depression of 1893-1894.**

In the preceding discussion of the depression of 1894, we have made no allowance for the fact that there is an outgoing as well as an incoming stream of aliens. Prior to 1907 there were no official statistics of this movement, but something of its extent can be indicated by comparing the movement of incoming male immigrants with the number of outgoing male passengers in steerage, the great bulk of whom were doubtless alien emigrants. In the fiscal year 1892 (ending June 30, 1892) 96,834 male steerage passengers are reported as having departed, or twenty-five for each one hundred male immigrants arriving; in 1893, the proportion is 28 to 100; in 1894, 61 to 100; and in 1895, 79 to 100. While these figures do not give us an exact measure of the numbers of emigrants, they are adequate to indicate that the volume of net immigration was materially reduced by the departure of aliens. We return to these data concerning outgoing passengers at a later point in this chapter.

#### **Depression of 1904.**

As a background for analysis of the fluctuations of migration in the depression of 1904, we have plotted in Chart 16 immigration and factory employment for the five years from 1902 to 1906, inclusive. In so far as the two curves for male immigration and employment, respectively, are concerned, this chart is practically a reproduction of a section of Chart 13 to which we turned our attention earlier in the chapter, except that in this case the minor irregularities of the employment curve have not been smoothed out by reducing them to a three-month moving average, after the correction for trend and seasonal variation was made.

As in the depression of 1894, we again note a general similarity in the cyclical movements of the two series, with a few months lag on the part of immigration, the exact extent of which is rendered less obvious by the minor irregularities of the curves. It will be noted that the effect of the decline in employment which begins at the close of 1902 is not clearly revealed in the immigration curve until June of 1903; but that the first recovery movement in 1904

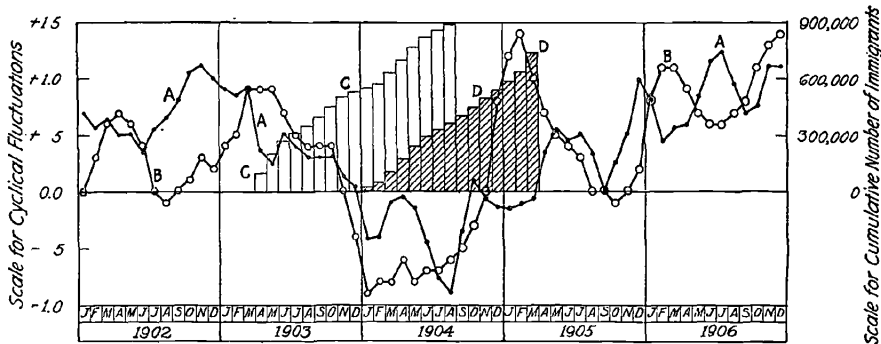
begins almost simultaneously in the two series, although employment suffers a relapse in the middle of the year.

As to the cumulative immigration during the period under consideration, whether we start to cumulate from the time the decline in employment begins in April, 1903, and continue until the lowest point in the employment curve is reached in August, 1904, or

## CHART 16

## DEPRESSION OF 1904

## Cumulative Male Immigration and Cycles in Employment and Male Immigration.



•Explanation of curves and sources of numerical data:

A=Factory employment, cyclical fluctuations (Appendix Table V).

B=Male immigration, cyclical fluctuations, three-month averages (Appendix Table III).

C=Cumulative male immigration from beginning of employment decline (number of immigrants). See Table 21.

D=Cumulative male immigration during period employment was below trend (number of immigrants). See Table 21.

cumulate from January, 1904, to March, 1905, during which period employment was in all months except one below its computed trend—in either case we find that the cumulative number of male immigrants mounts into the hundreds of thousands, as graphically represented by the vertical bars in Chart 16.

That this gross immigration was probably offset to a considerable extent by emigration is suggested by the fact that in the year ending June 30, 1904, the number of outgoing male steerage passengers was approximately 209,000.

The years covered by the immediately preceding discussion were included in a study of cyclical fluctuations made by Professor Alvin

H. Hansen. He correlated various monthly series with wholesale prices in the United States, and found the maximum correlation of prices with immigration (+.696) to occur when no lag is assigned to either series, but that the maximum correlation of employment and prices is obtained when unemployment changes are assumed to precede prices by three months. He makes the surmise that this earlier movement in employment "may possibly be explained in part at least by the fact that the building series precedes the in-

TABLE 21.—CUMULATIVE NUMBER OF MALE IMMIGRANTS DURING THE DECLINE AND DEPRESSION PERIOD OF 1903-1904\*

Thousands of Persons

YEAR AND MONTH	NUMBER ARRIVED		YEAR AND MONTH	NUMBER ARRIVED	
	SINCE MARCH, 1903 <sup>b</sup>	SINCE DEC., 1903 <sup>c</sup>		SINCE MARCH, 1903	SINCE DEC., 1903
1903			1904 (con.)		
Apr.....	100.3	.....	Apr.....	698.9	175.2
May.....	200.1	.....	May.....	768.5	244.8
June.....	268.2	.....	June.....	817.3	293.6
July.....	312.1	.....	July.....	854.3	330.6
Aug.....	353.1	.....	Aug.....	890.9	367.2
Sept.....	399.9	.....	Sept.....	.....	406.4
Oct.....	451.1	.....	Oct.....	.....	448.9
Nov.....	495.0	.....	Nov.....	.....	495.5
Dec.....	523.7	.....	Dec.....	.....	539.9
1904			1905		
Jan.....	543.2	19.5	Jan.....	.....	582.4
Feb.....	567.5	43.8	Feb.....	.....	634.9
Mar.....	629.6	105.9	Mar.....	.....	736.7

\*Compiled from Table II, in appendix.

<sup>b</sup>The data in this column cover the period of declining factory employment.

<sup>c</sup>The data in this column cover the period during which factory employment was below its computed trend.

dustrial group by several months. The slackening of building operations would affect unemployment."

While Professor Hansen did not compute directly the correlation of immigration with pig iron and imports, his correlation with prices would suggest that the maximum degree of correlation between immigration and pig iron would be reached with immigration lagging one month, and likewise for imports.

It may be mentioned in passing that other students of cyclical fluctuations in the first decade or so of the present century have found a close relation between immigration and industrial activity. The Brookmire service, in analyzing various cyclical phenomena

preparatory to the construction of an index of business conditions, puts immigration with the Business Group, which includes clearings, pig iron production, pig iron prices, commodity prices, imports, building, and railroad earnings; Babson groups immigration with new building, commercial failures, and clearings; and Persons, with pig iron production, prices, etc.

### Departing Steerage Passengers.

In examining the depression periods of 1894 and 1904, we have noted incidentally that the volume of departing steerage passengers furnishes a rough index of emigration. Also, beginning in July, 1907, official statistics of emigration are available; hence, before we turn to a comparison of employment and migratory movements in the depression of 1908, it will be of advantage to note the chief characteristics of the emigration movement and its relation to immigration.

As previously noted, official statistics of emigration are lacking prior to July, 1907, but for most of the years subsequent to the Civil War there are statistics of the number of departing passengers, made available to the Government by the courtesy of the steamship companies. These data are classified as "cabin" and "other than cabin" or steerage passengers, and also by sex. The male steerage passengers probably afford the best index of the departures of alien workers from this country. The ratio of the number of departing male steerage passengers to the number of incoming male immigrants affords an approximate measure of the response of the net migration of workers to employment opportunity in this country. This ratio is not to be taken as representing the exact numerical relation of incoming immigrants to departing emigrants, for the numerator of the ratio, male immigrants, does not include those coming for a temporary sojourn (the non-immigrant group); while the denominator, "other than cabin" passengers, is not, in all probability, a complete count of emigrant aliens, though it doubtless includes some nonemigrant aliens and some citizens of the United States. For example, in the years (fiscal) 1908 and 1909 the number of departing male steerage passengers was 578,097 and the number of officially recorded male emigrant aliens was 501,892. However, it is probable that such differences are relatively constant, and hence when the ratio of departing steerage passengers to incoming immigrants is low it is an indication that emigration is light as compared to immigration. If the ratio is high when industrial

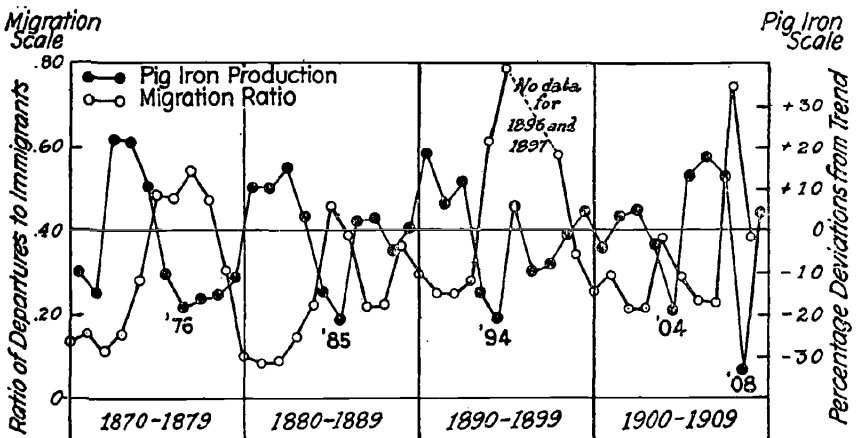


depression exists and relatively low in boom times, this may be taken as evidence that net immigration is closely correlated with employment conditions.

In Table 22 and Chart 17 we have this ratio of male steerage passengers departing to male immigrants arriving, compared with the deviations of pig iron production from its trend (seven-year moving average). In interpreting this chart, it must be remembered

CHART 17

RELATION BETWEEN CYCLES IN PRODUCTION OF PIG IRON AND RATIO OF DEPARTING ALIEN MALE STEERAGE PASSENGERS TO MALE IMMIGRANTS: 1870-1909.



\*The pig iron curve is computed from data in Table 12-A; the data for the migration ratio curve are in Table 22.

that the pig iron figures are for calendar years, but the migration ratios are for years ending June 30th; so that, for example, the low point in pig iron production in 1908 represents the pig iron production for the twelve months ending December 31st, and the 1908 migration ratio refers to the twelve months ending June 30, 1908.

Though the limitations of the data prevent precise comparisons, it is obvious from an examination of Chart 17 that there is a high degree of inverse correlation between industrial conditions as measured by pig iron production and the ratio of departing male steerage passengers to male immigrants. When pig iron production is at low ebb, as in the late seventies, the middle eighties, the middle nineties, and in 1904 and 1908, then the outgoing flow is large relative to the incoming flow.

TABLE 22.—RATIO OF DEPARTING MALE STEERAGE PASSENGERS TO MALE IMMIGRANTS: 1870-1909<sup>a</sup>

YEAR ENDING JUNE 30	A	B	C	YEAR ENDING JUNE 30	A	B	C
	MALE IMMI- GRANTS (THOUS- ANDS)	MALE STEERAGE PASSEN- GERS (THOUS- ANDS)	RATIO B ÷ A		MALE IMMI- GRANTS (THOUS- ANDS)	MALE STEERAGE PASSEN- GERS (THOUS- ANDS)	RATIO B ÷ A
1870	225.6	31.9	.135	1890	281.9	83.1	.295
1871	190.4	29.9	.157	1891	354.1	89.0	.251
1872	240.2	27.2	.113	1892	385.8	96.8	.251
1873	275.8	42.1	.153	1893	315.8	88.3	.280
1874	189.2	53.2	.281	1894	184.0	112.9	.614
1875	140.0	67.6	.483	1895	157.3	123.8	.787*
1876	111.8	53.3	.477	1896	212.5	.... <sup>b</sup>	....
1877	92.0	49.7	.540*	1897	135.1	.... <sup>b</sup>	....
1878	86.3	40.8	.473	1898	135.7	78.6	.579
1879	111.9	33.9	.303	1899	227.1	78.1	.344
1880	287.6	28.8	.100	1900	304.1	78.2	.257
1881	410.7	33.9	.082	1901	331.1	96.8	.292*
1882	498.8	45.5	.091	1902	466.4	100.0	.214
1883	363.9	53.7	.147	1903	613.1	132.9	.217
1884	308.5	68.9	.223	1904	549.1	209.2	.381*
1885	226.4	104.0	.459*	1905	724.9	210.3	.290
1886	200.7	78.5	.391	1906	764.5	179.9	.235
1887	306.7	67.1	.219	1907	930.0	215.0	.231
1888	345.4	77.8	.225	1908	506.9	378.2	.746*
1889	263.0	95.7	.364*	1909	520.0	199.9	.384

<sup>a</sup>From U. S. Bureau of Statistics, *Arrivals of Alien Passengers and Immigrants into the United States from 1820-1892* (pamphlet); the Monthly Summary of Commerce and Finance, June, 1903, pp. 4362-64; and the *Statistical Abstract of the United States*.

<sup>b</sup>No data published for 1896 and 1897.

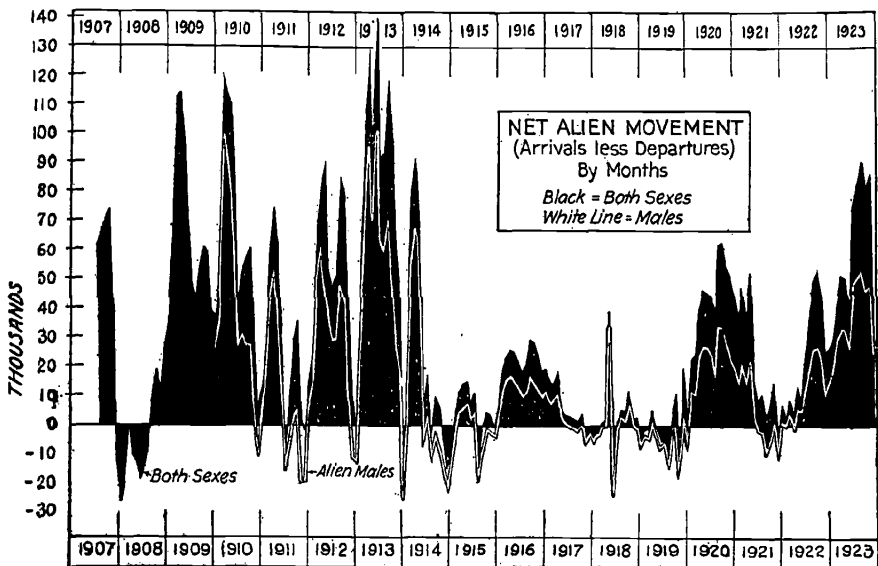
\*Peaks in the ratio.

Let us turn to the more detailed picture of emigration afforded by the monthly statistics of emigration which are available for the period beginning with July, 1907.

### Net Alien Arrivals, by Months.

In Chart 18 we have a representation of the net increase or decrease in population through the arrival or departure of aliens, both immigrant and nonimmigrant, emigrant and nonemigrant. The net movement for both sexes is shown by the solid silhouette—that for alien males only, by the double line which traverses the silhouette and occasionally falls below it. Broadly speaking, this curve reveals the tendency of the net movement to correlate directly

CHART 18\*



\*Numerical data in Tables 23 and 24.

TABLE 23.—NET ALIEN ARRIVALS, BY MONTHS, JULY, 1907, TO DECEMBER, 1923—  
Alien immigrants and nonimmigrants less alien emigrants and nonemigrants, of both sexes.  
Thousands of persons.

Year	Total for Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1907	.....	.....	.....	.....	.....	.....	.....	61.3	66.8	71.6	73.7	38.2	d11.3
1908	441.2	d27.2	d20.4	*	d10.5	d13.0	d19.4	d14.4	d 8.0	12.8	18.8	12.4	27.7
1909	802.7	36.9	66.9	112.5	114.1	95.9	68.3	50.0	43.5	55.1	61.5	58.9	39.0
1910	763.9	37.2	48.4	121.1	113.0	110.1	79.7	43.1	54.3	57.4	61.1	31.4	7.0
1911	326.0	12.8	24.5	58.1	74.4	62.5	25.4	d8.1	10.8	28.4	35.7	1.7	d0.2
1912	646.7	15.6	25.6	67.8	80.9	90.3	53.3	47.7	51.4	85.2	79.3	38.0	11.8
1913	1018.0	d1.8	41.2	90.4	129.7	102.3	140.3	91.9	93.6	118.8	98.5	63.1	50.1
1914	262.9	d16.1	21.4	80.1	92.0	69.1	6.9	17.1	d 2.9	9.9	5.8	d 5.4	d15.1
1915	43.0	d10.9	4.5	11.2	14.1	14.7	7.0	11.1	d14.3	d 2.0	4.9	3.3	d 0.6
1916	263.9	7.3	19.4	23.8	26.1	24.7	22.2	18.2	21.4	29.3	28.3	24.2	18.8
1917	80.7	19.6	14.7	14.1	18.8	5.3	3.6	2.8	2.2	1.7	3.8	d 4.5	d 1.5
1918	41.5	d 4.1	d 3.7	0.6	1.5	39.3	d19.6	0.4	5.6	4.8	12.0	2.3	2.4
1919	4.6	d 5.1	d 1.4	d 1.2	5.5	d 0.3	d 4.1	d 5.7	d 9.6	4.9	11.3	d 9.8	19.9
1920	495.1	3.2	22.6	24.2	40.2	46.3	45.8	44.5	36.7	62.3	63.2	54.8	51.3
1921	280.1	45.9	37.9	47.9	38.0	52.6	16.9	8.6	10.4	3.1	7.0	15.0	d 3.2
1922	277.4	7.0	3.2	8.8	4.2	13.7	9.3	22.4	35.5	49.8	53.4	44.9	25.2
1923	706.8	26.8	29.9	42.7	51.4	50.5	40.5	76.3	83.2	91.3	82.4	86.9	44.9

\*A portion of the above table is compiled from unpublished statistics made available by the courtesy of the U. S. Bureau of Immigration; the balance is based upon data also compiled by the Bureau of Immigration and appearing in the following publications: U. S. Bureau of Immigration and Naturalization, *Immigration Statement and Inward Passenger Movement* (July, 1907, to February, 1909, inclusive); *Immigration Bulletin* (March, 1909, to December, 1917, inclusive); *U. S. Immigration Service Bulletin* (April 1, 1918, to August 1, 1919); and the *Annual Reports* of the Commissioner General of Immigration. For some portions of the post-war period the monthly data were obtained from the U. S. Bureau of Labor Statistics, *Monthly Labor Review*.

<sup>d</sup>—excess of departures over arrivals.

\*—Less than 50.

TABLE 24.—NET MALE ALIEN ARRIVALS, BY MONTHS, JANUARY, 1910, TO DECEMBER, 1923\*

Male alien immigrants and nonimmigrants less male alien emigrants and nonemigrants  
Thousands of Persons

YEAR	TOTAL FOR YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1910	503.8	26.1	37.3	99.1	90.0	82.5	56.5	26.4	31.3	27.5	27.7	8.4 <sup>d</sup>	9.2
1911	112.5	4.0	14.0	41.9	51.9	37.6	11.5 <sup>d</sup>	14.5 <sup>d</sup>	3.5	3.0	5.8	19.7 <sup>d</sup>	19.5
1912	367.4	5.0	14.4	48.6	56.7	60.7	35.5	29.4	30.1	47.6	41.9	8.2 <sup>d</sup>	10.7
1913	638.3 <sup>d</sup>	13.0	25.4	64.0	95.9	71.9	101.5	63.7	59.8	69.8	51.5	29.7	18.2
1914	89.5 <sup>d</sup>	24.7	9.5	57.2	67.1	42.0	4.8	2.5 <sup>d</sup>	11.5 <sup>d</sup>	3.5 <sup>d</sup>	8.5 <sup>d</sup>	14.6 <sup>d</sup>	21.1
1915	24.0 <sup>d</sup>	14.1	0.2	4.5	6.5	7.8	2.0	4.5 <sup>d</sup>	17.9 <sup>d</sup>	9.3 <sup>d</sup>	2.2 <sup>d</sup>	2.2 <sup>d</sup>	3.8
1916	152.1	3.2	11.9	15.7	17.0	15.5	13.1	9.8	11.5	17.3	14.6	13.0	9.4
1917	32.8	11.7	7.9	8.7	11.3	2.7	0.5 <sup>d</sup>	0.1 <sup>d</sup>	0.6 <sup>d</sup>	1.5	0.4 <sup>d</sup>	5.4 <sup>d</sup>	2.9
1918	8.6 <sup>d</sup>	5.5 <sup>d</sup>	3.3 <sup>d</sup>	1.4 <sup>d</sup>	0.1	35.4 <sup>d</sup>	24.7 <sup>d</sup>	1.6	2.6	1.0	6.7 <sup>d</sup>	*	0.4
1919	61.1 <sup>d</sup>	6.5 <sup>d</sup>	3.4 <sup>d</sup>	4.3	1.0 <sup>d</sup>	3.6 <sup>d</sup>	7.7 <sup>d</sup>	7.9 <sup>d</sup>	12.5 <sup>d</sup>	3.8 <sup>d</sup>	0.6 <sup>d</sup>	15.9	4.0
1920	255.4 <sup>d</sup>	6.6	11.9	10.6	24.5	27.3	27.1	24.9	17.5	34.2	33.4	28.0	22.4
1921	70.0	19.6	15.1	21.4	15.1	22.1	2.7 <sup>d</sup>	1.8 <sup>d</sup>	2.0 <sup>d</sup>	8.1 <sup>d</sup>	5.2	0.8 <sup>d</sup>	9.6
1922	132.4	0.9 <sup>d</sup>	0.1	3.5 <sup>d</sup>	0.9	6.0	5.0	13.1	18.6	25.9	27.0	22.1	11.2
1923	428.4	15.0	18.8	29.5	33.4	33.1	26.8	48.5	51.3	53.1	45.7	48.8	24.4

\*For sources of data see Table 23.

<sup>d</sup>=excess of departures over arrivals.

\*=less than 50.

with business conditions. The depression periods of 1907 to 1908, 1911, 1913 to 1914, 1919, and 1921 to 1922, all show a net emigration, preceded, except in 1919, by a relatively large net immigration. The seasonal movement is not eliminated from this chart and, consequently, some of the lower points toward the end of each year are largely due to the normal coincidence of low immigration and high emigration in the late fall.

Before endeavoring to make a more refined analysis of the relation of net immigration to employment conditions, let us note briefly the characteristics of the cyclical fluctuations in monthly male emigration in the few years prior to the war for which such data are available.

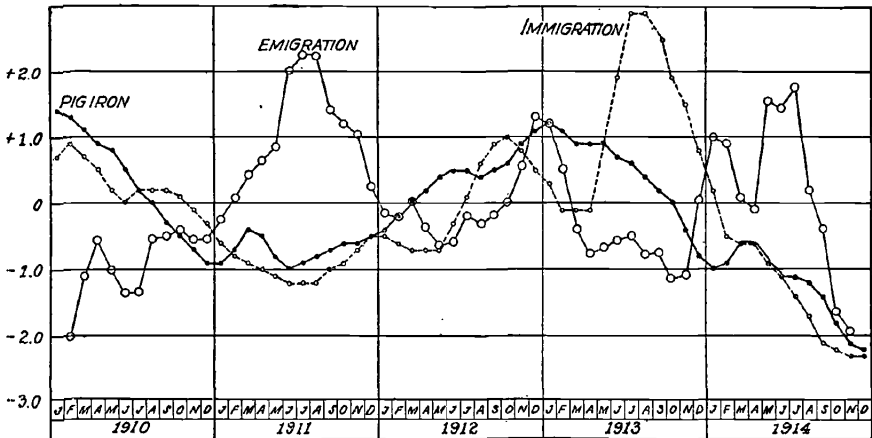
#### Male Emigration: 1910-1914.

The cyclical fluctuations in emigration are the inverse of the cyclical fluctuations in immigration. When industry booms, immigration increases and emigration decreases; when industry is dull, immigration declines and emigration increases. This inverse correlation of the inflow and outflow of aliens may be illustrated by comparing the monthly data in Chart 19 for male immigrants, male emigrants, and pig iron production, all three series being adjusted so as to eliminate the typical influence of seasonal factors.

Through 1910 immigration and production are, on the whole, declining, and emigration increasing. In 1911 production recovers temporarily, declines again, and then begins a steady recovery; immigration exhibits a clear depression, from which recovery begins in September; while emigration shows a distinct boom, with a decided decline in September. In 1912 and 1913 the inverse relation-

CHART 19

## CYCLICAL MOVEMENTS IN EMIGRATION, IMMIGRATION, AND PIG IRON PRODUCTION.

*Three-month moving average**Unit = one standard deviation*

The numerical data for the immigration curve are in Appendix Table III; for the emigration curve, in Table 25; and the data for the pig iron curve are computed from Appendix Table VI. The immigration and pig iron curves represent deviations from trends; the emigration curve, deviations from the mean for the period.

ship, though still evident, is less perfect. In 1912 both production and immigration rise, but immigration suffers a setback at the close of the year, while emigration after a mild decline in the first part of the year rises toward the close. In 1913 production declines steadily, immigration rises to a sharp but briefly maintained peak, while emigration declines until about the end of the year. In 1914 immigration is low and emigration high during the first seven months, after which, under war conditions, both decline.

TABLE 25.—CYCLES IN MALE EMIGRATION, BY MONTHS: 1910-1914\*

Three-month moving average of percentage deviations from the mean for the period, expressed as multiples of their standard deviation (19.1 per cent).

YEAR AND MONTH	DEVIATION	YEAR AND MONTH	DEVIATION
<b>1910</b>		<b>1912</b>	
Jan.....	.....	July.....	-0.2
Feb.....	-2.0	Aug.....	-0.3
Mar.....	-1.1	Sept.....	-0.2
Apr.....	-0.6	Oct.....	.0
May.....	-1.0	Nov.....	+0.6
June.....	-1.4	Dec.....	+1.3
July.....	-1.3	<b>1913</b>	
Aug.....	-0.5	Jan.....	+1.2
Sept.....	-0.5	Feb.....	+0.5
Oct.....	-0.4	Mar.....	-0.4
Nov.....	-0.6	Apr.....	-0.8
Dec.....	-0.5	May.....	-0.7
<b>1911</b>		June.....	-0.6
Jan.....	-0.2	July.....	-0.5
Feb.....	+0.1	Aug.....	-0.8
Mar.....	+0.4	Sept.....	-0.7
Apr.....	+0.6	Oct.....	-1.1
May.....	+0.9	Nov.....	-1.1
June.....	+2.0	Dec.....	+0.1
July.....	+2.3	<b>1914</b>	
Aug.....	+2.3	Jan.....	+1.0
Sept.....	+1.4	Feb.....	+0.9
Oct.....	+1.2	Mar.....	+0.1
Nov.....	+1.0	Apr.....	-0.1
Dec.....	+0.3	May.....	+1.6
<b>1912</b>		June.....	+1.5
Jan.....	-0.2	July.....	+1.8
Feb.....	-0.2	Aug.....	+0.2
Mar.....	.0	Sept.....	-0.4
Apr.....	-0.4	Oct.....	-1.6
May.....	-0.6	Nov.....	-1.9
June.....	-0.6	Dec.....	.....

\*Computed from monthly emigration statistics in the U. S. Bureau of Immigration and Naturalization, *Immigration Bulletin* (monthly).

### The Volume of Unemployment and the Volume of Immigration.

The analysis in the preceding sections has indicated rather clearly that fluctuations in both emigration and immigration are closely related to employment conditions in this country.

The question next arises as to the extent to which the volume of immigration is numerically comparable with the contemporaneous volume of unemployment. It is obvious that the inadequacy of the

data available makes a precise answer to this question impossible, particularly for the earlier years. However, the available estimates are probably accurate enough to establish within reasonable limits of error the volume relation between migration and unemployment.

Professor Hornell Hart has made an estimate of the numbers unemployed in non-agricultural occupations by months from 1902 to 1917, which will serve for a preliminary comparison of the volume of immigration and the estimated volume of unemployment.\* There is, as suggested above, necessarily a considerable margin of error in these estimates and consequently they should be looked upon, not as giving a refined measure of the volume of unemployment, but as an approximation probably sufficiently close to the truth to permit rough comparisons to be made with a reasonable degree of accuracy.

Upon what basis should the volume of immigration and employment be compared?

#### **Immigration is Appropriately Compared with Changes in the Volume of Employment.**

Immigration represents an addition to the supply of labor over a period of time, and, as to numerical volume, is logically comparable, not so much with the amount of unemployment existing at a given time, as with the change in the number unemployed over the same period of time. This principle may be illustrated by making the assumption that the domestic labor supply is kept regularly employed, with no seasonal or cyclical unemployment. Under such conditions, any changes in the volume of employment would represent additions to or subtractions from the labor supply by migration. Thus, with migratory workers as the sole fluctuating element in employment, there would be perfect correlation between the fluctuations in migration and those in employment. An increase of 100,000 in the number employed would be accompanied by a net immigration of 100,000; a decrease of 50,000 in employment, by a net emigration of 50,000.

But under conditions as they actually exist, employment changes do not correlate perfectly in numbers with migration, and the discrepancy represents either a failure of the immigrants to obtain employment or a change in the number of domestic workers employed. If the net migration is always less than the employment change, but in the same direction—for example, if an excess of

\*For a somewhat fuller description of this estimate, see Chapter III.

emigrants over immigrants is concurrent with an increase in the number unemployed—then migration is clearly an alleviation rather than a primary direct cause of fluctuations in unemployment in the host country. On the other hand, if the net migration of workers exceeds in number the employment change, or is contrary in direction, it is clearly a disturbing factor.

Net migration is obviously the most significant basis for volume comparisons; but, particularly where emigration is not known, the volume of arrivals is important as indicating the magnitude of the absorption task as compared with the current tendencies in employment. Even if the number of arriving immigrants is balanced by an equal number of departing emigrants, it is scarcely to be assumed that the necessary employment adjustments are made without considerable loss of time to the worker and disturbance to industry.

But over what period shall the change in employment and migration be compared? A week, a month, a quarter year, a year, a decade, the period of decline in employment, or the duration of a depression? The answer will depend upon the particular purpose to be served. If the purpose is to show the adjustment of migration to seasonal variations in employment, or to the combined effects of cyclical, seasonal, and other forces, a month-to-month comparison may be pertinent. If it is desired to eliminate in part the erratic month-to-month fluctuations, and yet to restrict the analysis to the effect of relatively current immigration, a three-month comparison is appropriate. If from January to March, inclusive, employment falls off 50,000, and 100,000 working immigrants arrive, it is obvious that their arrival is not well timed and apt to aggravate the unemployment situation. To eliminate seasonal factors, comparisons over twelve-month periods are suitable. In considering a given depression period, it would appear worth while to ascertain the cumulative volume of migration either during the period of decline, or, to change the point of view somewhat, during the depression period—defined herein, ordinarily, as the period during which employment is below its computed trend. It would be somewhat unduly dogmatic to insist that any one of the bases of comparison just mentioned is, in all cases, the most logical. It is worth noting what results are obtained from the use of each of them, and consequently, in the various volume comparisons in this chapter, no invariable basis of cumulation has been adhered to. Accordingly,



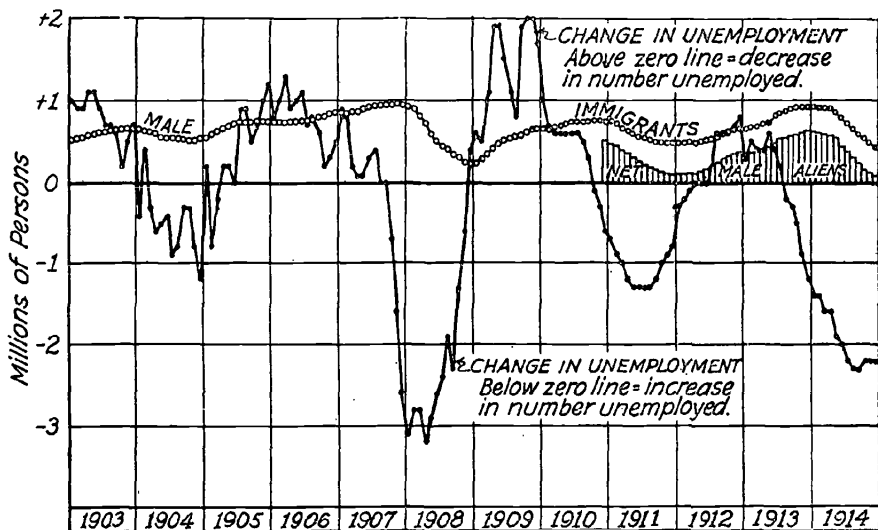
the reader should in each case take into consideration the basis upon which the given comparison rests.

In Chart 20, we have a comparison on a twelve-month basis;

### CHART 20

#### CUMULATIVE MIGRATION AND HART'S ESTIMATE OF CHANGES IN UNEMPLOYMENT IN NON-AGRICULTURAL OCCUPATIONS.

*Totals for twelve months ending in given month*



\*Sources: Male immigrants computed from Appendix Table II.

Net alien arrivals computed from Table 24.

Unemployment change, computed from estimates made by Professor Hornell Hart, see Chapter III.

that is, each point on the male immigration curve represents the aggregate immigration of the preceding twelve months (including the given month) and each point on the unemployment curve represents the *increase* or *decrease* in the number unemployed in non-agricultural pursuits, as estimated by Professor Hart. For example, in the twelve months ending in January, 1903, unemployment is estimated to have decreased one million and in the same twelve months 527,000 male immigrants arrived. It should be noted that on this chart when the unemployment curve is below the line, it represents an increase in unemployment; when above, a decrease.

### Net Male Immigration.

Male emigration statistics are available beginning with January, 1910. Beginning in December, 1910, the vertical bars in Chart 20 show, for each twelve-month period ending with the given month, the excess of arriving over departing male aliens (including both permanent and temporary migrants), hereinafter referred to as net alien male arrivals.

What conclusions can be drawn from the facts shown in Chart 20 concerning the volume relation between unemployment and migration?

In the first place, gross male immigration, disregarding emigration, ordinarily numbered several hundred thousand each twelve months, even in periods like 1911 when unemployment was increasing, and hence represents a volume of immigration which, if not offset by emigration, is large enough to materially aggravate the unemployment situation.

Secondly, the net arrivals of alien males, cumulated over twelve-month periods, show always an excess of arrivals over departures, even in 1911 when the twelve-month change in unemployment shows increases in the numbers unemployed; that is, in each of the twelve-month periods in which unemployment had increased and data on net arrivals are available, migration was evidently aggravating the situation by adding to the number of available workers.

Lastly, in other twelve-month periods, unemployment is decreasing while there is a net excess of arrivals, and in these periods it may be that immigration should be looked upon as increasing in response to an increasing demand for labor. For example, for the twelve-month periods ending in the latter part of 1912 and the early part of 1913, a substantial net immigration is accompanied by a decrease in unemployment.

With this preliminary consideration of the relative volume of unemployment and immigration for the years 1903 to 1914 in mind, let us now return to a consideration of the conditions existing during selected depression periods, beginning with that of 1908.

### Depression of 1908.

The depression of 1908 affords the first opportunity for a close study of the *net* movement of migration during a business cycle, inasmuch as the publication of emigration statistics by months

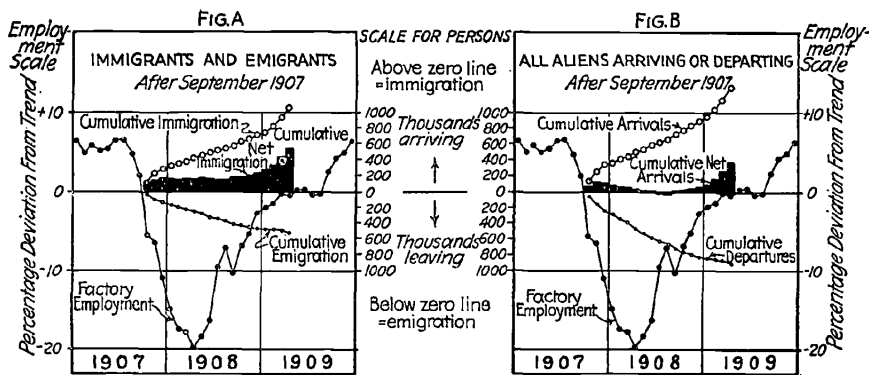
began in July, 1907, shortly before the signs of the depression began to be evident.

Chart 21 portrays the movement of gross and net immigration

CHART 21

COMPARISON OF CUMULATIVE IMMIGRATION AND EMIGRATION WITH  
FACTORY EMPLOYMENT IN THE 1908 DEPRESSION\*

*Number arriving or departing while employment curve is below its trend*



\*Plotted from numerical data in Table 26 and computations based upon Appendix Table IV.

during the period of the depression, which is defined as the period during which our factory curve remained below its computed trend, or from October, 1907, to February, 1909, inclusive. In addition to the employment cycle curve, the left-hand section of the chart shows the total number of alien immigrants arrived after September, 1907, to the end of each respective month, and also the net alien immigration when the number of emigrants is deducted from the cumulative total for immigration. Too much importance should not be assigned to the apparent relative magnitude of the employment and migration fluctuations as the scales are necessarily somewhat arbitrary. They are so chosen that the vertical unit for 100,000 persons is the same as that for a one per cent deviation of employment from its computed trend.

The right-hand section of the chart is similar to the left-hand section, except that the movement of all aliens, both immigrant and non-immigrant, emigrant and non-emigrant, is shown.

TABLE 26.—CUMULATIVE MIGRATION DURING THE 1908 DEPRESSION\*  
(Thousands)

YEAR AND MONTH	A	B	C	D	E	F
	IMMI- GRANTS	EMIGRANTS	NET A-B	ALL ALIEN ARRIVALS	ALL ALIEN DEPART- URES	NET D-E
1907						
Oct.	111.5	28.6	+ 82.9	129.6	55.8	+ 73.7
Nov.	229.0	78.0	+151.0	262.2	150.3	+111.9
Dec.	295.6	124.0	+171.6	339.3	238.7	+100.6
1908						
Jan.	322.8	161.6	+161.1	372.4	298.9	+ 73.4
Feb.	346.2	191.4	+154.8	402.6	349.6	+ 53.0
Mar.	378.7	217.0	+161.7	446.2	393.1	+ 53.1
Apr.	420.0	255.8	+164.1	501.4	458.8	+ 42.6
May	456.3	287.7	+168.6	549.6	520.1	+ 29.5
June	488.2	320.6	+167.7	590.7	580.6	+ 10.2
July	515.8	351.3	+164.5	627.9	632.1	— 4.2
Aug.	543.6	379.8	+163.8	667.5	679.7	— 12.2
Sept.	581.8	404.7	+177.1	724.1	723.5	+ 0.6
Oct.	622.8	428.0	+194.8	784.8	765.5	+ 19.4
Nov.	659.9	449.0	+210.9	835.8	804.1	+ 31.7
Dec.	705.9	465.4	+240.5	896.9	837.5	+ 59.4
1909						
Jan.	749.8	475.9	+273.9	951.9	855.5	+ 96.3
Feb.	816.9	484.5	+332.4	1033.9	870.6	+163.2
Mar.	929.9	498.6	+431.4	1168.9	893.2	+275.7
Apr.	1046.7	513.1	+533.6	1307.3	917.5	+389.8

\*Defined as from October, 1907, to April, 1909, during which period our index of factory employment in selected states was below its computed trend. For sources of the data in this table, see Table 23. Employment is only slightly below trend in March and April of 1909.

### Comparison of Fluctuations.

Immigration, while partially checked, never ceased during the depression of 1907-1908. From October, 1907, to February, 1909, the depression period as delimited by us, over 800,000 immigrant aliens arrived, half of them while employment was still on the decline. On the other hand, emigration greatly increased after the depression set in, reducing the net migration during the fifteen months under consideration to 332,000.

The statistics just cited deal only with those officially classified as immigrants and emigrants. In the right-hand section of the chart a more complete picture is shown by including the alien non-immigrant and nonemigrant groups, a large proportion of which are in this country for employment though they are not classed as

being here for a permanent sojourn. The noteworthy difference in the two sections of Chart 21 is that when nonmigrants are included the departures of aliens were so numerous from December, 1907, to August, 1908, inclusive, that there was practically a continuous excess of alien departures over arrivals, suggesting that the temporary element in the alien population is more susceptible to changes in employment conditions than those aliens officially classified as immigrants.

### **The Depression of 1911.**

The year 1910 was marked by a gradual decline into a mild depression in 1911, and dullness continued through the first few months of 1912. In 1911 crops were very poor, but in 1912 they were much better, and the industrial dullness in the early months of that year gave way to a great activity in the latter part of the year, accompanied by reports of labor scarcity. The depression of 1911 is not marked in the Federal Reserve Bank's clearings index, nor does it appear as a below-trend period in our three-state index of factory employment, though this index does show a relatively continuous decline from the peak in January, 1910, to the middle of 1912. The movement is shown more distinctly as a depression in the fluctuations of pig iron production and in the male immigration curve.

### **Net Male Alien Arrivals and Changes in the Number Unemployed.**

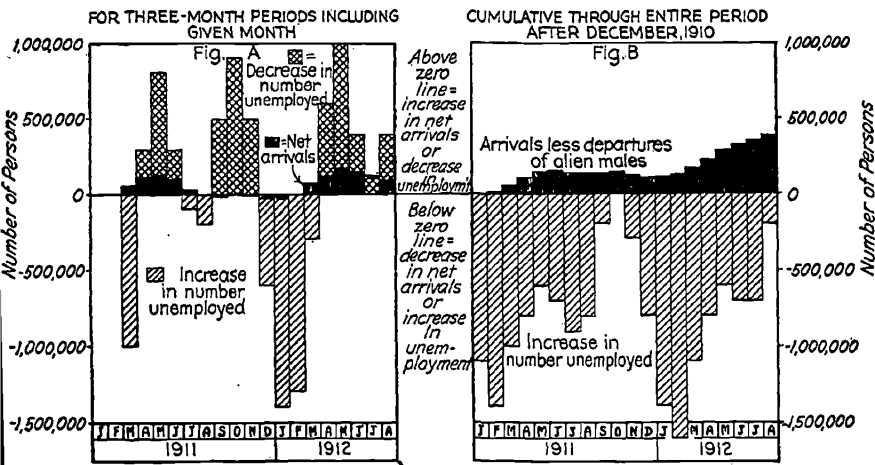
In the depression of 1911 we have an opportunity for the first time to study the net immigration of males by months. In Table 27 and Chart 22 we have a comparison designed to make clear the numerical proportion between changes in the number unemployed in non-agricultural pursuits, as estimated by Professor Hart, and the net additions to the working population through migration. For this purpose the number of alien male immigrants and nonimmigrants combined, less the number of alien male emigrants and nonmigrants, has been taken to represent the industrially significant net immigration. It will be recalled that somewhat similar comparisons have been made with the same data for twelve-month periods from 1903 to 1914 (Chart 20). The present discussion merely presents the same data in a different manner.

In the left-hand section of Chart 22 the comparison is between the net arrivals for three-month periods and the net change in numbers unemployed in the same three-month periods. In this

chart unemployment is inverted, that is to say, a decrease in unemployment is represented by a bar above the line; whereas an excess of arrivals is plotted above the line, an excess of departures, below. Hence, if an increase in unemployment is accompanied by an excess of departures, the two sets of bars will be found on the same side of the zero line, if by an excess of arrivals, on opposite sides. For example, in the three months ending in March, 1911,

CHART 22

NET ARRIVALS OF ALIEN MALES COMPARED WITH CHANGES IN THE NUMBER UNEMPLOYED IN NON-AGRICULTURAL OCCUPATIONS: 1911-1912 DEPRESSION.



\*Numerical data in Table 27.

the net immigration of alien males was about 60,000, but in the same period unemployment increased by about 1,100,000 and hence is represented by a bar projecting below the zero line.

In nine of the eleven three-month periods in which there is shown a decrease in the number unemployed, there was a net excess of arrivals over departures; in four of the seven periods in which unemployment increased, there was a net excess of departures over arrivals. To this extent the direction of the net movement in immigration may be considered as responsive to changes in employment conditions. But only in the period ending in July, 1912, are the numbers of net arrivals substantially equal to the net change

in the number unemployed. On the whole, in these three-month periods, the volume of net immigration is much smaller than the contemporaneous changes in the number unemployed.

TABLE 27.—NET ALIEN MALE MIGRATION AND CHANGE IN NUMBER EMPLOYED IN NON-AGRICULTURAL OCCUPATIONS: DEPRESSION OF 1911-1912

YEAR AND MONTH	NET MIGRATION OF ALIEN MALES (THOUSANDS) <sup>a</sup>			HART'S ESTIMATE OF NUMBER UNEMPLOYED IN NON-AGRICULTURAL OCCUPATIONS (MILLIONS) <sup>b</sup>		
	IN SPECIFIED MONTH	SPECIFIED AND TWO PRECEDING MONTHS	TOTAL AFTER DEC. 1910	IN SPECIFIED MONTH	CHANGE IN 3 MONTHS ENDING IN SPECIFIED MONTH	CHANGE AFTER DEC. 1910
	A	B	C	D	E	F
1911						
Jan.	4.0	.....	4.0	3.2	.....	+1.1
Feb.	14.0	.....	18.0	3.5	.....	+1.4
Mar.	41.9	59.9	59.9	3.1	+1.0	+1.0
Apr.	51.9	107.7	111.8	2.9	-0.3	+0.8
May	37.6	131.3	149.3	2.7	-0.8	+0.6
June	11.5	101.0	160.9	2.8	-0.3	+0.7
July	<sup>d</sup> 14.5	34.6	146.4	3.0	+0.1	+0.9
Aug.	<sup>d</sup> 3.5	<sup>d</sup> 6.5	142.8	2.9	+0.2	+0.8
Sept.	3.0	<sup>d</sup> 15.0	145.8	2.3	-0.5	+0.2
Oct.	5.8	5.2	151.6	2.1	-0.9	.0
Nov.	<sup>d</sup> 19.7	<sup>d</sup> 10.9	131.9	2.4	-0.5	+0.3
Dec.	<sup>d</sup> 19.5	<sup>d</sup> 33.4	112.5	2.9	+0.6	+0.8
1912						
Jan.	5.0	<sup>d</sup> 34.1	117.5	3.5	+1.4	+1.4
Feb.	14.4	<sup>d</sup> .1	131.9	3.7	+1.3	+1.6
Mar.	48.6	68.0	180.4	3.2	+0.3	+1.1
Apr.	56.7	119.6	237.1	2.9	-0.6	+0.8
May	60.7	166.0	297.8	2.7	-1.0	+0.6
June	35.5	152.9	333.3	2.8	-0.4	+0.7
July	29.4	125.6	362.7	2.8	-0.1	+0.7
Aug.	30.1	95.0	392.8	2.3	-0.4	+0.2

<sup>a</sup>From data in Table 24. Columns B and C computed from A.

<sup>b</sup>From Hornell Hart, *Fluctuations in Unemployment in Cities of the United States, 1902 to 1917*, Studies from the Helen S. Trounstine Foundation, Volume I, Number 2.

Columns E and F were computed from D.

<sup>d</sup> = Excess of departures over arrivals.

In the right-hand section of Chart 22 there is shown, by months, the cumulated number of net arrivals of male aliens beginning with January, 1911, and the change in the number unemployed in non-agricultural pursuits in the given month as compared with De-

ember, 1910. In both cases, we are dealing with the raw data uncorrected for trend or seasonal variation. It is obvious from this chart that during this period, in which the number of unemployed is estimated to have been, on the average, several hundred thousand greater than in December, 1910, the number of arriving male aliens exceeded those leaving by nearly 400,000.

### The Pre-War Decline of 1913 and 1914.

Prior to the outbreak of the Great War, employment had been on the decline continuously, aside from brief recovery movements, since the early part of 1913. On the other hand, during several months in 1913 immigration was unusually large; but it also began to decline sharply toward the end of 1913. A statement of the cumulative number of arrivals, and also of arrivals less departures, is given in Table 28, beginning in March, 1913, when the employ-

TABLE 28—THE PRE-WAR DECLINE OF 1913-1914  
Cumulative number of arrivals and departures since February, 1913\*  
(Thousands)

YEAR AND MONTH	ALIEN ARRIVALS				ALIEN ARRIVALS LESS DEPARTURES			
	MALE IMMIGRANTS	MALE NON-IMMI- GRANTS	TOTAL MALES	TOTAL BOTH SEXES	MALE IMMIGRANTS LESS EMIGRANTS	MALE NON-IMMI- GRANTS LESS NON-EMI- GRANTS	TOTAL MALES	TOTAL BOTH SEXES
	A	B	C	D	E	F	G	H
1913								
Mar.	69.2	18.6	87.7	121.2	56.9	7.1	64.0	90.4
Apr.	168.9	49.2	218.1	296.4	142.4	17.5	159.8	220.0
May	266.3	70.0	336.2	461.1	225.9	5.8	231.7	322.4
June	391.1	86.5	477.6	659.6	334.6	-1.3	333.3	462.6
July	485.8	98.2	584.0	814.2	410.3	-13.4	396.9	554.5
Aug.	570.4	109.0	679.4	956.8	477.6	-20.9	456.7	648.1
Sept.	657.4	120.4	777.8	1113.5	549.7	-23.2	526.5	766.9
Oct.	740.3	130.7	871.0	1266.6	611.1	-33.1	578.0	865.3
Nov.	805.8	138.5	944.3	1383.6	653.3	-45.6	607.7	928.4
Dec.	864.9	146.0	1010.9	1490.3	685.4	-59.5	625.9	978.5
1914								
Jan.	893.4	151.9	1045.3	1543.5	683.4	-82.2	601.3	962.5
Feb.	924.2	158.5	1082.7	1599.6	700.0	-89.2	610.7	983.8
Mar.	991.3	170.4	1161.7	1708.5	756.3	-88.5	667.9	1064.0
Apr.	1079.2	187.2	1266.3	1850.7	826.4	-91.5	734.9	1156.0
May	1149.0	200.9	1349.9	1977.6	878.8	-101.9	776.9	1225.0
June	1189.9	209.9	1399.8	2062.6	891.1	-119.0	772.2	1231.9
July	1222.8	217.4	1440.3	2134.7	902.9	-128.2	774.6	1249.0

\*Compiled from U. S. Bureau of Immigration and Naturalization, *Immigration Bulletin* (monthly).

ment curve first shows a substantial decline, and continuing until the outbreak of the war. The first column gives the cumulative number of male "immigrants"; the second column, male "non-



immigrants"; the third column, the total of the first two columns; and the fourth column, a similar total for both sexes combined. In like manner, the right-hand half of the table gives, for the same four groups, the net movement, that is, arrivals less departures. Of these several series, the most important with reference to its bearing on the contemporaneous employment situation is probably the net movement of males, including temporary migrants, as given in Column G. It will be noted that in the seventeen months of this period, the net contribution of migration to the number of alien males in the United States was approximately three-quarters of a million. If nonimmigrants and nonemigrants are excluded from consideration, the net immigration is even greater, exceeding, slightly, nine hundred thousand males. This large volume of net immigration is chiefly due to unusually heavy immigration and light emigration during several months of 1913; but even in 1914 it is only in January and June that there is an excess of departing over arriving male aliens. It would appear that immigration, in the year before the war, contributed materially to the growing volume of unemployment as portrayed in Charts 13 and 20 on preceding pages of this chapter.<sup>a</sup>

### CHAPTER SUMMARY<sup>a</sup>

The present chapter has dealt with the quarter century immediately preceding the Great War, which is, in many respects, the most significant period for the purposes of this study. The

<sup>a</sup>Director's Comment.—Col. M. C. Rorty, a director of the National Bureau of Economic Research, comments as follows: It would hardly seem that the fact that there is frequently, if not usually, a net immigration during periods of declining employment would, in itself, justify the conclusion that such immigration contributes to, or accentuates, unemployment. If there should be a static population in the United States, with no immigration or emigration whatever, and other economic factors were unchanged, we should presumably have business booms and depressions of the same character and intensity as we would have with a population growing at a uniform rate. Furthermore, for any uniform rate of increase in population, it would seem to be a matter of relative (economic) indifference whether the resulting annual increase in the number of (potential) workers was derived from the natural growth of the native population, or from immigration, or from a combination of the two. Immigration might involve a gradual shifting of the native-born workers from unskilled to skilled or semi-skilled occupations, but such a process, if continuous and uniform, should not involve economic disturbances of serious character.

If the preceding arguments are sound—and they appear to be supported by experience as well as by economic theory—then it might very well be argued that the effect of immigration is almost always to reduce the severity of periods of unemployment, since it is rather clear that the net movements so vary that they tend in practically all cases to *reduce the rate of increase* of the working population during periods of depression.

There are undoubtedly flaws in this last argument as well as in the opposing one. Nevertheless the nature of the problem can be made clearer in some respects by considering whether periods of unemployment would be made more or less severe in the United States if the free movement of workers between the several states should be restricted. Is there, for example, any indication, or reason to believe, that the western states have suffered more severely from business depressions and unemployment than they would if they had not received a steady influx of population from the eastern states?

The preceding points of view are in no way intended as an argument for unrestricted immigration. They are brought forward simply to suggest that an increase in unemployment is not necessarily one of the evils to be charged against it.

The preceding comments apply to several other portions of the text.

major conclusions reached in the chapter may be summarized as follows:

### **Sensitiveness of Migration to Business Conditions.**

1. A comparison of data pertaining to male immigration, pig iron production, and factory employment, in the pre-war period, reveals the fact that cyclical fluctuations in male immigration are ordinarily associated with prior changes, in the same direction, in production and employment.

Inasmuch as good employment conditions would presumably encourage the prospective immigrant and also increase the instances in which friends and relatives in this country would remit funds for the journey, we may reasonably assume that the observed close relation is not a mere coincidence but that business conditions are in fact a dominating determinant of cyclical fluctuations in immigration.

2. The influence of a major cyclical change in industrial conditions is usually apparent in immigration within less than a half year.

3. The cyclical movements in emigration are inversely correlated with those of immigration and employment, with large emigration in depression periods and relatively small emigration in boom periods.

4. The fluctuations of *net* immigration exhibit a high degree of sensitiveness to employment conditions in the United States. This is evident when immigration and emigration are jointly considered, either in terms of the ratio of emigration to immigration, or in terms of the numerical excess of arrivals over departures or of departures over arrivals.

### **Relative Volume of Migration and Changes in Employment.**

When we turned from a consideration of the direction and timing of turns in the cycles of immigration and emigration to the somewhat more concrete problem of the relation between the volume of immigration, gross or net, expressed in number of persons, and the concurrent change in the number employed or unemployed, we found, partly because of the diversity of the possible bases of comparison, a somewhat less secure basis upon which to form unequivocal conclusions. For example, the conclusions reached in comparing cumulative immigration with the change in employment or unemployment are materially affected by the length of the period

over which the comparison is made. However, the following suggestions are worthy of note:

1. When relative numbers are under consideration, the volume of migration should be compared with the *change* in the number employed.

2. The number of incoming immigrants is sufficiently large, even in depression periods, to suggest that, even though there may be extensive emigration in the same period, the adjustment of the recent immigrant to industry is an ever-present and serious problem.

3. The cumulative volume of net immigration is seldom equal in numbers to the concurrent change in employment when periods as short as three months are considered, but in some instances is contrary in direction,—that is, an increase in unemployment is accompanied by an excess of immigrants over emigrants (Chart 22, Fig. A).

4. When cumulated over long periods, as for twelve months (Chart 20) or during the duration of a depression (Charts 21 and 22, Fig. B), it was found that only in the severe depression of 1908, and then for a brief time only, was there an excess of departures; and that in many parts of such periods there was a substantial excess of arriving over departing aliens, with a probable aggravation of the unemployment situation. The burden of such unemployment probably falls in part on the newly-arrived immigrants and in part on resident workers who are replaced by immigrants willing to work for lower wages.