Chapter Title: The Rise in Total Output of Industrial Materials

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covered differs from industry to industry—some commodities included in our index, for example, are ready for final consumption. (This would be true, incidentally, even if we restricted the coverage to *raw* materials, since the degree of fabrication to which raw materials are subjected varies widely.) Unfortunately, the uncertainties as to the representativeness of our index and its components cannot be entirely removed; in the first three sections we confine the inquiry to industrial materials output *per se*; in the final section we consider the relation between industrial materials output and total industrial production. (Some further details concerning the coverage and weighting of our index are given in Appendix A.)

I THE RISE IN TOTAL OUTPUT OF INDUSTRIAL MATERIALS

The output of industrial materials in the United States was considerably greater at the beginning of the second world war (1939) than at the beginning of the first (1914). Our production index (using 1939 values as weights) rises nearly 60% in the twenty-five year interval (Table 1, col. 3). In 1939 we produced, among other things, about twice as much steel, five times as much petroleum, six times as much aluminum; consumed 35% more cotton and 50% more tobacco; and imported six times as much crude rubber as in 1914. The output of a few of the commodities in our index was smaller in 1939 than in 1914; this was true, for example, of bituminous and anthracite coal, lumber, newsprint, wheat flour, and malt liquors.

Although the 60% increase in the total between the two wars is substantial, the annual rate is less than 2% per year, and is dwarfed by the expansions that took place during both wars. In measuring the percentage changes in the total production of materials in the two wars it is not necessary to use the same weights (values) for both periods. We therefore base the index for World War I on 1914 values, which seem more appropriate to the situation at that time than weights reflecting the scale of values twenty-five years later.[2] From 1914 to 1917 the production of industrial materials increased 32%, or slightly less than 10% per year, while from 1939 to 1942 it rose 35%, or slightly more than 10% per year (Chart 1).[3] In both wars

[2] It is this index for World War I to which we shall refer throughout the paper, unless the one using 1939 weights is specifically indicated.
[3] All the charts (except Chart 5) are drawn on a semilogarithmic scale to facilitate comparison of percentage changes. In Charts 1-4 the indexes for World War II are arbitrarily placed below those for World War I; their position in this respect does not indicate the actual difference in the level of production.

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the average annual rate of increase during the first three years was more than five times the average rate from the beginning of the first war to the beginning of the second; in other words, the output of materials expanded more than half as much in the first three years of each war as in the twenty-five years between the wars.

TABLE 1

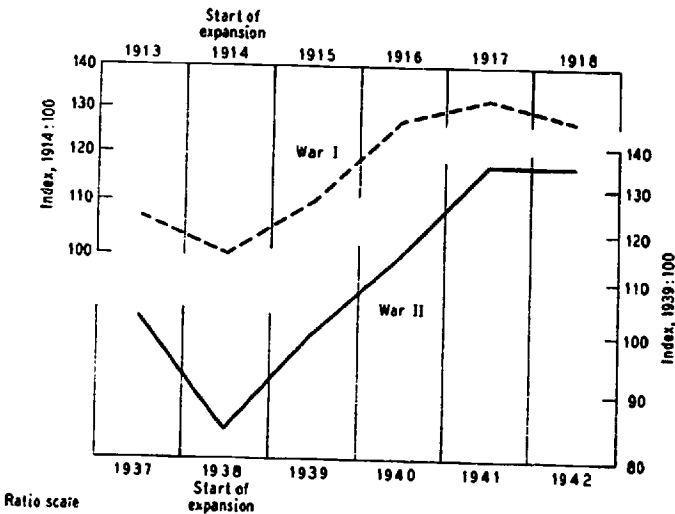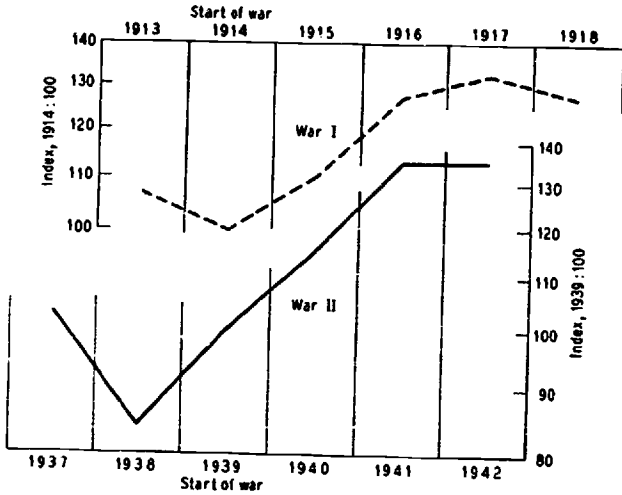Indexes of Industrial Materials Production, 1913–19, 1932, and 1937–42

| | NEW INDEX | | | STEWART'S INDEX | EARLY FRB INDEX | CURRENT FRB INDEX, EXCL. MANHOURS SERIES |
| | Using 1914 Weights (1914:100) (1) | Using 1939 Weights | | | | |
		(1914:100) (2)	(1939:100) (3)	(1914:100) (4)	(1914:100) (5)	(1939:100) (6)
1913	107	107	68	108	112	
1914	100	100	63	100	100	
1915	110	108	69	114	112	
1916	127	124	79	134	133	
1917	132	128	81	137	135	
1918	127	124	78	138	128	
1919	119	112	71	125	116	68
1932			58			55
1937			103			102
1938			84			82
1939			100			100
1940			115			112
1941			135			133
1942			135			136

SOURCES:
1, 2, 3) For a list of series included and their weights see App. Tables 1, 2, 3, and 5.
4) W. W. Stewart, 'An Index Number of Production, 1890-1919,' *American Economic Review*, March 1921, pp. 57-70. Stewart's total index includes Materials (of farm, forest, and mine origin), Manufactures (of farm, forest, and mine origin), and Transportation. We combined his indexes of total materials and total manufactures, eliminating his index of farm materials (which is based chiefly on crop harvest data) from the result, and omitting transportation altogether. The indexes were converted from Stewart's 1911-13 base by dividing by the 1914 indexes, and were weighted by Stewart's 1914 weights.
5) Index of production in basic industries, *Federal Reserve Bulletin*, May 1924, pp. 422-3. Converted from a 1919 base by dividing by the 1914 index, 86.
6) Computed by us from data published by the Board of Governors of the Federal Reserve System in *New Federal Reserve Index of Industrial Production* (1942), and *Federal Reserve Bulletin*, monthly issues through Sept. 1943. The manhours series were weighted by their 1935-39 percentage weights and subtracted from the total index, the remainder was divided by its percentage weight, and the resulting index was converted from a 1935-39 base by dividing by the 1939 index, 109. The series and weights are as follows: Machinery (10.81), Transportation Equipment (5.92), Furniture (1.49), Other Manufactured Foods (7.94), and Chemicals (6.27). One manhours series, Government Arsenals and Quartermaster Depots, was not eliminated from the total index because the data were not available. Since the manhours series are not included in the total index before 1923, the 1919 figure was computed by multiplying the 1919 total index by the ratio of the 1923 index excluding the manhours series to the 1923 total index.

Considering the degree to which the wartime rates of increase exceed the long-term rate, to say nothing of the difference in circumstances attending the two wars, it is noteworthy that the wartime increases differ so little. As measured by our index, the rise in this war was indeed larger, but the difference is not clearly outside the limits of 'error' in our index, i.e., the variations that would result if reasonable modifications in composition and weighting were to be made.

CHART 1

Industrial Materials Production, World Wars I and II

The magnitude of these variations is indicated by the other indexes assembled in Table 1 and Chart 2.

CHART 2

Variations among Selected Indexes of Industrial Materials Production
World Wars I and II
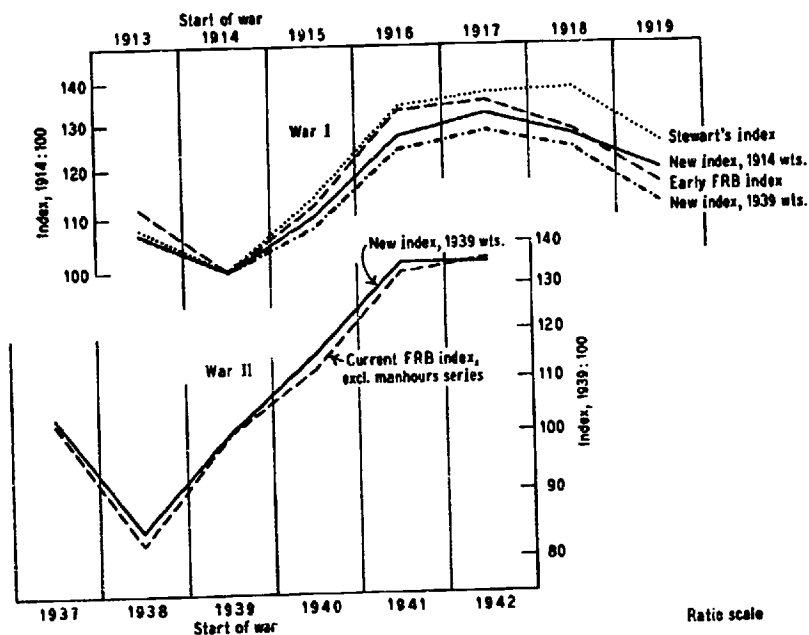
Stewart's index rises 37% from 1914 to 1917, the early Federal Reserve Board index 35%; both increases exceed the 32% rise in our index. An index obtained by excluding the 'manhours series' from the current Federal Reserve Board index rises 36% from 1939 to 1942, slightly more than our index.[4] These other indexes differ from ours in both composition and weighting (see App. Table 5). The effect produced by differences in weighting alone is illustrated by our index constructed with 1939 weights, which rises only 28% from 1914 to

[4] The nature of the manhours series and their effect on the index is discussed in Section IV. Here it is sufficient to say that when they are eliminated, the coverage of the index resembles that of the other indexes in Table 1 much more closely (cf. App. Table 5). Throughout this paper the term 'current FRB index' means the index prior to its revision in October 1943 (*Federal Reserve Bulletin*, Oct. 1943). Although the revision improved the index in certain respects, our analysis was largely completed before the new index was published, and since the changes did not seem to call for any revision of our conclusions we continued to use the unrevised index (except in Chart 6, where the revised individual production series could easily be substituted). An index computed by excluding the manhours series from the new index would not differ greatly from the one we computed from the old index. For further comment on the revision, cf. note 33.

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1917. Had we selected a different list of production series or altered our weighting procedure, the results would obviously have been different, and might have indicated a smaller increase in World War II then in World War I. (Some further experiments reported in Appendix A do not, however, turn out this way.) The indexes in Table 1 do not suggest a definite conclusion as to the direction of the difference between the rates of increase in total output of industrial materials in the two wars; they do indicate that the difference is rather small.

Although the indexes in Table 1 represent adequately, so far as variations in composition and weighting are concerned, the kinds of indexes of industrial production available up to, say, 1939, none can be considered a truly comprehensive index of total industrial production. How well they represent the behavior of the total in wartime is a moot question, which we reserve for consideration in Section IV and Appendix A. There is, however, one sort of bias to which indexes such as ours may be subject, as measures of either total industrial production or the output of industrial 'materials'. In order to maintain comparability our index is based upon as nearly identical a list of commodities as possible in the two wars. But an index of unchanging composition is likely to understate, more and more as time passes, the true rate of increase in the total it purports to measure, since in the life history of a commodity the percentage rate of growth tends to be large at first, then to taper off, and since in a progressive economy new commodities are continually being introduced.[5] Each of the 47 commodities in our index was 25 years 'older' in 1939 than in 1914, and none was as 'young' in 1939 as the 'youngest' in 1914; one would therefore expect our index to be affected by the retardation of their trends.[6]

The alternative to an index of unchanging composition is either to eliminate the 'younger' commodities from the 1914 sample or to add 'new' commodities to the 1939 sample. It is difficult to make either adjustment and at the same time avoid introducing biases due to the changing sample. However, by eliminating from the 1914-17 index commodities whose production expands most rapidly from 1914 to 1939, we can get a rough notion of how much trend retardation affects our index. The eight commodity series that increase more than 5% per year in this twenty-five year interval seem to constitute a reason-

[5] Cf. Arthur F. Burns, *Production Trends in the United States since 1870*, (National Bureau of Economic Research, 1934), pp. 257-9.
[6] For evidence of the effect of trend retardation on the rates at which the output of individual commodities expanded in the two wars see Section II.

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able selection for the purpose:[7] aluminum, magnesium, petroleum, natural gas, sulphur, rayon, rubber imports, and calves slaughter. If we eliminate these series from the index for the first war the rise between 1914 and 1917 is reduced from 32 to 27% (using 1914 weights) or from 28 to 26% (using 1939 weights). This adjustment, of course, does not improve the index for the first war, but it probably does improve the comparison with the second. The indications are that if we could make a comparison free from the effect of trend retardation the difference in the rate of increase in favor of the second war would be more substantial than our total index or the other indexes in Table 1 suggest.

Two indexes in Table 1 are available in monthly form (Table 2 and Chart 3). On a monthly basis comparisons of the expansion in production after the start of war in Europe can be dated more precisely, and we can carry the comparison into 1943 and 1918.[8] These

TABLE 2

Industrial Materials Production

Monthly Indexes Adjusted for Seasonal Variation, 1913–19, 1937–43

	J	F	M	A	M	J	J	A	S	O	N	D	Avg.
				EARLY FEDERAL RESERVE BOARD INDEX									
				(Average 1914:100)									
1913	119	116	110	117	115	110	112	108	112	113	107	107	112
1914	105	107	109	108	102	102	103	95	99	94	90	90	100
1915	91	95	101	106	105	110	113	112	120	121	126	135	112
1916	128	135	133	129	131	133	127	130	131	135	140	135	133
1917	138	133	135	138	143	137	130	129	128	135	137	130	135
1918	120	122	130	133	134	129	135	133	130	123	123	126	128
1919	124	116	112	115	108	108	119	120	122	117	114	120	116
			CURRENT FEDERAL RESERVE BOARD INDEX, EXCLUDING MANHOURS SERIES										
				(Average 1939:100)									
1937	107	108	111	110	111	107	108	106	103	94	83	75	102
1938	75	75	76	74	73	73	80	85	87	91	94	94	82
1939	94	94	94	88	89	94	97	97	107	115	117	117	100
1940	113	106	101	102	106	111	112	112	115	117	121	123	112
1941	125	126	129	124	133	136	136	135	136	137	139	138	133
1942	139	139	136	135	134	132	132	135	136	137	138	136	136
1943	136	139	137	136	136	132	136						

For sources see Table 1, notes 5 and 6. Annual averages are computed directly from the averages on the original base.

[7] Unless otherwise specified, the individual commodity series cited hereafter in the text are production series.

[8] Other things being equal it would have been desirable to use monthly data throughout this paper. But this would have severely limited the industrial scope of the study, since there is a much greater fund of annual than of monthly data on output, particularly for World War I. Our use of annual data is justified further by the extraordinary length of the expansions in production in both wars; the coarser time unit may be expected to reveal most of the principal features of long expansions, whereas it would be quite inadequate were the expansions short.

CHART 3

Industrial Materials Production
Monthly Indexes Adjusted for Seasonal Variation, World Wars I and II
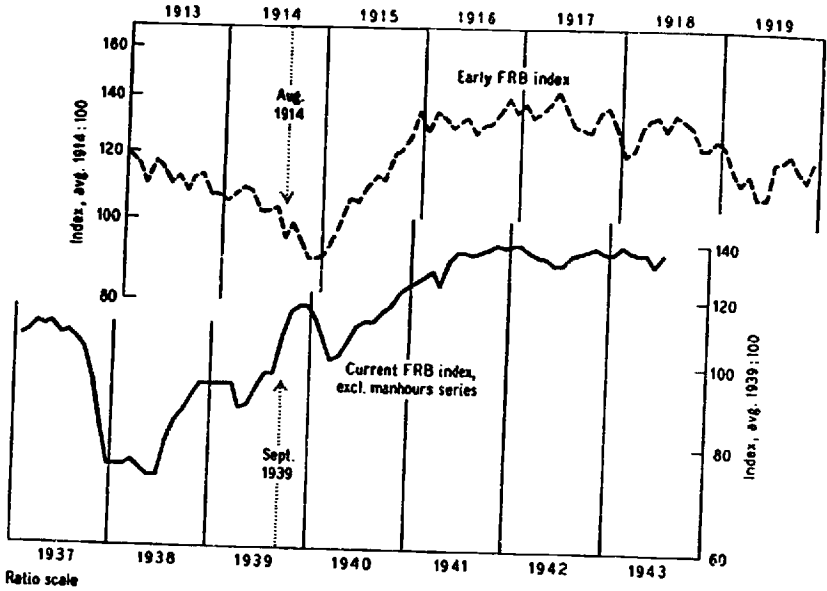
advantages are offset by the fact that the index for World War II, the current Federal Reserve Board index excluding manhours series, has a broader coverage than the early Federal Reserve Board index which we use for World War I. The 27% rise of the former index in the 45 months from September 1939 to June 1943 and the 33% rise of the latter in the 45 months from August 1914 to May 1918 suggest that production increased less rapidly in the second war than in the first.[9] However, these figures, which are based on three-month averages centered on the months cited, are influenced by erratic fluctuations in the data.[10] If we had, for example, used two-month instead of three-month average standings at the start of war (which might be justified on the ground that two-month averages are centered closer to the actual dates of declaration of war by the major powers—August

[9] The equivalent annual rates of growth are 6.6 and 7.9% respectively. That these rates are lower than those derived from annual data (which approximate 10% per year) is due partly to the longer period covered in the monthly comparison. If we make the period the same (three years) the monthly indexes rise 8.6 and 9.1% per year from the start of Wars II and I, respectively, to the end of the third year of war (September 1942 and August 1917).

[10] The less jagged appearance of the World War II index is probably due both to its wider coverage and to the smoothing effect of various devices used in constructing it.

1-4, 1914 and September 3, 1939) the percentage rises would have been almost identical (32 and 33%). In view of this erratic behavior and also of the difference in the composition of the monthly indexes, we cannot say they refute the evidence of our annual index that the rate of increase in the second war was greater than in the first. But in the monthly figures we do find additional support for our conclusion that the difference between the rates is slight.

*   *   *   *

Does the evidence concerning the rates of expansion in the output of industrial materials mean that we have done 'better' in this war, or 'just as well', or 'worse'? In and of themselves such comparisons tell us little about the effectiveness of the mobilization of the nation's resources for the prosecution of the war. In the first place, the production of industrial materials consumes merely a fraction of the energy exerted by the nation either in time of peace or of war. The total output of the nation consists of commodities and services—our index includes only commodities. The total output of commodities consists of both agricultural and industrial products—our index covers only industrial products (including the value added to agricultural products processed by industry). The total output of industrial products consists of finished and unfinished goods—our index omits large categories of finished products. Now it may well be in the national interest to sacrifice some part of the output of industrial materials in order to produce, let us say, more finished munitions, or more agricultural products, or to enlarge the army. Of course, economic and other factors tend to limit the extent of such shifts. The output of tanks could not be expanded indefinitely without an increase in the output of steel. But there is no reason to suppose that either the possibility or the desirability of making such shifts was the same in both wars. In view of the alternatives, we may have expanded our output of industrial materials too much in this war and too little in the first, or vice versa.

Second, it may be in the national interest to alter the composition of the total output of industrial materials at the expense of a smaller growth, and such changes in composition as have taken place (cf. Sec. II) may have entailed a greater sacrifice in the total in the first war than in the second, or vice versa. The increases in the total, in other words, must be judged with respect to the desirability of the accompanying changes in composition. To a certain extent, of course, this is allowed for in the weighting scheme of the index, but the

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weight factors (prewar prices) do not allow for the physical losses attending drastic changes in the prewar composition of output, however desirable such changes may be, and in any case the factors themselves are of limited significance.

Third, the rate of growth in production is no more important than the level at the start or at the finish. For example, if the second war had begun in 1932, and the output of materials had expanded 28% in three years, i.e., at the same rate as from 1914 to 1917 (according to our index weighted by 1939 values), we would have had a smaller output of materials in 1935 with which to win the war than we had in 1917 (cf. Table 1).[11] Although the rate of growth in output would have been the same, the ultimate result might not have been. Moreover, it would seem to be much easier, in a sense, to raise the level of production 28% in three years after 1932 than after 1914 and easier also to maintain that rate of growth for more than three years,[12] for in 1932 we were in the depths of the Great Depression, with mass unemployment and unused resources of every description at hand, whereas in 1914 there was but a moderate depression.

Actually, the war started in 1939, and as we have pointed out, production was considerably greater in 1939 than in 1914. Since the percentage rates of growth are similar, the absolute increments since 1939 were much larger than those achieved after 1914, and the level of output in 1942 much higher than in 1917. To say that this is better or worse from the standpoint of the end result would be to predict the outcome of the war, and its cost in terms of the alternatives. It is more feasible to judge the merits of the case on the basis of the unused resources available at the beginning of the war.

In this respect our comparisons of the growth in output since the start of the war in Europe seem to benefit from an historical accident. Not only are the starting dates of the comparisons coordinate from the standpoint of the political historian, but 1914 and 1939 are roughly similar with respect to the relative amount of idle resources on hand. It is true that the first war broke out in the midst of a general business contraction, and the bottom was not reached until the latter part of

[11] Actually the output of materials increased 41% from 1932 to 1935, according to the index in Table 9, column 2. It was, therefore, apparently somewhat larger in 1935 than in 1917.

[12] In fact production did not reach a peak until 1937. In World War I our index reaches a peak in 1917; it may or may not have reached a peak in 1942 (see Sec. III). The total rise in our index from 1932 to 1937 (78%) was much larger than from 1914 to 1917 or from 1939 to 1942; even the annual rate of increase (12%) was higher.

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1914, whereas an expansion was already under way when war was declared in September 1939. Neither 1914 and 1939, nor August 1914 and September 1939 are coordinate with respect to the stage of the business cycle in which they occur. Had we started our comparisons at dates that were coordinate in this respect (the trough years 1914 and 1938, or the trough months December 1914 and May or June 1938) we would have found that the expansion in the output of industrial materials lasted longer and proceeded at a much more rapid average rate in the second war than in the first (cf. Chart 1, bottom).

However, there is no question but that depression in 1938 was much more severe than in 1914. Our materials production index declines 18% from 1937 to 1938 but only 7% from 1913 to 1914. Since the capacity to produce the 1937 output may be reasonably assumed to have been on hand in 1938, unutilized capacity in 1938 must have been at least sufficient to bring about a 23% expansion in output (the 1937 index is 23% above the 1938 index) ; in 1914 the 'visible supply' of unutilized capacity (judging from the level of output at the preceding peak, 1913) would have been enough for a 7% expansion only. The latter figure is fairly close to what we would estimate by this method for 1939, namely 3% (the 1937 index is 3% above the 1939 index).

Such comparisons, of course, do not tell us anything about the 'invisible supply' of unutilized resources, and our conclusions might be altered if it was very much larger in 1913 than in 1937. It is difficult to obtain statistical data on this point, but the scraps of evidence assembled in Table 3 are so consistent with one another and with general impressions as to the level of activity relative to capacity in the two periods that the conclusions seem incontrovertible. According to the estimates of the National Industrial Conference Board the employment percentage was much higher in 1914 than in 1937, 1938, or 1939, and was lowest in 1938.[18] Although there is little statistical information on employment and unemployment in 1914, so that overall estimates involve an element of speculation,[14] the errors in the unemployment estimates would have to be very large to reverse the direction of the difference between 1914 and 1939; once this is determined, there can be no question about the relative position of 1938.

18 These employment percentages did not approximate the 1914 level until 1941. The percentage was 85.9 in 1940 and 94.0 in 1941.
14 See *Occasional Paper 14:* The Labor Force in Wartime America, by Clarence D. Long.

TABLE 3

Utilization of Productive Capacity, 1913–14, 1937–39

SERIES	1913	1914	1937	1938	1939	1913-37	1913-38	1913-39	1914-37	1914-38	1914-39
			STANDINGS				CHANGES IN STANDINGS				
1) Employment, % of total labor force	97.4	94.4	87.8	81.6	83.6	−9.6	−15.8	−13.8	−6.6	−12.8	−10.8
2) Industrial Production, % deviation from trend	+4.5	−5.2	−6.9	−28.7	−12.2	−11.4	−33.2	−16.7	−1.7	−23.5	−7.0
3) Industrial Activity, % deviation from trend	+1.2	−10.4	−4.4	−28.1	−7.7	−5.6	−29.3	−8.9	+6.0	−17.7	+2.7
4) Steel Ingot Production, % of capacity	90	63	72	40	65	−18	−50	−25	+9	−23	+2
5) Bituminous Coal Production, % of capacity	75.3	63.3	62.8	52.6	58.4	−12.5	−22.7	−16.9	−0.5	−10.7	−4.9
6) Cotton Spinning, % of capacity	95.3	94.2	89.3	83.3	88.1	−6.0	−12.0	−7.2	−4.9	−10.9	−6.1
	RANKS OF STANDINGS					RANKS OF CHANGES IN STANDINGS, DISREGARDING SIGNS					
1) Employment	1	2	3	5	4	2	6	5	1	4	3
2) Industrial Production	1	2	3	5	4	3	6	4	1	5	2
3) Industrial Activity	1	4	2	5	3	2	6	4	3	5	1
4) Steel Ingot Production	1	4	2	5	3	3	6	5	2	4	1
5) Bituminous Coal Production	1	2	3	5	4	4	6	5	1	3	2
6) Cotton Spinning	1	2	3	5	4	2	6	4	1	5	3
Average Rank	1.0	2.7	2.7	5.0	3.7	2.7	6.0	4.5	1.5	4.3	2.0

SOURCES:

1) National Industrial Conference Board, *The Economic Almanac for 1943-44*, 1943, pp. 115, 117-8.

2) Cleveland Trust Co., "American Business Activity since 1790," March 1943.

3) American Telephone and Telegraph Co., Chief Statistician's Division, mimeographed release, May 5, 1942.

4) American Metal Market, *Metal Statistics 1941*, p. 185. Data include steel for castings by makers of ingots, 1937-39; ingots only, 1913-14.

5) Annual production relative to capacity of active mines per year of 308 days. Capacity and production data from Bureau of Mines, *Minerals Yearbook 1936* and following issues.

6) Number of spindles active at any time during the month (average for the calendar year) relative to number in place at end of crop year (Aug. 31 for 1913-14, July 31 for 1937-39). Data from Bureau of the Census, Cotton·Production and Distribution, Bulletins 140, 174, 176, 177, and 179.

In some respects one of the best ways to measure the rate of change in capacity to produce is to measure the trend of production. A fitted trend line will of course pass through the data and hence be at too low a level to represent capacity output; but so far as we may assume (1) that in the utilization of capacity long-run variations are small relative to short-run, and (2) that in capacity itself short-run variations are small relative to long-run, the deviations from the line should indicate the relative utilization of capacity in the various years. In the case of industrial production as a whole, and particularly industrial materials production, these assumptions do not seem unreasonable; hence we include in Table 3 two indexes of industrial production that cover our periods and are published in trend-adjusted form. The ranking of the five years 1913, 1914, 1937, 1938, and 1939, according to the Cleveland Trust Company index, is precisely the same as that shown by the employment percentages. The A. T. & T. index behaves somewhat differently—the relation between 1937 and 1939, on the one hand, and 1914 on the other, is reversed—but 1938 is still far below 1914.

Our survey (which claims merely to cover independent sources of evidence, not to be exhaustive) is completed by a comparison of actual productive activity with estimated capacity in three important industries. In bituminous coal mining and cotton spinning the relations among the five years with respect to utilization of capacity are the same as those shown by the employment percentages and the Cleveland Trust Company index. In steel ingot production the ranking is the same as that of the A. T. & T. index.

If we make all possible comparisons between the estimates of utilization of capacity in 1913 and 1914 on the one hand, and 1937, 1938, and 1939 on the other, 1914 seems undoubtedly more comparable with 1939 than with 1938 in respect of utilization of capacity. But Table 3 suggests further that: (1) 1914 and 1937 may be more comparable than 1914 and 1939; and (2) in both 1937 and 1939 the relative utilization of capacity was probably somewhat lower than in 1914.

We should not, therefore, overlook the possibility of using 1937 as a base, in order to allow, in effect, for the difference in utilization of capacity at the beginning of the two wars. Our index of materials production then becomes: 1937, 100; 1938, 82; 1939, 97; 1940, 111; 1941, 131; and 1942, 131. Output in 1942 was 31% above the 1937 level; in 1917 it was 32% above the 1914 level. Even admitting a probable downward bias in our index due to its constant composition,

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the evidence surely does not substantiate a claim that production of materials, relative to unutilized capacity existing at the beginning of the war, has expanded much more rapidly in this war than in the preceding. The record is substantially the same.

II Changes in Output of Individual Industries

The indexes discussed in Section I show that the aggregate output of industrial materials expanded in both wars, but they do not tell us which industries participated in this expansion and which did not, or whether the industries, if any, that failed to expand in the first war failed also to expand in the second. They show too that in the first three years of both wars the average rate of expansion in the total was about 10% per year, but they do not indicate which industries expanded more rapidly and which more slowly, or whether the same industries behaved similarly in this respect in the two periods. Finally, the indexes suggest that the rate of increase in the total may have been higher in the second war than in the first, but fail to show whether this is true of all products or of what products it is true.

In order to answer these questions we constructed 14 group indexes based on classifications of the 47 commodity series in our total index (Table 4 and Chart 4), and calculated the annual percentage rates of change of the 14 indexes and the 47 series for relevant periods (Tables 5 and 6). In both wars the production of almost all industrial materials expanded. Only two of the 14 indexes, forest products and non-metal construction materials (which overlap considerably since lumber is the major constituent of each), decline from 1914 to 1917, and only one, products of foreign origin, declines from 1939 to 1942. Thirty-five of the 47 individual commodity series increased in the first war period, 39 in the second. According to the weights used in our index (cf. App. Tables 3 and 5) the aggregate value in 1914 of the commodities that increased from 1914 to 1917 was 78% of the total value of the 47 commodities. The corresponding figure (1939 weights) for the commodities that rose from 1939 to 1942 is 92%. Consequently we may say that the expansion in the second war was more general than in the first.

Five commodity series (turpentine, cottonseed oil, calf and kip leather, distilled spirits, and sugar meltings) declined in both periods; seven (linseed oil, sand and gravel, lumber, crushed limestone, canned tomatoes, malt liquors, and sheep and lambs slaughter) declined in the first but rose in the second; while three (rubber imports, tin con-

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