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PART III

National Product in World Wars I and II

1 Similarities and Dissimilarities

Every major war has much the same effect on all industrial economies. Unless invaded or bombed, an advanced industrial country (and some agricultural countries also) markedly increases its output, especially of goods for the armed forces—at least during the first years of the conflict. As long as the country remains neutral and in no apparent immediate danger, the free market mechanism is allowed to operate as usual; and larger exports to the belligerents create a semblance of prosperity not unlike that of an ordinary business expansion. As participation nears and war begins, the shift in production toward war goods is accelerated; productive resources are more completely mobilized; market mechanisms are supplemented or replaced by direct governmental controls; and diversion from peace to war type production reaches a point where, despite a huge increase in total output, less is available for civilians.

So typical is this pattern that we expect not only the broad movements in national product during both world wars but even changes in some of its components to be approximately the same, especially since the United States' position was similar in many respects.

i) Fighting started on the European continent, and this country remained neutral during the first two to three years. The duration of neutrality did not differ much: 33 months in World War I and 27 months in World War II.

ii) The United States supplied, as long as it was neutral, large quantities of goods to belligerents, but chiefly to the countries it eventually joined as an ally. This production stimulated the expansion of the war industries, so that they were ready to expand still further for the benefit of the United States armed forces upon its entrance into the conflict.

iii) The wide division of opinion on the question of participation impeded laying plans and a production basis for mobilization. This delay, marked in both wars, was succeeded by intensive efforts to catch up, once the die had been cast.

iv) Far from the theaters of combat (except, in this war, for its outlying territorial possessions), the United States was in an ideal position to serve as an arsenal for democracy.

v) But this very distance made the transportation of troops and equipment a bottleneck; and the physical and spiritual remoteness became, after a while, a barrier to economic mobilization at heavy cost to civilians.

To select the aspects of dissimilarity between the two wars of large import for the productive performance of this country's economy is more difficult. The vicissitudes of historical experience during twenty-five years inevitably create important dissimilarities. Some of the outstanding ones between World Wars I and II are listed below.

vi) Perhaps the chief difference lies in the fact that World War I occurred after six to seven decades during which major wars were conspicuous by their absence, and World War II occurred only a quarter of a century after World War I. This meant that the nation entered this war with some experience in dealing with the economic problems a war raises (e.g., price control, inflation, and international trade). It meant also a vital difference in the structure of the world economic and social organization.

vii) This war came shortly after the most acute economic depression (1929-32) the industrial nations had experienced since 1870 (or perhaps earlier); and followed another marked depression (1937-38). Though World War I followed the depression of 1907-08 and two 'submerged' business cycles—1908-11 and 1911-14—the preceding decade was not so distorted by violent depressions.

viii) The imminence of participation in the conflict was felt more keenly in this country in 1940-41 than in 1914-16. Small as the defense effort that began in July 1940 seems in retrospect and in comparison with the record in 1942 and 1943, it was distinctly bigger (even relatively) than that before 1917.

ix) The United States has long been among the industrially advanced countries of the world. But its relative industrialization and industrial power were perhaps further ahead of others (especially its adversaries) in 1939 than in 1914. Its industrial structure had suffered less from the devastation of World War I, and it led other countries in industrial expansion during the 1920's.

x) The fortunes of the first years of the war created a more serious military and economic problem for this country than in 1917. In addition, the new character of the armed conflict made ever greater demands upon the economy, especially upon industries manufacturing highly fabricated metal products.

xi) The country's active participation in this war had, on February 7, 1945, been twice as long (38 months) as in World War I.

2 Timing of Comparison and Base Years

In drawing comparisons between the two wars, what specific years or quarters should be set off against each other or used as bases? Should we compare data for 1914 and for 1939, the years in which war broke out on the European continent; and should we, therefore, measure changes in output from 1914 and 1939 as bases? Or should we take into account the fact that 1914 was a year of depression and 1939 a year of recovery; and, therefore, measure output during each war from the base of the preceding cyclical peak year, 1913 and 1937 respectively?

As our aim is to establish the similarities and differences in the movement of national product and its components attributable to the wars, the first year of World War I is compared with the first year of World War II; the second year with the second year, and so on. Similarly, the choice of the base year is governed by the war chronology. As our interest lies in the progress of output from the time each war started, the base years must be 1914 and 1939. The differences in their cyclical characteristics should, of course, not be forgotten when the indexes for which they are bases are interpreted. But since many other elements of dissimilarity must also be taken into account, it seems better to select base years with reference to the indisputable formal chronology of the war than to make a difficult and never absolutely certain choice of prewar bases completely comparable as to cyclical and other characteristics.

Our record for this war, analyzed in greater detail in Part II, extends only through 1943. At the time of writing, detailed estimates for 1944 were not available. In 1914-18 and 1939-43 we have two equal periods, but the former covers the full span of a war, and unfortunately World War II is not yet over. Hence, any conclusions concerning the greater relative extent of the war effort and its effects on the size and distribution of national product in World War II would most probably be strengthened were the record of this war complete.

3 Movement of Gross National Product (Wartime Concept)

According to our analysis in Part I, the total output of an economy in wartime is most adequately measured by national product gross

of the consumption of durable capital and of all war goods (Tables III 1 and 2).

TABLE III 1

Gross National Product, Wartime Concept, World Wars I and II
(dollar figures in billions)

	1914	1915	1916	1917	1918
WORLD WAR I					
1 Gross national product, current prices	36.3	39.8	45.6	57.5	64.3
2 Price indexes (1914 = 100)					
a) Over-all implicit	100	102	110	132	155
b) Cost of living, BLS	100	101	108	128	150
c) Wholesale prices, BLS	100	102	126	173	193
3 Gross national product, 1914 prices	36.3	39.2	41.3	43.7	41.6
	1939	**1940**	**1941**	**1942**	**1943**
WORLD WAR II					
4 Gross national product, current prices	79.4	88.3	111.4	144.2	178.1
5 Price indexes (1939 = 100)					
a) Resource prices	100	104	114	133	149
b) Final product prices, assumption *b*	101	102	111	132	140
c) Cost of living, BLS	100	101	106	117	124
d) Wholesale prices, BLS	100	102	113	128	134
6 Gross national product, 1939 prices					
a) Resource input	79.4	85.0	98.1	108.1	119.4
b) Final product, assumption *b*	79.0	86.4	100.5	109.3	127.3

LINE		LINE	
1	App. Table III 1, line 9.	4	Table II 1, line 4a.
2a	App. Table III 4, line 5.	5a & b	Table II 3, line 4, and Table II 4, line 5b.
3	App. Table III 6, line 3.	6a & b	Table II 5, lines V 1 and 2b.

a *In current prices*

The totals in current prices, naturally, do not have to be adjusted for price changes and differentials in war years; and, while the estimates for World War I are much cruder and subject to a wider margin of error than those for this war, the main conclusions may be accepted as fairly reliable.[1] For the five years covered for each

[1] The propriety of the *approach* used here to estimate gross national product (wartime concept) for World War I is tested in Appendix Table III 3. Since the payments-savings approach yields for recent years totals fairly close to those computed by other methods, no large error can be attributed to it. However, for the earlier years, the estimates of income payments and business savings are cruder.

As in Part II, the estimates of gross national product and other aggregates used here differ from those already published by the National Bureau in that they exclude imputed rent and net savings of governments (see comparison for 1919-21 in App. III, comments on App. Tables III 1-3). These departures were made to assure comparability with the Department of Commerce estimates for the years beginning with 1939.

war, the rate of increase in gross national product (wartime concept) in current prices is appreciably higher in World War II (Table III 2, lines 3 and 6). Comparisons based on rough quarterly interpolations, for a period beginning with the quarter immediately preceding the outbreak of each war in Europe and ending with the last quarter within each war covered by available data (lines 9 and 12), confirm this greater rise in the annual totals.

In both wars the rise was accelerated by this country's entrance: the rate of increase was much higher during its active participation than during its neutrality and incipient belligerency. In this war the

TABLE III 2

Gross National Product, Wartime Concept, Percentage Changes
World Wars I and II

		NUMBER OF QUARTERS	PERCENTAGE CHANGE PER QUARTER IN Gross national product, current prices	Over-all price indexes	Gross national product, constant prices
	A ANNUAL ESTIMATES				
World War I					
1	1914 to 1916	8	2.9	1.2	1.6
2	1916 to 1918	8	4.4	4.4	0.1
3	1914 to 1918	16	3.6	2.8	0.9
World War II					
4	1939 to 1941	8	4.3	1.2	3.1
5	1941 to 1943	8	6.0	2.9	3.0
6	1939 to 1943	16	5.2	2.1	3.0
	B QUARTERLY ESTIMATES				
World War I					
7	1914-II to 1917-I	11	3.0	1.8	1.2
8	1917-I to 1918-IV	7	3.7	4.4	—0.6
9	1914-II to 1918-IV	18	3.3	2.8	0.5
World War II					
10	1939-II to 1941-IV	10	4.7	1.6	3.0
11	1941-IV to 1943-IV	8	5.3	2.2	3.0
12	1939-II to 1943-IV	18	4.9	1.9	3.0

For World War I: based on Table III 1 and App. Tables III 7 and 8.

For World War II: based on Table III 1 and App. Tables II 11 and 13. The calculations here are based on line 5b of Table III 1 and the corresponding totals in constant prices.

rate during both neutrality and participation was close to one and a half times the rate for World War I.

b *Price levels*

For recent years we can adjust, at least roughly, for both changes over time and differentials in prices between the war and nonwar sectors. As similar data are not available for World War I, prices in the war sector must be based directly upon those in private markets. However, since prices in private markets were restricted much less, the failure to apply rigid price controls to munitions and war construction, for reasons justified by the urgency of military demand, may not have caused the marked disparity in pricing bases between the war and nonwar sectors that seems to have characterized recent years.

In general, constructing a price index for the war sector during World War I entailed attributing crude weights to the various categories of war output and assigning to them appropriate price indexes (App. Table III 4). For recent years the price index most comparable with the earlier period is that based upon assumption *b:* namely, that by the first half of 1943 the efficiency of war production, relative to efficiency in other sectors of the economy, was the same as in 1939, but that it was stepped up from 1939 to 1943. As this index probably understates the price level of war output relative to the price level in the nonwar sectors, both war output and gross national product in constant prices are correspondingly overstated. But a similar bias is likely to characterize the prices used to adjust war output and gross national product to constant prices in World War I.

For purposes of *comparison,* the indexes in Table III 1, lines 2a and 5b, seem most satisfactory.[2] The rise in the price level was ap-

[2] The relation between these indexes and such commonly used measures as the BLS cost of living and wholesale price indexes is different in the two wars. In World War I the index implicit in national product is somewhat higher than the cost of living index but appreciably lower than that of wholesale prices. In 1942 and 1943 it is appreciably higher than the cost of living index and higher than the wholesale price index.

The difference is due largely to the fact that, while in both wars the prices of finished munitions and war construction were probably not subject to strict supervision, in recent years there has been more price control in the nonwar sector.

A comparison of price indexes implicit in gross national product with the most comprehensive measures of movement in the compensation of labor in the two wars confirms the similarities and differences revealed by Table III 1 (see App. Table III 5).

preciably less in World War II. This conclusion would be the same were we to use the customary cost of living and wholesale price indexes. In both wars the rate accelerated markedly from the period of neutrality to that of participation, as is evident from the annual estimates for 1914-18 and from the calculations based upon quarterly estimates. For World War II it *is* definitely due to our specially designed price measures for war output and the greater weight of war output in national product. However, even the BLS indexes show the acceleration, at least when annual totals are compared (Table III 1, lines 5c and d).

During neutrality preceding both wars prices rose at about the same rate. The chief difference occurred during participation. It was in the years following the country's entrance into this war that prices were held down appreciably more than in 1917 and 1918.

c *In constant prices*

Differences during the two wars between the movements of national product in current prices and the rates at which the price indexes rise cause marked differences in the movement of national product in constant prices (Table III 2, last column). During World War II national product in constant prices, both annual totals and quarterly approximations, increased at a rate over three times as high as during World War I.

During the period of neutrality preceding World War I the rate was much higher than during participation. The slight rise in the annual totals from 1916 to 1918 was negligible compared with almost 2 per cent per quarter from 1914 to 1916. Quarterly totals rose substantially per quarter during the eleven quarters preceding the entrance of the country into World War I, but declined slightly during the seven quarters of participation.

During participation in this war, on the contrary, national product in constant prices rose as much per quarter as during the two years of neutrality. This sustained rise indicated by the annual totals is confirmed by the quarterly estimates when we compare the eight quarters from the end of 1941 to the end of 1943 with the preceding ten quarters, from the middle of 1939 to the end of 1941. The rate of rise is much higher in this war than in World War I during neutrality; and the difference is even greater during participation.

These conclusions would not be modified if price changes were

adjusted for by the customary price indexes. The estimates of national product in constant prices for World War I would be about the same, but those for World War II would rise even faster than those in Table III 2.

The better performance of the productive system in this war can be explained partly by the greater preparation for war production during the period of neutrality (Sec. III 4):[3] the base upon which to expand war production was wider and some experience had been accumulated in ways of steering clear of the acute dislocations that hindered the expansion of output in World War I.

The second and probably more important factor was the relatively large stock of unused resources in this country at the beginning of World War II in Europe, and as late as 1941; in 1914, and especially in early 1917, the situation was much tighter. In 1939 national product in constant prices was only slightly larger than in 1929, whereas population had increased almost 9 per cent during the decade and net capital accumulation was taking place, even if at a lower rate than during the 1920's.[4] In 1914 and 1916 national income in constant prices was appreciably larger than in 1904 or 1906.[5]

[3] This appears to be true even if we take into account exports of war goods, interpreted broadly to include not only fully finished (airplanes and parts, explosives, firearms) but also the more important mixed product categories (aluminum, brass, copper, nickel and zinc products, automobiles and parts, electrical machinery, tires, engines, rails). From slightly over $100 million in the year ending June 30, 1914 exports rose to $1.5 billion in the year ending June 30, 1917 (to decline to $0.7 billion in the next fiscal year). At their peak they were 3 per cent of gross national product (see App. Table III 7). Together with direct war output, they amounted, before this country entered World War I, to about 4 per cent of gross national product. In 1941 the share of *direct* war output was 11.5 per cent (see Table III 3).

[4] National income in current prices, as measured by the Department of Commerce, increased 10 per cent from 1938 to 1939; and the cost of living index declined 1½ per cent. If we assume that national product in constant prices increased roughly 12 per cent from 1938 to 1939, the total for 1939 (in 1929 prices) would be $88 billion (see Simon Kuznets, *National Income and Its Composition,* I, Table 5, p. 147). The corresponding total for 1929 was $87 billion. For the increase in population and net capital formation in 1929-38, see *ibid.,* Table 8, p. 151, and Table 39, p. 276.

[5] Robert F. Martin's totals of realized private production income, when adjusted for price changes by the cost of living index, rise 32 per cent from 1904 to 1914; 35 per cent, from 1906 to 1916 (see his *National Income in the United States, 1799-1938,* National Industrial Conference Board, 1939, Table 3, pp. 14-5). Regardless of the margin of error in the current price totals and in their adjustment by the cost of living index, the suggested 30 per cent rise during the decade preceding World War I is in sharp contrast to the at most 1 or 2 per cent rise during the decade preceding World War II.

In 1939 unemployment was estimated to be 10.4 million, almost one-fifth of the labor force; by the end of 1941 it was still 4 million (the average for the year was 5.6 million). There is no evidence of such extensive unemployment in this country in 1914, and it was probably less in 1916 and early 1917.[6]

Another related factor was the lower level of average working hours in 1939 than in 1914. In manufacturing, actual weekly hours of work per wage earner were 51 in 1914 and 38 in 1939 (see Solomon Fabricant, *Employment in Manufacturing, 1899-1939,* National Bureau of Economic Research, 1942, Table C-1, col. d, p. 234); and there were probably equally sizable reductions in working hours in other industries. It was, therefore, possible in recent years to raise the intensity of utilization of the *employed* labor force by a much greater relative percentage than could have been done during World War I.

Finally, there was greater awareness of what World War II would entail, more readiness to plan ahead and to adopt promptly whatever course seemed necessary to reorient the economy to the pressing needs of a global military conflict. This, together with idle resources and the fairly large war output attained during neutrality, was a big factor in the remarkable expansion of war and total output after December 7, 1941.[7]

[6] For annual estimates of unemployment and the labor force for recent years see the *Survey of Current Business,* April 1943, Table 1, p. 10. For monthly data for 1940 and 1941 see *ibid.,* June 1943, Table 9, p. 30.

For World War I relevant data appear in *Recent Economic Changes* (National Bureau of Economic Research, 1928), II, Table 29, p. 468, and Table 37, p. 478. Applying to the entries in Table 29 the upward adjustment suggested by Table 37, we get total unemployment for 1914 of roughly 3 million, or about 8 per cent of the labor force; and for 1916 of at most 1 million, or about 2½ per cent. In 1939 and 1941 unemployment was almost 20 and 10 per cent of the labor force.

The results are roughly similar if we extrapolate the estimates of minimum unemployment in the above-cited Table 37 by Paul Douglas' estimates of unemployment in mining, manufacturing, transportation, and the building trades (see his *Real Wages in the United States, 1890-1926,* Houghton Mifflin, 1930, Table 172, p. 460). This extrapolation (including an adjustment of the figures in *Recent Economic Changes* for an underestimate of unemployment due to a slight undercount of the total gainfully occupied as compared with W. I. King's later figures in *National Income and Its Purchasing Power,* National Bureau of Economic Research, 1930) yields an unemployment total of 2.7 million in 1914; 1.1 in 1916 and 1917; and 1.0 in 1918.

[7] Once the hesitation and dislocation that characterized the winter of 1917-18 particularly had been overcome, national product might well have increased substantially had World War I continued.

4 War and Nonwar Components

a *Share of the war component*

Through most of the five years, and especially during participation, the increase in war output was an important source of the increase in national product. We therefore begin the analysis of the composition of national product by studying the share of its war component, i.e., of war output of various descriptions, dominated by munitions (Table III 3).

Table III 3

War Output as a Percentage of Gross National Product

Wartime Concept, World Wars I and II

	1914	1915	1916	1917	1918
World War I					
Based on Annual Estimates					
1 In current prices	0.8	0.8	1.1	10.6	25.7
2 In 1914 prices	0.8	0.8	1.0	9.4	23.3
Based on Estimates for Selected Quarters[1]					
3 In current prices	0.8			1.0	31.4
4 In 1914 prices	0.8			0.9	28.6
	1939	**1940**	**1941**	**1942**	**1943**
World War II					
Based on Annual Estimates					
5 In current prices	1.8	3.2	11.5	34.9	45.6
6 In 1939 prices	1.3	2.2	8.2	29.2	43.0
Based on Estimates for Selected Quarters[2]					
7 In current prices	1.7		16.2		45.9
8 In 1939 prices	1.2		12.0		44.2

For World War I: based on App. Tables III 7 and 8.

For World War II: based on App. Tables II 11 and 13.

[1] II for 1914; I for 1917; IV for 1918. [2] II for 1939; IV for 1941; IV for 1943.

Until this country entered World War I, the share of war output in national product was relatively small. Even in the first quarter of 1917, just before the declaration of war, it was only 1 per cent; and could not be raised above 4 per cent even by a generous allowance for exports to allies. Though it increased rapidly, it was somewhat less than one-third at its peak, in the last quarter of 1918. Annual and quarterly estimates, in both current and 1914 prices, all give the same impression.

The record for World War II is markedly different in two respects. First, the share of war output increased appreciably even before December 1941. For example, the annual totals in 1939 prices rose from somewhat over 1 per cent in 1939 to 8 per cent in 1941; the quarterly data indicate a bigger increase—to 12 per cent by the last quarter of 1941. Second, by the end of 1943 war output constituted a much larger share, 44 per cent, of national product than at the peak of World War I, 29 per cent.

Apparently both the preparatory stages and the years of active participation in this conflict were characterized by relatively greater mobilization of the productive system for war than in World War I.[8] This difference is obviously both cause and effect of the difference discussed in Section III 3: the larger rise in national product in constant prices in this war. Because war output was larger, gross national product was larger; consequently, a bigger share of it could be devoted to war purposes.

b *Changes in war and nonwar sectors*

War output can be expanded by diverting resources ordinarily used for civilian purposes, by more intensive utilization of resources, by putting idle ones to work, or by a combination of all. Table III 4 summarizes changes in the war and nonwar sectors of national

[8] The relative engagement for war purposes of various productive factors, e.g., labor, cannot be compared, even roughly. A War Department estimate of 9.4 million in war work in World War I (see the *Annual Report of the Secretary of War, 1919*) is not confirmed by detailed evidence; and, if the term is equivalent to munitions and related industries as defined in recent years, the estimate is patently too high.

However, the extent of mobilization into the armed forces and federal war agencies can be compared. At the time of the Armistice, the armed forces in World War I were at their peak—4.1-4.2 million; with the addition of those who had lost their lives, close to 4.3 million (J. M. Clark, *The Costs of the World War to the American People*, Yale University Press, 1931, p. 34). On January 1, 1919 the gainfully occupied were estimated to be 40.8 million (W. I. King, *National Income and Its Purchasing Power*, p. 47). The percentage in the armed forces was, therefore, slightly over 10. In January 1944 the armed forces were estimated to be 10.4 million; the labor force, 60.9; yielding a ratio of over 17 per cent (see *Survey of Current Business*, Jan. 1944, Table 2, p. 2).

Inclusion of an allowance for the federal war agencies raises the percentage for World War II more than that for World War I. According to W. I. King the number attached to the federal government, excluding the army, navy, marine, and postal service, did not increase much more than 0.2 million (*op. cit.*, p. 361). In World War II federal war agencies account for 1.5 million (*Survey of Current Business*, Jan. 1944, Table 2, p. 2). The percentage of the gainfully occupied in the armed forces and war agencies was 11 at the peak of World War I; 19, at the end of 1943.

product, compares them with changes in the total, and establishes the relative movement in the nonwar sector. The percentage increase in war output does not admit of meaningful comparisons since the base from which it starts is so low in each period.

During the neutrality interval preceding this war, both national product and the sum of its two nonwar components increased more than before World War I. But war output also increased—accounting for one-third of the increase in national product. For World War I the increase is almost exclusively in the flow of consumer goods and nonwar capital formation. The absolute rise in war output is small. In other words, the addition to national product before this war can be roughly attributed two-thirds to the nonwar and one-third to the war sector; and before World War I, 98 and 2 per cent respectively.

The differences between current experience in active participation and that of World War I are even wider. Since national product failed to increase, and if anything, declined slightly during World War I, the large absolute expansion in war output took place completely at the expense of the nonwar sector. The estimates are crude but indicate that the nonwar sector declined about one-fifth to one-third during the 19 months of this country's participation in World War I. As between the two components of the nonwar sector (App. Table III 6) the decline was much greater in capital formation—by 1918 to one-fifth of the level in 1916; but consumers' outlay also declined—roughly 6 per cent. These declines, in constant prices, are about the same as those in recent quarters.[9]

As during active participation in this war gross national product increased substantially, war production could feed not only upon the diversion of resources from nonwar but also upon an increase in the total amount and productivity of resources used. Slightly over one-half of the increase in the war sector was accounted for by an increase in national product, and less than one-half by a decline in the volume of resources devoted to nonwar production (Table III 4).

The two wars are, therefore, fairly similar in the extent to which nonwar output was reduced under the pressure of participation in

[9] Not much importance can be attributed to the fact that the percentage decline in the nonwar sector was somewhat greater in World War I (Table III 4): the quarterly estimates, which alone show this difference, are too crude for it to be taken into account.

TABLE III 4
War and Nonwar Components of Gross National Product
Wartime Concept, Changes, World Wars I and II
(dollar figures in billions)

		WORLD WAR I			
		1914 to 1916	*1916 to 1918*	*1914-II to 1917-I*	*1917-I to 1918-IV*
A	*Totals, Current Prices*				
1	Change in war component	+0.2	+16.0	+0.2	+20.1
2	Change in nonwar component	+9.1	+2.7	+13.9	—5.2
3	Change in gross national product	+9.3	+18.7	+14.1	+14.9
4	% (1) is of (3)	2.0	85.6	1.4	
B	*Totals, 1914 Prices*				
5	Change in war component	+0.1	+9.3	+0.1	+11.2
6	Change in nonwar component	+4.9	—9.0	+5.1	—13.0
7	Change in gross national product	+5.0	+0.3	+5.2	—1.8
8	% (5) is of (7)	2.0		1.9	
9	% change in nonwar component	+13.6	—22.0	+13.9	—31.0
		WORLD WAR II			
		1939 to 1941	*1941 to 1943*	*1939-II to 1941-IV*	*1941-IV to 1943-IV*
A	*Totals, Current Prices*				
1	Change in war component	+11.4	+68.5	+18.4	+64.3
2	Change in nonwar component	+20.6	—1.8	+26.0	—2.6
3	Change in gross national product	+32.0	+66.7	+44.4	+61.7
4	% (1) is of (3)	35.6		41.4	
B	*Totals, 1939 Prices*				
5	Change in war component	+7.2	+46.6	+11.6	+45.6
6	Change in nonwar component	+14.3	—19.8	+15.3	—18.0
7	Change in gross national product	+21.5	+26.8	+26.9	+27.6
8	% (5) is of (7)	33.5		43.1	
9	% change in nonwar component	+18.3	—21.5	+20.1	—19.7

For World War I: based on App. Tables III 7 and 8.
For World War II: based on App. Tables II 11 and 13.

the armed conflict. However, there is a marked difference in the source of war output; and naturally the much longer duration of this war means a greater cumulative effect of the reduction in nonwar output.

5 CHANGES IN INDUSTRIAL COMPOSITION

a *In current prices*

Data are not available on the industrial distribution of gross na-

tional product (wartime concept), but changes in its origin by major industrial divisions are not likely to differ much from those in the industrial distribution of the income payments-business savings aggregate (Table III 5).

TABLE III 5

Income Payments-Business Savings Aggregate
Percentage Distribution by Industrial Categories
World Wars I and II
(based on totals in current prices)

WORLD WAR I

		1914	*1915*	*1916*	*1917*	*1918*
1	Agriculture	12.7	12.6	12.7	15.0	17.4
2	Mining	2.7	2.8	3.4	3.0	3.0
3	Manufacturing	18.8	20.4	25.4	24.8	24.0
4	Contract construction	4.3	4.2	4.0	2.5	2.2
	Commodity production (1 + 2 + 3 + 4)	38.5	40.0	45.5	45.3	46.6
5	Transportation (excl. motor)	8.3	8.1	7.7	6.9	8.0
6	Other public utilities	1.3	1.3	1.2	1.1	1.2
7	Trade	13.7	12.8	11.9	14.5	12.3
	Transportation & trade (5 + 6 + 7)	23.3	22.2	20.8	22.5	21.5
8	Service & miscellaneous (excl. gov.)	31.8	31.7	28.6	26.6	21.2
9	Government	6.3	6.0	5.1	5.6	10.8
	All services (8 + 9)	38.1	37.7	33.7	32.2	32.0

Based on App. Table III 9.

WORLD WAR II

A *Major Categories*	*1939*	*1940*	*1941*	*1942*	*1943*
1 Agriculture	7.4	6.8	7.6	9.1	9.5
2 Mining	1.9	2.0	2.0	1.8	1.7
3 Manufacturing	24.0	26.1	29.4	30.7	32.5
4 Contract construction	2.7	2.8	3.7	4.7	2.9
Commodity production (1 + 2 + 3 + 4)	36.0	37.7	42.7	46.3	46.6
5 Transportation	7.0	6.9	6.6	6.7	6.5
6 Other public utilities	3.4	3.3	2.7	2.2	1.9
7 Trade	15.5	15.6	15.3	13.1	11.8
Transportation & trade (5 + 6 + 7)	25.9	25.8	24.6	22.0	20.2
8 Service & miscellaneous (excl. gov.)	24.1	23.2	20.7	18.3	16.3
9 Government	14.1	13.3	11.8	13.5	17.0
All services (8 + 9)	38.2	36.5	32.5	31.8	33.3
B *Minor Categories*					
MANUFACTURING					
1 Food, beverages, & tobacco	3.4	3.2	3.0	2.7	2.5
2 Paper, printing, & publishing	2.4	2.4	2.3	1.8	1.7
3 Textiles & leather	3.8	3.7	4.1	3.7	3.4
4 Construction materials & furniture	2.2	2.3	2.5	2.2	1.9
5 Chemicals & petroleum refining	2.1	2.3	2.5	2.4	2.4
6 Machinery, transportation equipment, & other metal products	8.9	10.9	13.7	16.4	19.1
7 Miscellaneous & rubber	1.2	1.2	1.4	1.4	1.5

Table III 5 concluded:

B *Minor Categories (concl.)*

	1939	*1940*	*1941*	*1942*	*1943*
TRADE					
1 Wholesale	5.4	5.4	5.4	4.6	4.1
2 Retail	10.1	10.2	9.9	8.4	7.7
GOVERNMENT					
1 Federal	7.3	6.9	6.6	9.3	13.4
2 State & local (incl. public education)	6.8	6.4	5.2	4.2	3.5
SERVICE & MISCELLANEOUS					
1 Finance	9.6	9.0	7.9	6.9	6.2
2 Service & miscellaneous	14.5	14.2	12.8	11.4	10.1

Based on Department of Commerce estimates, *Survey of Current Business*, April 1944, p. 15, Table 16.

Many of the changes in the industrial distributions of the totals in current prices are similar in the two wars. Agriculture accounts for an increasing share, the percentages rising more or less consistently during the five years covered and their relative increase being roughly the same. The share of mining rises in the earlier years of both wars, then declines. The shares of transportation, other public utilities, trade, and service and miscellaneous (excluding government) decline. The share of government declines during both neutrality periods, and rises markedly during participation.

The big difference between the two wars is in construction. By 1918 its share, which had declined steadily, was down to one-half of the 1914 percentage. From 1939 to 1942 it rose markedly, declining only in 1943.

Data on minor industrial categories are available only for recent years; but the behavior of their shares in World War I was probably similar. The increase in the share of total manufacturing is due primarily to the large increase in the share of the machinery, transportation equipment, and other metal products group, which includes most of the munitions industries. Of the other manufacturing groups, only chemicals and petroleum refining, and miscellaneous and rubber also account for increasing shares of the income payments-business savings aggregate. In contrast, the purely consumer goods industries—food, beverages, and tobacco; paper, printing, and publishing; and even textiles and leather—account for declining shares. In trade the shares of both the wholesale and the retail divisions decline. In government the decline of the share to 1941 and the rise thereafter is accounted for by the movement of income

originating in the federal government; the share of state and local government, including public education, declines steadily. In the service and miscellaneous group, the two categories distinguished—finance, and service and miscellaneous—account for declining shares.

Changes in the industrial distribution of the income payments-business savings aggregate in current prices are not too reliable a measure of changes in the industrial composition of national product in real terms. Prices of final products or of resources for the several product and industry categories move at different rates during the periods characterized by the general price rise associated with a war. For example, in both wars prices of farm products rose at a higher rate than the over-all price index; whereas prices of nonfarm products rose less than the general price level.[10] In transportation and public utilities, in which charges are relatively inflexible, the rise in prices was bound to be less than in industries whose products are not as subject to fixed schedules. We must, therefore, attempt to establish whether, when adjusted for differences in price movements among various categories of final products or resources, the shares of the several industrial divisions would change as those in current prices do in Table III 5.

b *Employed labor force*

Changes in the distribution of total employment (including self-employed and family labor) roughly approximate those in the industrial composition of national product in real terms. Though the former do not take into account possible interindustry differences in the relative use of capital per person engaged, in the utilization of the employed labor force (measured, e.g., by man hours), or in the skill composition of the labor force, it is the only other over-all measure co-extensive in scope with national product in current prices (Table III 6).

Showing elements of similarity in the two wars, these distributions confirm some of the relative shifts in the distributions of the income payments-business savings aggregate. The share of manufacturing increases; the shares of trade and of the service and mis-

[10] For World War I see F. C. Mills, *Economic Tendencies in the United States* (National Bureau of Economic Research, 1932), particularly pp. 205-20. For World War II see his 'Prices in a War Economy', *Occasional Paper 12*, Oct. 1943, particularly Table 5, p. 19.

cellaneous category decline; and the share of government increases, especially after this country entered the wars.

But there are three marked differences between changes in the industrial composition of the employed labor force and in the industrial distribution of the income payments-business savings aggregate (Table III 5). First, in contrast to an increase in the share of total income payments and savings originating in agriculture, the share of the labor force employed in agriculture declines, somewhat more in World War II than in World War I. In other words, the relatively greater wartime inflation of prices of farm products may have been the main source of the increase during both wars in the

TABLE III 6
Total Employed Labor Force
Percentage Distribution by Industrial Categories
World Wars I and II

A WORLD WAR I

	1914	*1915*	*1916*	*1917*	*1918*
1 Agriculture	23.1	22.9	21.7	21.5	21.2
2 Mining	3.2	3.0	3.0	3.0	2.9
3 Manufacturing	20.7	20.6	23.0	24.3	25.0
4 Construction	3.3	3.1	3.1	2.8	2.3
Commodity production (1 + 2 + 3 + 4)	50.2	49.6	50.8	51.6	51.4
5 Transportation & public utilities	7.5	7.2	7.2	7.4	7.7
6 Trade	10.8	11.0	10.8	10.7	10.4
Transportation, public utilities, & trade (5 + 6)	18.3	18.2	18.0	18.2	18.1
7 Government	5.2	5.3	5.2	6.8	12.8
8 Service & miscellaneous	26.3	26.9	26.0	23.4	17.7
All services (7 + 8)	31.5	32.2	31.2	30.2	30.5

Based on App. Table III 10, Part A.

B WORLD WAR II

	1939	*1940*	*1941*	*1942*	*1943*
1 Agriculture	20.6	19.8	17.0	15.3	13.5
2 Mining	1.9	2.0	1.9	1.8	1.5
3 Manufacturing	22.5	23.3	25.8	27.0	27.9
4 Construction	4.5	4.3	4.9	4.2	2.5
Commodity production (1 + 2 + 3 + 4)	49.6	49.4	49.7	48.4	45.4
5 Transportation & public utilities	6.7	6.7	6.6	6.3	6.1
6 Trade	17.5	17.6	16.8	15.2	13.5
Transportation, public utilities, & trade (5 + 6)	24.2	24.2	23.4	21.5	19.6
7 Government	9.6	10.1	12.1	16.7	24.1
8 Service & miscellaneous	16.6	16.3	14.8	13.5	11.0
All services (7 + 8)	26.2	26.3	26.9	30.2	35.1

Based on App. Table III 10. In Part A, but not in Part B, employees are reduced to full-time equivalents. Government includes employees of government owned and operated arsenals and shipyards.

share of agriculture in the income payments-business savings aggregate in current prices.

Second, in contrast to the marked decline in the share of transportation and public utilities in the income payments-business savings aggregate, its share in the employed labor force is maintained in both wars with the exception of the decline in 1942 and 1943 (which is due largely to the marked increase in the total because of additions to the armed forces). The failure of the prices of transportation and other utility services to rise as much as the general price level accounts for their smaller share in the income payments-business savings aggregate; though these industries continued to contribute proportionately as much, if not more, to national product in real terms.

Third, the share of government in the payments-savings aggregate increases in both wars but not until after this country's entrance; even then, the absolute increase is not large (from 6.3 per cent in 1914 to 10.8 per cent in 1918; and from 14.1 per cent in 1939 to 17.0 per cent in 1943). But of the total labor force, including the armed services, government claims a steadily mounting share in both wars, especially upon the mobilization of the armed forces: from 5.2 per cent in 1914 to 12.8 per cent in 1918; and from 9.6 per cent in 1939 to 24.1 per cent in 1943. Obviously, it is the relatively low remuneration of the armed forces that prevents as big a rise in the government's share in the income payments-business savings aggregate as in its share in the total labor force.

c *Shares of selected industries, adjusted for differential price changes*
Absence of accurate data precludes making a separate adjustment for price changes in the net value product (i.e., the income payments-net business savings total) originating in each industry. Adjusted figures can be approximated, however, by means of indexes of physical output for some of the industries listed in Tables III 5 and 6. For both wars, measures of physical output, free from the distorting effects of price changes, are at hand for agriculture, mining, manufacturing, construction, and the major part of transportation. A comparison of these indexes with the movement of gross national product in constant prices shows whether output in these industries increased more or less during each period than national product in real terms. The ratio of the index of physical output in a

given industry to the index of gross national product in constant prices (the base years for both being 1914 and 1939 respectively) can then be applied to the share of the given industry in the income payments-business savings aggregate in current prices for 1914 and for 1939; and shares of these industries in national product in real terms approximated for subsequent years.

TABLE III 7
Percentage Shares of Selected Industries in National Product
Constant Prices, World Wars I and II

		1914	1915	1916	1917	1918
	WORLD WAR I					
1	Agriculture	12.7	11.8	10.2	10.2	11.2
2	Mining	2.7	2.7	3.0	3.0	3.1
3	Manufacturing	18.8	20.4	22.9	21.6	22.4
4	Contract construction	4.3	3.5	3.4	3.3	3.5
5	Transportation	8.3	8.2	9.0	9.4	10.3
		1939	1940	1941	1942	1943
	WORLD WAR II					
6	Agriculture	7.4	7.0	6.2	6.3	5.6
7	Mining	1.9	1.9	1.8	1.7	1.5
8	Manufacturing	24.0	25.5	29.1	33.7	35.3
9	Contract construction	2.7	2.8	3.6	3.7	1.7
10	Transportation	7.0	6.9	7.4	8.6	8.8

Based upon applying to the percentages for 1914 and 1939 respectively (from Tables III 5A and B) the ratios calculated by dividing the indexes of physical output for each industry by the index of gross national product in constant prices (App. Table III 11).

The percentages in Table III 7, calculated in this fashion, confirm the evidence of Tables III 5 and 6. The share of agriculture in national product (both numerator and denominator in constant prices) shrinks markedly in both wars, indicating that agricultural output did not increase nearly as much as total output. In World War II the share of mining declines, appreciably only after the country is well along in active participation, because an expansion in raw material production must precede that in finished war goods. In World War I, on the contrary, it increases fairly continuously.[11] The share of manufacturing gains substantially in both wars, but not after 1916 in World War I, and much more steadily and ap-

[11] The evidence concerning the movement of the shares of mining in the two wars (Tables III 6 and 7) is contradictory, owing perhaps to inadequacy of the employment estimates and of the physical output indexes. Conclusions concerning this industrial category are, therefore, omitted from further discussion.

preciably in World War II.[12] Detailed data for this war indicate that the increase is due to the increases in industries most actively engaged in producing war implements. The share of construction declines in World War I and increases during World War II through 1942. Its drop in 1943 is due obviously to the completion of the expansion of facilities that precedes maximum production of finished war goods. The share of transportation increases in both wars, owing to the heavier burden placed upon the transportation system by the demands of expanded war production and the greater movement of both goods and men.

The similarities noted in the shifts in the industrial composition of national product can perhaps be explained in terms of persisting differences in the expansibility of the several industries in response to war needs; in the extent to which war needs mean bigger demand for their products; in the ease with which their prices can be controlled; in the degree to which other means of compulsion can be exercised by public authorities to mobilize resources. These factors serve to explain why agriculture accounts for an increasing share of the income payments-business savings aggregate and a declining share of national product in real terms, why the share of manufacturing in national product in both current and constant prices increases, and why public utilities account for a declining share in current prices and a mounting share in constant prices.

The differences in the changes in industrial composition—the chief of which, as mentioned, is in the share of construction—are associated with other differences noted in Sections 3 and 4: the greater increase in national product in World War II and the bigger share in it of war output. In recent years the country has had huge stocks of resources to draw on in extending old facilities and building up an impressive number of new ones for the specific purposes

[12] The index for World War I, originally constructed by W. W. Stewart and recently revised by Solomon Fabricant (*Employment in Manufacturing, 1899-1939: An Analysis of Its Relation to the Volume of Production,* National Bureau of Economic Research, 1942, p. 331), is more heavily weighted with industrial materials and semifabricates than the Federal Reserve Board index, used for recent years, which is heavily weighted with man hour series for war industries. Consequently, when we compare them, manufacturing is shown to have risen more during recent years relatively to World War I than if both indexes were equally biased by being overweighted with industrial materials and semifabricates or with man hour series. It may be doubted, however, that the differential bias in the two indexes is so great as to cancel the much greater rise in the share of manufacturing during World War II (Table III 7).

of war production. During the period of neutrality preceding World War I, in contrast, construction was kept down by competitive market pressures; its possible expansion after this country entered the war was restrained by the tightness of resources which made it impossible to produce war goods on a huge scale and increase construction at the same time. In World War II the greater increase in war output is associated also with the greater increase in the share of manufacturing in total national product.

6 Distribution by Type of Income or Payment

a *Gross national product*

Aggregate income payments, including entrepreneurial savings, alone can be allocated by type of payment. The other components of gross national product, as defined and estimated here—net profits retained by corporations, additions to tax payments, and charges for depreciation and depletion—are not income flows to individuals from economic enterprises. However, before studying changes in the composition of income payments by type, we consider this aggregate and view the flow to individual income recipients as part of gross national product, the most comprehensive measure of total output (Table III 8).

Table III 8

Gross National Product, Wartime Concept (unadjusted for inventory revaluation), Percentage Distribution among Income Payments and Other Components, World Wars I and II (based on totals in current prices)

		1914	*1915*	*1916*	*1917*	*1918*
	World War I					
1	Income payments, incl. entrepreneurial savings	91.2	88.7	86.4	84.3	87.0
2	Corporate savings	0.6	3.5	6.2	6.0	1.8
3	Additions to corporate income & profits taxes	0	0	0.2	3.5	4.7
4	Depreciation & depletion	8.3	7.8	7.0	6.3	6.6
5	Gross product, unadj.	100.0	100.0	100.0	100.0	100.0
		1939	*1940*	*1941*	*1942*	*1943*
	World War II					
6	Income payments, incl. entrepreneurial savings	88.7	87.5	86.0	84.7	83.5
7	Corporate savings	2.4	3.8	5.4	4.4	3.7
8	Additions to corporate income & profits taxes	0	0.3	1.4	4.2	6.5
9	Depreciation & depletion	9.0	8.4	7.2	6.7	6.3
10	Gross product, unadj.	100.0	100.0	100.0	100.0	100.0

For World War I, calculations based upon Appendix Table III 1, lines 1, 2, 3, 5, 6, and 7; for World War II, upon Appendix Table III 3, lines 1, 2, 3, 4, and 5.

There is close similarity in the distributions of the unadjusted gross national product totals among income payments and other items.[13] In both wars the proportion accounted for by income payments is close to 90 per cent in the early years, then declines, but by relatively minor percentages. The share of corporate savings increases markedly during the two intervals of neutrality, and stays on a level above that of prewar years even during participation. The additions to corporate income and profits taxes, caused largely by the bigger needs of government in connection with war output, naturally account for the increase in their share of gross national product—a share almost the same in the two wars. Depreciation and depletion, which rises much more slowly than national product in current prices, accounts for declining shares, the declines also being about the same in the two wars.

The amount distributed in income payments to individuals constitutes merely a fraction, though a preponderant one, of national product. That this fraction shrinks in wartime is natural: a progressively larger proportion of the nation's output is bought, and is intended to be bought, by a purchaser other than individual income recipients, i.e., the government. Indeed, were income payments to individuals geared closely to the value of product the economic system makes available for individuals' purchases in wartime, the ratio of income payments to gross national product would have been much lower than in Table III 8; and would have declined much more from the first to the last year in the two periods covered. It does not because spendable incomes of individuals (as distinct from incomes received) are reduced by higher taxes as well as by borrowing—the two methods by which government gets the share of individuals' income payments needed to finance the part of gross national product not available for consumers' purchases or private investment. To the degree that these two methods, especially taxation, are effective, the distribution of income payments by type does not have as much meaning in wartime as in peacetime, since it does not approximate as well the true net compensation of the productive factors involved. No adjustment can be made, because it is impossible to determine how much the government gets by taxes

[13] Since for World War I inventory revaluation cannot be apportioned between savings of corporations and of individual entrepreneurs, we have to use totals unadjusted for it.

or borrowing from each type of payment. But the qualification must be borne in mind in subsequent analysis.

b *Payments by type*

Shifts in the distributions of income payments by type in the two wars are similar in many respects (Table III 9). The parallel shifts are clearer in Table III 10. All types, except employee compensation and dividends, move similarly not only during both wars but also

TABLE III 9

Aggregate Payments, including Entrepreneurial Savings
Percentage Distribution by Type, World Wars I and II
(based on totals in current prices)

A WORLD WAR I

		1914	*1915*	*1916*	*1917*	*1918*
1	Employee compensation	55.1	53.9	52.5	49.5	55.7
2	Entrepreneurial net income					
	a) Agriculture	10.2	10.6	11.3	13.7	15.3
	b) Other	15.3	16.6	16.6	19.0	12.6
	c) Total	25.5	27.2	27.9	32.7	27.9
3	Service income (1 + 2c)	80.6	81.1	80.4	82.2	83.6
4	Dividends	6.0	5.7	7.8	7.3	6.2
5	Interest	4.4	4.5	3.9	3.5	3.5
6	Rent	9.0	8.8	7.9	7.0	6.7
7	Property income (4 + 5 + 6)	19.4	19.0	19.6	17.8	16.4
8	Total payments (3 + 7)	100.0	100.0	100.0	100.0	100.0
9	Corporate savings as % of total payments	0.7	3.9	7.3	7.0	2.1

Based on App. Table III 9.

B WORLD WAR II

		1939	*1940*	*1941*	*1942*	*1943*
10	Employee compensation	68.3	69.0	69.5	71.5	73.6
11	Entrepreneurial net income					
	a) Agriculture	6.1	5.8	6.8	8.3	8.6
	b) Other	9.7	10.1	10.3	9.3	8.1
	c) Total	15.8	15.8	17.1	17.6	16.7
12	Service income (10 + 11c)	84.1	84.8	86.6	89.1	90.3
13	Dividends	5.4	5.3	4.9	3.4	2.8
14	Interest	7.2	6.8	5.7	4.7	4.2
15	Net rents & royalties	3.3	3.1	3.0	2.9	2.7
16	Property income	15.9	15.2	13.6	11.0	9.7
17	Total payments (12 + 16)	100.0	100.0	100.0	100.0	100.0
18	Corporate savings as % of total payments	0.6	2.4	4.3	3.8	3.4

Based on Department of Commerce estimates in *Survey of Current Business*, April 1944, Table 15, p. 15.

during neutrality and participation. For example, the share of the net income of entrepreneurs in agriculture increases during both intervals of neutrality, and even more during belligerency; that of entrepreneurs in other industries increases during both intervals of neutrality, and declines during belligerency in both wars (although the movement in World War I is quite erratic). The share of service incomes, i.e., employee compensation plus entrepreneurial net income, which represents payments largely for direct services by individuals, increases somewhat more during World War II. This means that the share of property income—dividends, interest, and

TABLE III 10

Percentage Shares of Various Types of Payment and of Corporate Savings in Aggregate Income Payments Changes, World Wars I and II

		1914-16	*1916-18*	*1914-18*
	WORLD WAR I			
1	Employee compensation	—2.6	+3.2	+0.6
2	Entrepreneurial net income			
	a) Agriculture	+1.1	+4.0	+5.1
	b) Other	+1.3	—4.0	—2.7
	c) Total	+2.4	0	+2.4
3	Service income (1 + 2c)	—0.2	+3.2	+3.0
4	Dividends	+1.8	—1.6	+0.2
5	Interest	—0.5	—0.4	—0.9
6	Rent	—1.1	—1.2	—2.3
7	Property income (4 + 5 + 6)	+0.2	—3.2	—3.0
8	Total payments (3 + 7)	0	0	0
9	Corporate savings as % of total payments	+6.6	—5.2	+1.4
		1939-41	*1941-43*	*1939-43*
	WORLD WAR II			
10	Employee compensation	+1.2	+4.1	+5.3
11	Entrepreneurial net income			
	a) Agriculture	+0.7	+1.8	+2.5
	b) Other	+0.6	—2.2	—1.6
	c) Total	+1.3	—0.4	+0.9
12	Service income (10 + 11c)	+2.5	+3.7	+6.2
13	Dividends	—0.5	—2.1	—2.6
14	Interest	—1.5	—1.5	—3.0
15	Net rents & royalties	—0.3	—0.3	—0.6
16	Property income	—2.3	—3.9	—6.2
17	Total payments (12 + 16)	0	0	0
18	Corporate savings as % of total payments	+3.7	—0.9	+2.8

Based on Table III 9.

rents and royalties combined—must decline. The shares of interest and rent decline in both wars and periods. Finally, corporate savings, as a percentage of total payments, also rise during both intervals of neutrality and decline during belligerency.

The two exceptions characterize the period of neutrality: the share of employee compensation declines during the interval of neutrality before World War I, and increases from 1916 to 1918; it increases from 1939 to 1941, and even more from 1941 to 1943. The share of dividends increases during the interval of neutrality before World War I, and declines from 1916 to 1918; it declines from 1939 to 1941, and even more from 1941 to 1943, so that, by the end of 1943, it is one-half of its prewar level.

The similarities are expected. When prices are rising and effort is directed to commodity production, shares of such relatively fixed types of payment as interest and rent naturally decline; the share of farmers' net income increases with the rise in the share of agriculture in national product in current prices. In years of neutrality, i.e., when business is prosperous and not burdened by heavy taxes, corporate savings constitute a mounting percentage of income payments; when participation in a war brings higher taxes, it constitutes a declining percentage.

The differing movements in the share of dividends can perhaps best be explained by the difference in the impact of direct taxes upon the members of the community of whose total income dividends constitute a large proportion. Since dividends are concentrated in the upper income brackets, a high income tax, and especially surtax rates, will impede dividend distributions, while low tax rates will further it. As high normal and surtax rates did not go into effect early in World War I, they did not begin to influence incomes until 1917. Also, during World War I the individual received a credit for dividends in his *normal* tax base; this meant a smaller differential burden on income paid out as compared with that retained by the corporation than now, when dividends are fully taxed. High even for incomes in 1939, the normal and surtax rates were raised for 1940, so that corporations had less incentive to increase dividend disbursements proportionately to their net profits. Moreover, benefiting from experience with the consequences of a major war in their bearing upon the obsolescence of capital investment and needs for funds for postwar reconversion, corporations

have followed a more conservative policy in this war than they did in World War I.

The difference in the movement of the share of employee compensation during the intervals of neutrality is less easy to explain. One would expect that, in general, as was the case during the 1920's, a business expansion such as took place from 1914 to 1916 would be accompanied by a rise in the proportion employee compensation constituted of total income payments. That this was not the case in 1914-16 may be due to the rise in dividends and entrepreneurial net income. During the neutrality interval before World War I, the share of entrepreneurial net income increased more than before World War II (Table III 10, col. 1). As dividends also were increasing relatively more than total income, the *share* of employee compensation would not increase as much, and might even decline.

7 Distribution by Size

Wartime reduction in unemployment and shifts in the distribution of income payments by type are among the factors that should effect changes in the distribution of income among recipient or population groups at various income levels. Do the upper income brackets receive an increasing or decreasing share of total income payments? Is the distribution of income by size more or less concentrated?

Important as these questions are, no data are available for accurate answers; and useful as distributions of income flows among recipients or among population groups at various income levels would be for economic analysis and policy, they cannot be made on a fully adequate basis even for recent years, let alone for World War I. However, a few estimates that indicate relations are presented.[14]

For World War I two types of measure are available, both for the distribution at relatively high income levels (Table III 11). The first, showing the percentage of total income going to the highest 5 per cent of income recipients (line 1), suggests that during

[14] All are in current prices, before any tax deductions. For purposes of measuring changes in the distribution of spendable incomes among various recipient groups, we would obviously need to adjust for changes in the tax load and for differential changes in the cost of living among income groups. Neither adjustment is possible; and the fact that we deal with total income payments in current prices, rather than with spendable income adjusted for price differentials among various income groups, must be kept in mind in interpreting the estimates discussed below.

the interval of neutrality it rose somewhat, but that during participation it declined markedly.

The second compares the income of the recipient group above a given dollar level with the income of recipients below (lines 2 and

TABLE III 11

Measure of Changes in the Distribution of Income by Size

World War I

		1914	*1915*	*1916*	*1917*	*1918*
1	% of total income received by highest 5% of income recipients	32	31	34	29	25
2	Ratio of av. income per person in group over $2,000 to av. in group under $2,000	10.8	7.7	7.8	5.6	4.7
3	(2) divided by ratio of $2,000 to av. income per recipient	5.0	3.8	4.3	3.7	3.5
4	Ratio of av. income per person in group over $5,000 to av. in group under $5,000 (both in 1913 prices)	16.9	20.2	20.6	16.8	14.2
5	(4) divided by ratio of $5,000 to av. income per recipient (both in 1913 prices)	3.2	3.9	4.2	3.4	2.8
6	Ratio of weighted av. deviation to av. realized income per gainfully occupied	0.20	0.18	0.12	0.10	0.09

LINE

1 See *Income in the United States* (National Bureau of Economic Research, 1922), II, p. 334, Table 26D.

2 Derived from *ibid.*, p. 332, Table 26C. Entries are a ratio of (a) (% of income in the over $2,000 group) ÷ (% of recipients in the over $2,000 group) to (b) (% of income in the under $2,000 group) ÷ (% of recipients in the under $2,000 group).

3 For total income paid out and number of recipients used to derive the average income per recipient see *ibid.*, p. 331, Table 26A.

4 Basic data from W. I. King, *National Income and Its Purchasing Power* (National Bureau of Economic Research, 1930), Table XXXII, p. 173, and Table XXXIII, p. 178. For method of calculation see note to line 2.

5 Average income in 1913 prices calculated from the tables cited in the note to line 4.

6 Based on the distribution of the gainfully occupied and of realized income (excl. the miscellaneous category) (W. I. King, *op. cit.*, Table III, p. 53, and Table XIV, pp. 94-5) by industries—agriculture, mining, manufacturing, construction, transportation, trade, banking, government, and unclassified.

The average deviation is computed by (a) subtracting from 1 the ratio of the % of income to the % of gainfully occupied in each industrial division; (b) multiplying the item under (a) for each industrial division by its % of gainfully occupied; (c) adding the products under (b), disregarding sign; (d) dividing the sum under (c) by 100. The result of (d) is entered directly in line 6, since the average income per gainfully occupied, implicit in the whole calculation, is 1.

4). Such measures, by themselves, do not reveal changes in the distribution, since as the average income per recipient rises or falls, the meaning of a fixed dollar level as an indicator of relative income status changes. For example, $5,000 exceeded the average income in 1914 much more than in 1918. We must, therefore, adjust the distribution based upon dividing lines drawn at a fixed dollar level by the ratio of this level to the average for all income recipients. While this adjustment is crude, lines 3 and 5 are much more reliable measures of changes in relative dispersion than lines 2 and 4.

The measure based upon the dividing line at $5,000 (in 1913 prices) shows, like line 1, that the percentage of incomes going to the upper brackets rose from 1914 to 1916 and dropped markedly from 1916 to 1918. The measure based upon the dividing line at $2,000, on the contrary, shows that the percentage declined during neutrality; but, as in lines 2, 4, and 5, the decline during participation was steeper. Like the first measure, these two indicate that during the interval of neutrality the distribution of incomes remained the same or became more dispersed, and during participation tended more nearly to approach equality.

No direct evidence is available for World War I on the distribution of income by size among the vast body of income recipients below these few upper brackets. Circumstantial evidence, however, suggests that it must have become less dispersed. The reduction in unemployment meant fewer potential income recipients whose incomes were zero or close to it, i.e., cutting off the extreme left-hand tail of an income distribution constructed (as it should be) for all income recipients, potential and actual. Also, interindustry shifts tended on the whole to raise the average level of incomes in the industries that, before the war, were well below the average (line 6). The increase in agricultural income per capita was a large factor in reducing the contribution of interindustry differences in income per gainfully occupied to the dispersion of the income distribution.

For World War II the data are somewhat richer, yet far from comprehensive and conclusive. Like line 1 of Table III 11, Table III 12 measures changes in the percentage of total income going to upper income recipients, but it covers also dependents instead of recipients alone. The percentage of income received by the upper 10, 7, 4, 3, and even 2 per cent declined from 1939 to 1941. In

contrast, the percentage of income received by the upper 1 per cent showed no significant decline (top panel). If the ratios in the lowest panel were plotted, the Lorenz curve would be more concave in 1940

TABLE III 12

Percentage of Total Income Received by a Given Percentage of the Total Population (incl. Farmers) with the Highest Per Capita Incomes, 1939-1941

	10%	*7%*	*4%*	*3%*	*2%*	*1%*
1939	33.64	27.29	20.51	18.19	15.35	11.53
1940	31.54	26.33	20.33	18.08	15.34	11.66
1941	30.70*	25.38*	19.79	17.53	14.88	11.34

SUCCESSIVE DIFFERENCES

	10-7%	*7-4%*	*4-3%*	*3-2%*	*2-1%*
1939	6.35	6.78	2.32	2.84	3.82
1940	5.21	6.00	2.25	2.74	3.68
1941	5.32	5.59	2.26	2.65	3.54

RATIO OF SHARE OF INCOME TO SHARE OF POPULATION WITHIN THE UPPER 10%

	10-7%	*10-4%*	*10-3%*	*10-2%*	*10-1%*	*Full 10%*
1939	0.63	0.65	0.66	0.68	0.73	1.00
1940	0.55	0.59	0.61	0.64	0.70	1.00
1941	0.58	0.59	0.61	0.64	0.70	1.00

*Or 30.88 for 10% of population and 25.42 for 7% when all returns under $3,000 are combined.

The number of persons dependent upon the income reported in *Statistics of Income* on individual and taxable fiduciary returns with net income is cumulated downward from the highest net income group by $1,000 net income groups and its percentage of the total population as of July 1 (Bureau of the Census) computed.

Total income is likewise cumulated and expressed as percentages of income payments to individuals (*Survey of Current Business*, April and August 1944).

The percentage of income received by a given percentage of the population is then based on the interpolations to the logarithms of cumulated population and income.

The number of persons dependent upon the income reported in *Statistics of Income* is the sum of the number of returns (joint returns are given double weight) and the number of dependents (total credit for dependents, as reported, divided by the per capita allowance).

In the calculations above, total income as reported in *Statistics of Income* is adjusted by subtracting capital gain, net gain from sales of property other than capital assets, and business and partnership losses.

For 1939 and 1940, for net income groups of $5,000 and over, partly tax exempt interest received on government obligations as reported on the face of the return is replaced by total interest received as reported in the information schedule of the return.

For 1941, data for returns on Form 1040A are distributed by net income groups on the basis of the distribution of returns on Form 1040 up to $3,000.

and 1941 than in 1939. This suggests that with narrower dispersion from 1939 to 1941 between the top income group and the mass of income recipients, there was increased dispersion in the distribution within the top group proper.[15]

For 1941-43 distributions comparable with the distribution of income among consuming units in 1935-36, published originally by the National Resources Planning Board, have been prepared. A summary (Table III 13) indicates that dispersion diminished from 1935-36 to 1941, and that this tendency continued, though it was slighter, to 1943.

TABLE III 13

Shares of Lowest and Highest Tenth and Three-tenths in Total Income, 1935-1936 and 1941-1943

	Families	*1935-36*	*1941*	*1942*	*1943*
1	Share of lowest tenth	1.3	1.4	1.4	1.5
2	Share of lowest three-tenths	7.9	8.2	8.4	8.6
3	Share of highest tenth	38.4	36.1	35.3	34.2
4	Share of highest three-tenths	64.4	63.0	62.3	61.4
5	Coefficient of variation	1.49	1.28	1.17	1.08
	Single Consumers				
6	Share of lowest tenth	1.5	1.6	1.6	1.6
7	Share of lowest three-tenths	9.2	9.4	9.6	9.7
8	Share of highest tenth	32.9	31.5	31.0	30.4
9	Share of highest three-tenths	60.4	59.5	59.1	58.7
10	Coefficient of variation	1.24	1.08	1.08	1.03

Estimates for 1941-43 are for the distribution of civilian money income alone, excluding imputed value of farm products retained for home consumption, wages and relief in kind; and excluding payments to military personnel and institutional residents. For 1935-36 a comparable estimate was derived.

The distributions underlying the calculations above were prepared by Hildegarde Kneeland and William G. Madow in the Office of Price Administration, Division of Economic Research.

The increase in the percentage of income received by the lowest one-tenth and the lowest three-tenths of the family and individual consumer groups indicates a similar tendency at the other end of the income scale between 1941 and 1943. Whether this was true also between 1939 and 1941 is a matter for conjecture. But here again indirect evidence of the type already cited in connection with

[15] Again we must note that the distributions are for total income, i.e., do not take account of income tax deductions.

World War I—the reduction in unemployment and the greater rise in per capita income in industries with below-the-average per capita income, such as agriculture—suggests that it was.

The similarities and differences between the two wars are in harmony with those in changes in the distribution of income payments by type. Obviously, a decline in the share of property incomes, particularly of dividends and interest, would, other conditions being equal, mean a decline in the proportion of income received by the upper income brackets. As stated in Section 5, the share of property incomes, particularly of dividends, declined steadily from 1939 through 1943; consequently, a smaller percentage of total income was received by the very high income groups. In World War I the share of property incomes, particularly of dividends, declined only between 1916 and 1918. From 1914 to 1916, on the contrary, the share of dividends increased. There is a parallel movement in the size distribution of income, again between the high income brackets and the mass of income recipients: the distribution remained the same or became more dispersed from 1914 to 1916; from 1916 to 1918, dispersion narrowed.

8 Summary

By way of summary, a conspectus of similarities and differences in the movement of national product and of its components during the two wars is presented in Table III 14. It notes merely the chief parallels and deviations from them, and states the conclusions without the qualifications emphasized in the text.

One aspect of these conclusions that cannot be recorded in the tabular summary deserves special comment: the interrelation of the movements of national product and its components, in both their similarities and their differences during the two wars. There was obviously a close connection between the rise in national product in real terms stimulated by the wars, the increasing proportion in it of war output, and the gains in the shares of manufacturing and transportation. Likewise, there was a definite interconnection among the differences in the movement of national product: between its smaller gain and the lower level reached by the share of war output in World War I, the smaller share of war output, the smaller gain in

TABLE III 14

Conspectus of Similarities and Differences in the Movement of Gross National Product and Various Components World Wars I and II

SIMILARITIES	DIFFERENCES
I GROSS NATIONAL PRODUCT	
1 In Current Prices	
Appreciable rise; at much higher rates during participation than during neutrality.	The rate in World War II almost 1½ times that in I, both for the period as a whole & during neutrality & belligerency.
2 Price Levels	
Rise; at much higher rates during participation than during neutrality.	Rise greater in World War I than in II, the chief difference being during participation.
3 In Constant Prices	
Appreciable rise.	The rate during World War II over 3 times as high as during I. The difference is especially marked for the periods of participation: in World War I the rise was negligible; in II it continued through belligerency at about the same rate as during neutrality.
II SHARE OF WAR OUTPUT (constant prices)	
Appreciable rise.	World War I peak 29% (1918), II, 44% (1943).
Rise especially rapid & great after this country entered the war.	During the neutrality interval preceding World War I it scarcely rose & remained minor until the day of entry. In II it rose to 10% before entry.
No corresponding similarity.	In World War II the increase in war output, even after entry, fed to a large extent upon a rise in national product. In I it was associated almost exclusively with a decline in the nonwar sector.
III CHANGES IN THE NONWAR SECTOR (SUM OF CONSUMERS' OUTLAY & NONWAR CAPITAL FORMATION) (constant prices)	
Appreciable rise during neutrality.	Rise somewhat greater in neutrality interval preceding World War II than in I.
Decline, especially in nonwar capital formation, during participation.	No corresponding difference.
IV INDUSTRIAL COMPOSITION	
1 Shares in Income Payments-Business Savings Aggregate (current prices)	
Shares of agriculture & mfg. rose; transp., other public utilities, trade, & service & misc. declined. Share of gov. declined during neutrality & rose during participation.	In World War I share of contract construction declined; it rose 1939-42 & declined in 1943.

2 *Shares in Employed Labor Force (incl. self-employed & armed forces)*

Shares of agriculture, trade, & service & misc. declined; mfg., transp. & other public utilities, & gov. rose, the last especially during participation.	The decline in share of agriculture & the rise in share of mfg. greater in World War II than in I.

3 *Shares in National Product (constant prices)*

Share of agriculture declined; of mfg. & transp. rose appreciably.	Share of construction declined in World War I; rose 1939-42, & declined in 1943. Relative rises in share of mfg. & declines in share of agriculture bigger in World War II.

V Distribution of Income by Type (current prices)

1 *Shares in Gross National Product*

Share of aggregate income payments, about 90% of gross national product, declined 4-5%.	No corresponding difference.

2 *Shares in Aggregate Income Payments*

a PROPERTY AND SERVICE INCOME

Shares of interest, rent, & property income declined; of total service income rose.	Decline in share of property income & rise in that of service income larger in World War II, especially in neutrality, though shift in favor of service income not as marked as during participation.

b ENTREPRENEURIAL NET INCOME

Share of net income of agricultural entrepreneurs rose; of entrepreneurs in other industries rose during neutrality, declined during participation.	No corresponding difference.

c EMPLOYEE COMPENSATION AND DIVIDENDS

No corresponding similarity.	Decline in share of employee compensation & rise in share of dividends before World War I offset by respective rise & decline during participation. In World War II former rose & latter declined consistently.

d RATIO OF CORPORATE SAVINGS TO AGGREGATE INCOME PAYMENTS

Rose, especially during neutrality, though there was some offsetting decline during participation.	At 1943 peak only ½ of 1916-17 peak.

VI Distribution of Income by Size

1 *Extreme Upper Range*

Share in total income declined.	In World War II share declined continuously; in I, rose during neutrality & declined greatly during participation.

2 *Below Extreme Upper Range*

Reduction in unemployment & relatively greater rise in low income yielding industries, especially agriculture, than in high income yielding industries probably caused a more even distribution of income, though lack of data precludes definite conclusions for World War I.	No corresponding difference.

the share of manufacturing, and the absence of an advance in the share of construction.

With respect to the monetary income flows and their distribution by type of payment or by size, there was again a connection between the increase in the share of service incomes and the changing proportion of income going to the very high income groups and to the mass of lower income recipients. These changes were fairly similar in the two wars. Again the differences are interrelated: the decline in the share of wages and salaries during the neutrality interval preceding World War I, the gain in the share of dividends, and the tendency toward wider dispersion in the distribution by size —none of these being observed during the neutrality interval preceding World War II. This reasonable and expected close interrelation of the movements in various components of national product or national income lends our conclusions, as to both the similarities and differences during the two wars, a weight they would not have in its absence.

We must end as we began—by calling attention to the difference in the periods compared: though equal in length, 1914-18 covers all World War I, but 1939-43 covers only a portion of this war. Presumably in 1944 the large share in national product of war output, the relatively small share of the nonwar sector, particularly of nonwar capital formation, the shifts in industrial composition, in the apportionment by type of payment, in the distribution by size have at least been maintained, if they have not become more pronounced; and the same is likely to be true of the remaining years of conflict, at least until the end of the war in Europe. This means that after World War II the cumulative effects of the war shifts on postwar prospects are likely to exceed those after World War I even more than the above analysis suggests.

APPENDIX III

Estimates of National Product, 1914-1921

To avoid burdening the text with tables showing how the basic figures and their components were obtained, we prepared this Appendix. Assembled for reference use, the tables do not call for ex-

tensive discussion. The notes, which follow the order of the tables, are designed to be merely brief introductions.

While the analysis in Part III covers the years of World War I proper, i.e., 1914-18, most of the tables in Appendix III continue the estimates through 1919, some through 1921, to facilitate combining them with other series published by the National Bureau. The latter usually include imputed rents and net savings of governments, which are excluded here. In addition, the estimates below are based on King's estimates of income payments, which, though adjusted for some sources of noncomparability, differ somewhat from the recently estimated totals for years beginning with 1919, which are based upon more recent and extensive data.

Appendix Tables III 1-3

For World War I gross national product, as defined here, can be measured by the payment-savings approach alone, i.e., as the sum of aggregate income payments, business savings of corporations and individuals, depreciation and depletion, and additions to corporate income and profits taxes. Of the adjustments necessary to render this unadjusted gross national product total comparable with the one for recent years, the most important is that for inventory revaluation. In view of the marked rise in commodity prices during World War I, business savings must have been inflated, because inventories are valued at cost or market, whichever is lower. Consequently, it seemed indispensable to adjust for the effects of this practice upon national product, approximate though the adjustment (App. Table III 1, line 8) is.

While depreciation and depletion is not large relative to other components of gross national product, its computation is statistically difficult; and for government, capital depreciation must rest upon rather crude assumptions. The main function of Appendix Table III 2 is to explain for technical students the methods of making the estimate in Appendix Table III 1.

Since the payment-savings approach is the sole method of measuring gross national product in World War I, we compare its results for recent years with the totals discussed in the text. The unadjusted gross national product for recent years in Appendix Table III 3, line 6, is comparable with that in Appendix Table III 1,

line 7. It differs in merely minor respects from the gross national product total for recent years discussed in the text (line 9), and the total for World War I comparable to the latter is even closer. The one discrepancy of any size—for 1943—is less than 3 per cent.

The agreement of gross national product totals for recent years estimated by the payment-savings and final-products methods does not, of course, mean that the former yields an accurate total for World War I. All that Appendix Table III 3 proves is that no specific error need be attributed to the payment-savings approach. The estimates of income payments, business savings, depreciation and depletion for World War I are still subject to qualification.

For 1919-21 the crude estimates of gross national product, war-

APPENDIX TABLE III 1

Gross National Product, Wartime Concept, Current Prices, 1914-1921
(billions of dollars)

	1914	*1915*	*1916*	*1917*	*1918*	*1919*	*1920*	*1921*
1 Aggregate income payments	32.5	33.6	38.7	44.8	51.9	57.3	64.3	56.6
2 Entrepreneurial savings	0.6	1.7	3.3	6.2	4.9	7.4	2.4	—1.8
3 Corporate savings	0.2	1.4	3.0	3.6	1.2	3.6	1.4	—2.8
4 Total business savings (2 + 3)	0.8	3.1	6.4	9.8	6.0	11.0	3.8	—4.6
5 Depreciation & depletion	3.0	3.1	3.4	3.8	4.3	4.8	5.1	5.0
6 Additions to corporate income & profits taxes	0	0	0.1	2.1	3.1	2.1	1.6	0.7
7 Gross national product, unadj. (1 + 4 + 5 + 6)	36.3	39.8	48.6	60.5	65.3	75.2	74.8	57.7
8 Crude adj. for inventory revaluation	0	0	3.0	3.0	1.0	2.0	—4.0	—6.4
9 Gross national product, adj. (7 — 8)	36.3	39.8	45.6	57.5	64.3	73.2	78.8	64.1
10 War output	0.3	0.3	0.5	6.1	16.5	9.7	2.0	1.3
11 Nonwar sector (9 — 10)	36.0	39.5	45.1	51.4	47.8	63.5	76.8	62.8

LINE

1, 2, & 3 W. I. King's estimates revised (App. Table III 9) to make them comparable with Department of Commerce estimates for recent years.

5 App. Table III 2. Excludes depreciation on owner-occupied dwellings.

6 *Statistics of Income, 1926,* p. 44.

8 The 1914-18 estimates are computed by multiplying the price changes 1914-18 by a crude ratio of inventory adjustments to price changes 1919-43, the latter measured from October to September, allowing total inventories in 1914-18 to be somewhat over one-half those for recent years (in comparable prices). For 1919-21 see Kuznets, *National Income and Its Composition,* Table VII, pp. 903 ff.

10 App. Table III 7, col. 6.

time concept, in Appendix Table III 1 can be compared with those based on more detailed recent data, prepared for a prospective monograph entitled *National Product since 1869*. These estimates, for 1919-43, linked with the detailed work underlying *National Income and Its Composition* and *Commodity Flow and Capital Formation,* can be used to check the estimates in Appendix Table III 1, once the latter have been adjusted for the difference in their

APPENDIX TABLE III 2

Depreciation and Depletion, 1913-1921
(millions of dollars)

	1913	*1914*	*1915*	*1916*	*1917*	*1918*	*1919*	*1920*	*1921*
1 Business depreciation & depletion	2,253	2,324	2,413	2,613	2,991	3,454	3,906	4,208	4,040
2 Provision for fire losses	90	90	81	122	155	208	209	218	217
3 Gov. capital depreciation	183	194	206	219	233	248	264	276	292
4 Depreciation on dwellings									
a) Total	783	812	839	867	894	905	928	977	948
b) Owner-occupied	413	430	445	462	479	487	501	534	508
c) Rented (a — b)	370	382	394	405	415	418	427	443	440
5 Total depreciation & depletion (1 + 2 + 3 + 4c)	2,896	2,990	3,094	3,359	3,794	4,328	4,806	5,145	4,989

LINE

1 Entries for 1919-21 (Solomon Fabricant, *Capital Consumption and Adjustment,* Table 29, p. 160) extrapolated for the years back to 1913 by a series of depreciation charges based on the output of capital goods (*ibid.,* Table 34, p. 182) and computed for the years back to 1913 by the method used to obtain the estimates in *ibid.* for 1919-35.

2 Entries for 1919-21 (*ibid.,* Table 4, p. 40). Computed for the years back to 1913 by the method used to obtain the estimates in *ibid.* for 1919-35.

3 Entries for 1919-21 (*ibid.,* Table 29, p. 160) extrapolated for the years back to 1913 on the basis of the rate of increase in government depreciation for 1919-35. It was not feasible to estimate the value of government capital by subtracting the annual value of new government construction because the latter was affected too much in 1917, 1918, and 1919 by inflated prices and war construction (which must have been heavily discounted in the estimates of government capital for the postwar years).

4a Entries for 1919-21 (*ibid.,* Table 29, p. 160) extrapolated for the years back to 1913 by a series for nonfarm dwellings, computed by the method used to obtain the estimates in *ibid.,* Table 25, p. 143, for 1919-35.

4b Entries for 1919-21 (*ibid.,* Table 27, p. 147). For earlier years based on ratios of owner-occupied to total dwellings— 0.736 for farm and a ratio ranging from 0.449 to 0.466 for nonfarm. For the use and sources of these ratios, see *ibid.,* pp. 143-5.

coverage. The comparison is as follows (dollar totals in billions, current prices):

		1919	*1920*	*1921*
1	Gross national product, wartime concept (App. Table III 1)	73.2	78.8	64.1
2	Imputed rent	1.5	1.9	2.2
3	Net savings of government	—1.3	1.9	1.0
4	Adj. of depreciation & depletion to reproduction value basis	—1.4	—1.8	—0.8
5	Gross national product, App. Table III 1, adj. (1 + 2 + 3 + 4)	72.0	80.8	66.5
6	Gross national product, wartime concept (*National Product since 1869*)	74.2	85.6	67.7
7	Difference between lines 5 & 6 as % of line 6	—3.0	—5.6	—1.8

Appendix Table III 3

Gross National Product, Wartime Concept
Estimated by Payments-Savings Approach, 1939-1943
(for comparison with Appendix Table III 1 and Table III 1)
(billions of dollars, current prices)

		1939	*1940*	*1941*	*1942*	*1943*
1	Income payments, incl. entrep. savings	70.8	76.2	92.7	116.6	142.3
2	Corporate savings	1.9	3.4	6.1	6.3	6.5
3	Depreciation & depletion	7.2	7.4	8.2	9.5	11.0
4	Additions to corporate income & profits taxes	0	0.3	1.6	6.0	11.2
5	Net business tax accruals, federal	0.3	1.3	4.7	4.4	2.5
6	Total, comparable to App. Table III 1, line 7 (1 + 2 + 3 + 4 + 5)	80.2	88.6	113.3	142.8	173.5
7	Adj. for inventory revaluation	—0.4	—0.4	—3.2	—2.1	—0.2
8	Total, comparable to App. Table III 1, line 9 and Table III 1, line 4 (6 + 7)	79.8	88.2	110.1	140.7	173.3
9	Total used in Table III 1, line 4	79.4	88.3	111.4	144.2	178.1
	Further adjustments in reconciling lines 8 and 9					
10	Excess of contributions to social insurance over transfer payments	—0.4	—0.5	+0.1	+0.5	+0.6
11	Net business tax accruals, state & local	0	0	0.1	0.1	0.1
12	Statistical discrepancies (Dept. of Commerce adj.)	0	—0.4	—1.7	—0.6	1.2
13	Adj. total, comparable to line 9 (8 + 10 + 11 + 12)	79.4	87.3	108.6	140.7	175.2

LINE

1 *Survey of Current Business,* April 1944, p. 14, Table 12, line 5.

2 Adjusted for additions to 'other' business reserves and capital outlay charged to current expense; *ibid.,* p. 13, Table 11, line 11, and p. 14, Table 13, lines 4 and 5.

3 Table II 1, lines 2a — 2b + 3a — 3b.

4 *Survey,* April 1944, p. 10, Table B, line 2.

5 *Ibid.,* line 17.

7 *Ibid.,* p. 14, Table 13, line 6.

10 *Ibid.,* p. 13, Table 12, lines 2 and 4.

LINE

11 *Ibid.,* p. 10, Table B, line 38.

12 *Ibid.,* p. 14, Table 13, line 7.

The differences are not of an order to render the estimates in Appendix Table III 1 invalid for approximate analysis. Even if we consider that they apply to the nonwar sector alone, war output being identical in the two series, they do not exceed in 1920, the year of the biggest discrepancy, 6 per cent of the total derived with the more extensive recent data.

Appendix Tables III 4-5

The various series used to adjust gross national product and its components for price changes are assembled in Appendix Table III 4. The footnotes give the weights assigned in constructing group indexes for the three components of gross national product: flow of goods to consumers, capital goods entering nonwar capital formation, and war output. The weights are approximate, since there is no information by which gross national product in current prices can be allocated precisely to the categories for which a differential price adjustment is justified.

According to the over-all price indexes implicit in gross national product (Table III 1), prices moved more or less similarly during the first four years of each war (1914-17 and 1939-42), and diverged widely only in the fifth year (1918 and 1943). The composite index of earnings, which covers the majority of persons employed, offers confirming evidence (App. Table III 5).

Appendix Table III 6

The first three lines in Appendix Table III 6 are derived from Appendix Tables III 1 and 4. The contribution of Appendix Table III 6 is in lines 4-11—an independent estimate of the flow of goods to consumers 1914-18.

This estimate is based, in general, upon the flow of finished products at producers' current prices, converted to 1914 prices, adjusted to final cost to consumers, and corrected for changes in finished inventories. Since data for these early years with which each successive step could be estimated precisely are scarce, line 11 cannot be anything except an approximation. The year-to-year changes are especially vulnerable. Yet line 11 checks pretty well with line 1. In every year flow of goods to consumers is less than nonwar output, as it should be, since the latter includes gross nonwar capital forma-

tion. It is also reasonable that gross nonwar capital formation, derived from lines 1 and 11, is fairly high during 1914-17, lowest in

APPENDIX TABLE III 4

Price Indexes Used to Adjust Gross National Product for Price Changes, 1914-1921 (1914 = 100)

Price Indexes for:	*1914*	*1915*	*1916*	*1917*	*1918*	*1919*	*1920*	*1921*
1 Consumer goods	100.0	100.5	108.2	126.2	148.9	171.6	194.8	170.7
2 Capital goods								
a) Construction costs	100.0	103.0	117.2	146.3	167.9	192.5	238.8	190.3
b) Producer durable	100.0	106.1	120.1	145.1	175.2	183.5	180.5	164.0
c) Total (av. of a & b)	100.0	104.6	118.6	145.7	171.6	188.0	209.6	177.2
3 Total nonwar	100.0	101.5	110.3	129.8	149.8	174.0	196.9	171.1
4 Total war								
a) Pay	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
b) Subsistence, clothing & other soft items	100.0	101.2	120.4	162.8	197.0	210.4	242.8	162.3
c) Producer durable	100.0	106.1	120.1	145.1	175.2	183.5	180.5	164.0
d) Construction costs	100.0	103.0	117.2	146.3	167.9	192.5	238.8	190.3
e) Total	100.0	103.3	115.6	148.2	170.2	181.5	179.4	147.2
5 Gross national product (implicit)	100.0	101.5	110.4	131.6	154.6	175.1	196.5	170.5

LINE

1 Calculated from W. I. King, *National Income and Its Purchasing Power,* Tables VIII and IX, pp. 74 and 77.

2a Solomon Fabricant, *Capital Consumption and Adjustment,* Table 32, p. 178.

2b W. H. Shaw, 'Finished Commodities since 1879', National Bureau *Occasional Paper 3,* Aug. 1941, Table 1, p. 7.

3 Index implicit in nonwar goods. Value of consumer goods, in current prices, is from data underlying Appendix Table III 6, line 11 and comparable figures for 1919-21; value of nonwar capital goods in current prices obtained by subtraction. Lines 1 and 2c were used to convert to 1914 prices.

4a Assumed constant.

4b Simple average of price indexes for consumer perishable and semidurable commodities (see W. H. Shaw, *op. cit.,* Table 1).

4c Identical with 2b.

4d Identical with 2a.

4e Weighted average of (a)-(d). The weights, annual expenditures, were computed by allocating war expenditures to durable and nondurable groups. Nondurable was divided into pay and other by using figures on pay from unpublished National Bureau data. Durable was divided into producer durable and construction by using Chawner's data on military construction (*Construction Activity in the United States,* Washington, D.C., 1938).

5 Line 9 of App. Table III 1 divided by line 3 of App. Table III 6.

the depression year 1914, and declines markedly in 1918. As the estimates in lines 1 and 11 were made independently, the reasonable character of their relative levels and movements tends to support both.

Appendix Tables III 7-8

These tables provide a rather detailed explanation of the quarterly interpolation of gross national product and its war and nonwar sectors, in both current and 1914 prices. In general the steps were to: (a) estimate gross national product, in current prices, quarterly;

Appendix Table III 5

Hourly Earnings Indexes, Selected Industries
World Wars I and II

World War I (1914 = 100)

		1914	*1915*	*1916*	*1917*	*1918*
1	Manufacturing	100	100	111	127	156
2	Anthracite coal	100	112	117	155	211
3	Bituminous coal	100	104	117	150	185
4	Union building trades	100	100	104	110	121
5	Railroads	100	105	108	122	177
6	Composite index, New York FRB	100	101	109	123	151

World War II (1939 = 100)

		1939	*1940*	*1941*	*1942*	*1943*
7	Manufacturing	100	104	115	135	152
8	Anthracite coal	100	100	105	107	116
9	Bituminous coal	100	100	111	120	129
10	Building construction	100	103	108	124	134
11	Railroads	100	100	104	114	116
12	Composite index, New York FRB	100	103	110	124	137

LINE

1-5 Paul Douglas, *Real Wages in the United States, 1890-1926* (Houghton Mifflin, 1930). Based on hourly earnings in Table 24, p. 108; Table 39, p. 135; Table 48, p. 152; Table 52, p. 161; and footnote 2, p. 167. Line 5, 1914, is based on average full-time weekly earnings, assuming a 10 hour day and a 6 day week.

6 & 12 From *Monthly Review of Credit and Business Conditions* (New York Federal Reserve Bank). The index includes hourly earnings in various industries (farm wage rates, manufacturing, bituminous coal mining, railway, new utilities, retail trade for recent years) and weekly wages or annual salaries for office employees and teachers. The data for 1914-18 are unpublished revisions and were obtained directly from the Federal Reserve Bank.

7-10 Bureau of Labor Statistics. Average of monthly data.

11 Based on an unpublished average hourly earnings series compiled by Leo Wolman from total compensation and service hours and days (Interstate Commerce Commission, *Monthly Wage Statistics*).

Appendix Table III 6

Gross National Product, Wartime Concept, 1914 Prices, 1914-1921 (billions of dollars)

		1914	*1915*	*1916*	*1917*	*1918*	*1919*	*1920*	*1921*
1	Nonwar output	36.0	38.9	40.9	39.6	31.9	36.5	39.0	36.7
2	War output	0.3	0.3	0.4	4.1	9.7	5.3	1.1	0.9
3	Gross national product (1 + 2)	36.3	39.2	41.3	43.7	41.6	41.8	40.1	37.6
	APPROXIMATION TO CONSUMERS' OUTLAY								
4	Perishable commodities	12.44	11.84	12.31	12.40	12.74			
5	Semidurable commodities	4.24	3.72	4.57	4.62	4.59			
6	Durable commodities	2.51	2.84	3.81	3.95	3.42			
7	Adj. for war share	0.1	0.1	0.1	0.6	1.5			
8	Total (4 + 5 + 6 — 7)	19.1	18.3	20.6	20.4	19.3			
9	Services	11.5	11.0	12.4	12.3	11.6			
10	Consumers' outlay (8 + 9)	30.6	29.3	33.0	32.7	30.9			
11	Consumers' outlay excl. imputed rent	29.5	28.2	32.0	31.9	30.2			

LINE

1 Line 11 of App. Table III 1 divided by line 3 of App. Table III 4.

2 Line 10 of App. Table III 1 divided by line 4e of App. Table III 4.

4 Output at producers' current prices, converted to 1914 prices, adjusted to final cost to consumers, and corrected for net change in finished inventories. Output at producers' prices and the price index, with 1913 as base, are from W. H. Shaw, *Occasional Paper 3*, Table 1. The ratio of the retail value to producers' value represents the relation in 1919-33 of the retail value of output destined for domestic consumption (the value of output destined for domestic consumption at producers' prices plus transportation and distributive charges), plus the farm value of products retained by farmers for their own consumption, to the value of output destined for domestic consumption at producers' prices plus the farm value of products retained by farmers for their own consumption. Data for this ratio are from Simon Kuznets, *Commodity Flow and Capital Formation* (National Bureau of Economic Research, 1938), Tables II-7, V-7 and 8. For the net change in inventories, 1914-18, the procedure is as follows:

Dun's Review, Feb. 1940, gives sample data for 1913-22 on inventories held by manufacturers of foods, chemicals, oil, paper, and tobacco, and by meat packers. These, weighted by the value of ouput reported for 1914 and 1919 in the *Census of Manufactures*, yield annual indexes of perishable finished inventories for 1913-22, in current prices. These indexes are added for 1913-18 and for 1918-22.

To get total inventories for 1913-18, the ratio of the sum of the indexes for 1913-18 to those for 1918-22 is multiplied by the total value of perishable inventories, after mark-up, for 1918-22. Perishable inventories, before mark-up are shown annually 1918-22 in Kuznets, *op. cit.*, Table V-7, lines A3 and 7. The mark-up is calculated from 1929 data in the same table.

Inventories in 1913 are estimated by dividing total inventories for 1913-18 by the sum of the annual indexes and multiplying by 100. Annual values in current prices for 1914-18 are extrapolated from the 1913 value by the annual indexes of inventories. They are converted to 1914 prices by the price index used for output. Annual net changes are then computed.

LINE

5 The procedure is the same as for line 4. For output at producers' prices and for the price index the sources are the same. The ratio of retail to producers' value is calculated from Kuznets, *op. cit.*, Table III 5, p. 212, col. 5 and 4. For the net change in inventories, 1914-18, the procedure is as follows:

Dun's Review, Feb. 1940, gives sample data for 1913-22 on inventories held by manufacturers of rubber and by mass distributors. These, weighted by the value of output reported for 1914 and 1919 in the *Census of Manufactures,* yield annual indexes of semidurable finished inventories for 1913-22 in current prices. These indexes are added for 1913-18 and for 1918-22.

To get total inventories for 1913-18, the ratio of the sum of the indexes for 1913-18 to those for 1918-22 is multiplied by the total value of semidurable inventories, after mark-up, for 1918-22. Semidurable inventories, before mark-up, are shown annually 1918-22 in Kuznets, *op. cit.*, Table V-7, lines B3 and 7. The mark-up is calculated from 1929 data in the same table.

Inventories in 1913 are estimated by dividing total inventories for 1913-18 by the sum of the annual indexes and multiplying by 100. Annual values in current prices for 1914-18 are extrapolated from the 1913 value by the annual indexes of inventories. They are converted to 1914 prices by the price index used for output. Annual net changes are then computed.

6 The procedure is the same as for line 4. For output at producers' prices and for the price index the sources are the same. The ratio of retail to producers' value is calculated from the 1919-33 retail value of output destined for domestic consumption and the value at producers' prices. Data for this ratio are from Kuznets, *op. cit.*, Table II-7, and a revision of Table V-7 to be published in *National Product since 1869.* For the net change in inventories, 1914-18, the procedure is as follows:

Dun's Review, Feb. 1940, gives sample data for 1913-22 on inventories held by manufacturers of automobiles and of miscellaneous consumer goods. These, weighted by the value of output reported for 1914 and 1919 in the *Census of Manufactures,* yield annual indexes of consumer durable finished inventories for 1913-22, in current prices. These indexes are added for 1913-18 and for 1918-22.

To get total inventories for 1913-18, the ratio of the sum of the indexes for 1913-18 to those for 1918-22 is multiplied by the total value of consumer durable inventories, after mark-up, for 1918-22. Consumer durable inventories before mark-up, are shown annually 1918-22 in Kuznets, *op. cit.*, Table V-7, lines 5 and 9, under Consumers' Durable. The mark-up is calculated from 1929 data in the same table.

Inventories in 1913 are estimated by dividing total inventories for 1913-18 by the sum of the annual indexes and multiplying by 100. Annual values in current prices 1914-18, extrapolated from the 1913 value by the annual indexes of inventories, are converted to 1914 prices by the price index used for output. Annual net changes are then computed.

7 Line 2 x 0.15.

9 The ratio of services to consumer commodities, 1914-18, is that calculated from the values of these two items, 1869-1918, in *National Product since 1869.*

11 Difference between line 10, converted to current prices by Appendix Table III 4, line 1, and imputed rent in King, *National Income and Its Purchasing Power,* p. 379, reconverted to 1914 prices by the same index.

Appendix Table III 7

Gross National Product, Wartime Concept, Quarterly Interpolation
Current Prices, 1914-1921
(dollar figures in billions, annual rates)

	INDUSTRIAL PRODUCTION INDEX (1)	OVER-ALL PRICE INDEX (2)	INDUSTRIAL PRODUCTION INDEX Current prices (3)	INDEX ADJ. TO MOVEMENT OF GROSS NATIONAL PRODUCT (4)	GROSS NATIONAL PRODUCT (5)	WAR OUTPUT (6)	NONWAR OUTPUT (7)
1914			100.0	100.0	36.3	0.3	36.0
I	103	100	103	103	37.4	0.3	37.1
II	102	99	101	101	36.7	0.3	36.4
III	100	101	101	101	36.7	0.4	36.3
IV	95	100	95	95	34.5	0.3	34.2
1915			109.8	109.6	39.8	0.3	39.5
I	102	100	102	102	37.0	0.3	36.7
II	106	100	106	106	38.5	0.3	38.2
III	110	101	111	111	40.3	0.4	39.9
IV	114	105	120	120	43.6	0.3	43.3
1916			125.2	125.6	45.6	0.5	45.1
I	118	108	127	126	45.7	0.3	45.4
II	114	109	124	124	45.0	0.3	44.7
III	110	110	121	121	43.9	0.7	43.2
IV	113	114	129	130	47.2	0.5	46.7
1917			159.2	158.4	57.5	6.1	51.4
I	117	120	140	140	50.8	0.5	50.3
II	123	130	160	159	57.7	4.6	53.1
III	120	137	164	163	59.2	8.2	51.0
IV	122	142	173	171	62.1	11.2	50.9
1918			178.5	177.1	64.3	16.5	47.8
I	114	146	166	166	60.3	11.9	48.4
II	116	154	179	178	64.6	15.5	49.1
III	117	159	186	185	67.2	18.0	49.2
IV	113	162	183	181	65.7	20.6	45.1
1919			202.8	201.7	73.2	9.7	63.5
I	113	159	180	179	65.0	15.8	49.2
II	112	161	180	179	65.0	11.7	53.3
III	119	186	221	220	79.9	7.8	72.1
IV	117	197	230	229	83.1	3.4	79.7
1920			217.0	217.1	78.8	2.0	76.8
I	117	201	235	235	85.3	2.2	83.1
II	112	204	228	228	82.8	2.4	80.4
III	108	201	217	217	78.8	2.0	76.8
IV	105	179	188	188	68.2	1.5	66.7
1921			176.2	176.6	64.1	1.3	62.8
I	102	175	178	178	64.6	1.6	63.0
II	102	170	173	174	63.2	1.4	61.8
III	104	168	175	175	63.5	1.0	62.5
IV	106	169	179	179	65.0	1.1	63.9

COLUMN

1 Federal Reserve Board index of production (*Federal Reserve Bulletin,* May 1924, p. 422), corrected for seasonal variations, was first adjusted to the annual movements of gross national product in constant prices (see App. Table III 6). Then intra-annual fluctuations were reduced to one-half their original amplitude to allow for the smaller sensitivity of the gross national product totals.

2 Based upon a combination of Bureau of Labor Statistics group indexes of wholesale prices. For nonwar output the following group indexes were combined, weighted as indicated: food, 3.5; fuel and lighting, 1.0; chemicals and drugs, 1.0; textile products, 2.0; hides and leather products, 0.5; house furnishing goods, 1.0; miscellaneous, 1.0; metal products, 1.0; building materials, 1.0. The weights for metal products and building materials were reduced to total 1.5 in 1917 and 1.0 in 1918. This index of prices for nonwar output was then adjusted to the annual levels in Appendix Table III 4.

The index of prices for war output utilized the following monthly BLS group indexes: (1) Combination of food, fuel and lighting; chemicals and drugs; textiles; and hides and leather—with the internal weights proportionate to the ones used for nonwar output. This combined index was given the weight of 1.5; (2) metal products, 6.0; (3) building materials, 1.5. These three indexes were then combined with an index kept at 100 (weight 1.0) to yield a preliminary quarterly index of prices for war output, which was then adjusted to the annual totals in Appendix Table III 4.

The two indexes for nonwar output and for war output described in the two preceding paragraphs were combined by being weighted in accordance with the percentage distribution of gross national product in current prices (App. Table III 1).

3 (Col. 1 x col. 2) ÷ 100.

4 The adjustment to the annual levels of gross national product in current prices in Appendix Table III 1 was minor; indeed, perceptible in 1917 and 1918 alone.

5 Col. 4 x $36.3 billion (gross national product in 1914).

6 Quarterly estimates based on fiscal year data in the *Annual Report of the Secretary of the Treasury.* For 1914-16 the data include the War and Navy Departments; in 1917 the U. S. Shipping Board, Food and Fuel Administration, and foreign loans are added; in 1918 the War Finance Corporation and federal control of transportation are added; in 1919 the Food and Fuel Administration is dropped and the Grain Corporation is added. For 1914-16 the fiscal year totals are divided into quarters by means of partial quarterly figures from *ibid.* For fiscal years 1917-19 the breakdown is based on quarterly figures for total ordinary expenditures, except foreign loans, which are reported monthly; for 1919-22 the quarterly estimates are based on the monthly figures reported in the daily Treasury statement.

The final series is reduced by the major items of receipts on war account reported in *ibid.,* including interest on foreign obligations, principal payments on foreign obligations, sale of Army and Navy war supplies, and decrease in capital stock of the U. S. Grain Corporation. These data are reported solely by fiscal years; calendar year estimates are averages of fiscal year totals. War output, net of these receipts, is distributed by quarters on the assumption that its distribution is the same as that of total war ouput.

7 Col. 5 — col. 6.

Appendix Table III 8

Gross National Product, Wartime Concept, Quarterly Interpolation
1914 Prices, 1914-1921
(dollar figures in billions, annual rates)

	NONWAR OUTPUT			WAR OUTPUT			GROSS NATIONAL PRODUCT	
	Totals, current prices	Price index (1914=100)	Totals, 1914 prices	Totals, current prices	Price index (1914=100)	Totals, 1914 prices	Totals, 1914 prices	Implicit price index (1914=100)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1914	36.0	100	36.0	0.3	100.0	0.3	36.3	100.0
I	37.1	100	37.1	0.3	102	0.3	37.4	100.0
II	36.4	99	36.8	0.3	100	0.3	37.1	98.9
III	36.3	101	35.9	0.4	100	0.4	36.3	101.1
IV	34.2	100	34.2	0.3	98	0.3	34.5	100.0
1915	39.5	101.5	38.9	0.3	101.5	0.3	39.2	101.5
I	36.7	100	36.7	0.3	99	0.3	37.0	100.0
II	38.2	100	38.2	0.3	101	0.3	38.5	100.0
III	39.9	101	39.5	0.4	102	0.4	39.9	101.0
IV	43.3	105	41.2	0.3	104	0.3	41.5	105.1
1916	45.1	110.3	40.9	0.5	115.6	0.4	41.3	110.4
I	45.4	108	42.0	0.3	110	0.3	42.3	108.0
II	44.7	109	41.0	0.3	116	0.3	41.3	109.0
III	43.2	110	39.3	0.7	115	0.6	39.9	110.0
IV	46.7	114	41.0	0.5	122	0.4	41.4	114.0
1917	51.4	129.8	39.6	6.1	148.2	4.1	43.7	131.6
I	50.3	120	41.9	0.5	133	0.4	42.3	120.1
II	53.1	128	41.5	4.6	145	3.2	44.7	129.1
III	51.0	134	38.1	8.2	155	5.3	43.4	136.4
IV	50.9	137	37.2	11.2	160	7.0	44.2	140.5
1918	47.8	149.8	31.9	16.5	170.2	9.7	41.6	154.6
I	48.4	141	34.3	11.9	161	7.4	41.7	144.6
II	49.1	149	33.0	15.5	167	9.3	42.3	152.7
III	49.2	153	32.2	18.0	175	10.3	42.5	158.1
IV	45.1	156	28.9	20.6	178	11.6	40.5	162.2
1919	63.5	174.0	36.5	9.7	181.5	5.3	41.8	175.1
I	49.2	154	31.9	15.8	176	9.0	40.9	158.9
II	53.3	159	33.5	11.7	175	6.7	40.2	161.7
III	72.1	186	38.8	7.8	184	4.2	43.0	185.8
IV	79.7	197	40.5	3.4	191	1.8	42.3	196.5
1920	76.8	196.9	39.0	2.0	179.4	1.1	40.1	196.5
I	83.1	201	41.3	2.2	193	1.1	42.4	201.2
II	80.4	205	39.2	2.4	187	1.3	40.5	204.4
III	76.8	202	38.0	2.0	175	1.1	39.1	201.5
IV	66.7	180	37.1	1.5	163	0.9	38.0	179.5
1921	62.8	171.1	36.7	1.3	147.2	0.9	37.6	170.5
I	63.0	176	35.8	1.6	155	1.0	36.8	175.5
II	61.8	171	36.1	1.4	149	0.9	37.0	170.8
III	62.5	168	37.2	1.0	144	0.7	37.9	167.5
IV	63.9	170	37.6	1.1	141	0.8	38.4	169.3

COLUMN

1 App. Table III 7, col. 7.
2 See App. Table III 7, notes to col. 2.
3 (Col. 1 ÷ col. 2)100.
4 App. Table III 7, col. 6.

COLUMN

5 See App. Table III 7, notes to col. 2.
6 (Col. 4 ÷ col. 5)100.
7 Col. 3 + col. 6.
8 (Col. 5 of App. Table III 7 ÷ col. 7)100.

(b) subtract from (a) quarterly data on war output, in current prices, thereby deriving quarterly estimates in current prices for the nonwar sector; (c) compute quarterly indexes of prices, separately for the war and nonwar sectors; (d) adjust the quarterly totals under (b) for price changes. The annual totals, in both current and 1914 prices, are controlling throughout. The quarterly interpolations, based on monthly indexes of much narrower scope, are naturally less reliable. But it seemed worth while to calculate them in order to approximate more specific periods in the comparison of the two wars.

Appendix Table III 9

This table presents in detail the industry-type-of-income components for 1914-21. While based upon W. I. King's work, they are adjusted to attain closer comparability with the estimates for recent years.

Appendix Table III 9

Income Payments-Net Business Savings Aggregate
Current Prices, 1914-1921
(millions of dollars)

	1914	*1915*	*1916*	*1917*	*1918*	*1919*	*1920*	*1921*
			AGRICULTURE					
1 Wages & salaries	756	773	828	1,030	1,213	1,491	1,663	1,405
2 Entrepreneurial withdrawals	3,154	3,185	3,482	4,307	5,034	6,036	6,907	5,872
3 Entrepreneurial savings	237	567	1,275	2,679	3,658	3,151	898	—1,870
4 Interest	101	110	125	144	160	200	238	247
5 Net income	4,248	4,635	5,710	8,160	10,065	10,878	9,706	5,654
			MINING					
1 Wages & salaries	695	701	881	1,105	1,376	1,416	1,848	1,414
2 Entrepreneurial withdrawals	14	14	29	34	28	16	12	16
3 Entrepreneurial savings	1	12	15	4	—4	8	25	—19
4 Dividends	151	143	371	429	359	207	149	183
5 Interest	23	25	27	29	32	36	41	47
6 Corporate savings	10	150	195	51	—54	—13	147	—449
7 Net income	894	1,045	1,518	1,652	1,737	1,670	2,222	1,192
			MANUFACTURING					
1 Wages & salaries	4,791	5,117	6,751	8,491	10,640	11,862	14,255	9,589
2 Other employee compensation	72	83	189	135	166	161	238	143
3 Total employee compensation	4,863	5,200	6,940	8,626	10,806	12,023	14,493	9,732
4 Entrepreneurial withdrawals	259	257	384	409	359	324	301	253
5 Entrepreneurial savings	15	157	362	354	91	437	49	—184
6 Dividends	890	945	1,695	1,957	1,861	1,786	1,728	1,549
7 Interest	178	182	186	191	197	206	218	227
8 Corporate savings	66	762	1,888	1,992	561	2,305	914	—1,760
9 Net income	6,271	7,503	11,455	13,529	13,875	17,081	17,703	9,817

Appendix Table III 9 continued:

	1914	1915	1916	1917	1918	1919	1920	1921
CONSTRUCTION								
1 Wages & salaries	876	874	968	938	1,003	1,451	1,447	1,316
2 Entrep. withdrawals, div., & int.	536	520	548	268	204	395	448	424
3 Entrepreneurial savings	30	128	225	135	36	181	77	—27
4 Corporate savings	8	34	68	36	9	22	12	—28
5 Net income	1,450	1,556	1,809	1,377	1,252	2,049	1,984	1,685
STEAM RAILROADS, PULLMAN, AND EXPRESS								
1 Wages & salaries	1,425	1,435	1,607	1,907	2,842	3,107	4,045	3,062
2 Other employee compensation	28	29	33	36	40	46	58	43
3 Total employee compensation	1,453	1,464	1,640	1,943	2,882	3,153	4,103	3,105
4 Miscellaneous railroad income	8	8	8	9	9	10	16	10
5 Dividends	281	255	260	274	259	256	236	208
6 Interest	399	437	437	440	433	436	462	477
7 Corporate savings	—42	83	241	185	22	58	—6	—5
8 Net income	2,099	2,247	2,586	2,851	3,605	3,913	4,811	3,795
STREET RAILWAYS								
1 Wages & salaries	222	225	243	267	312	376	478	472
2 Dividends	72	70	74	68	56	53	51	49
3 Interest	115	119	121	119	119	124	122	125
4 Corporate savings	15	9	16	9	—5	12	22	28
5 Net income	424	423	454	463	482	565	673	674
WATER TRANSPORTATION								
1 Wages & salaries	203	223	274	333	417	590	809	666
2 Entrepreneurial withdrawals	7	8	9	21	20	26	18	14
3 Entrepreneurial savings	—	11	32	8	15	8	5	—2
4 Dividends	18	18	24	51	43	64	45	33
5 Interest	24	27	32	31	24	30	24	27
6 Corporate savings	—1	26	73	19	31	22	19	—24
7 Net income	251	313	444	463	550	740	920	714
TELEPHONE								
1 Wages & salaries	128	126	146	170	190	242	319	330
2 Other employee compensation	1	2	8	3	4	4	4	4
3 Total employee compensation	129	128	154	173	194	246	323	334
4 Uncollectible revenue	1	1	2	2	2	2	3	3
5 Dividends	31	33	36	39	40	40	41	46
6 Interest	22	22	23	25	27	31	37	42
7 Corporate savings	13	19	27	17	15	14	9	23
8 Net income	196	203	242	256	278	333	413	448
TELEGRAPH								
1 Wages & salaries	27	25	35	44	59	67	93	80
2 Other employee compensation	—	1	1	1	1	2	1	2
3 Total employee compensation	27	26	36	45	60	69	94	82
4 Dividends	10	11	11	13	14	14	14	13
5 Interest	2	2	2	1	2	2	2	2
6 Corporate savings	—3	2	3	4	6	11	12	8
7 Net income	36	41	52	63	82	96	122	105
ELECTRIC LIGHT & POWER & MFD. GAS								
1 Wages & salaries	110	117	130	143	160	196	243	258
2 Dividends	44	49	54	60	67	73	80	93
3 Interest	42	46	50	57	70	75	83	93
4 Corporate savings	19	22	29	30	28	36	45	45
5 Net income	215	234	263	290	325	380	451	489

	1914	1915	1916	1917	1918	1919	1920	1921
TRADE								
1 Wages & salaries	2,087	2,155	2,370	2,647	2,963	3,482	4,116	3,853
2 Entrepreneurial withdrawals	1,980	1,993	2,176	2,847	2,902	3,483	3,412	2,898
3 Entrepreneurial savings	121	154	268	1,203	450	2,426	419	—458
4 Dividends	193	163	211	247	322	359	371	393
5 Interest	113	126	141	156	172	192	209	216
6 Corporate savings	77	100	177	809	310	624	8	—462
7 Net income	4,571	4,691	5,343	7,909	7,119	10,566	8,535	6,440
BANKING								
1 Wages & salaries	164	183	214	230	281	362	429	481
2 Dividends	111	99	81	81	87	67	108	148
3 Corporate savings	61	69	124	153	194	210	187	100
4 Net income	336	351	419	464	562	639	724	729
GOVERNMENT								
1 Wages & salaries	1,656	1,734	1,821	2,464	5,272	4,489	3,519	3,751
2 Other employee compensation	205	202	204	219	469	583	713	813
3 Total employee compensation	1,861	1,936	2,025	2,683	5,741	5,072	4,232	4,564
4 Interest	232	257	272	361	537	1,064	1,078	1,065
5 Net income	2,093	2,193	2,297	3,044	6,278	6,136	5,310	5,629
UNCLASSIFIED								
1 Wages & salaries	4,789	5,047	5,343	5,096	4,219	4,677	5,749	6,082
2 Entrep. withdrawals, div., & int.	2,400	2,436	2,510	3,302	3,037	3,026	3,073	3,076
3 Entrepreneurial savings	147	665	1,136	1,832	618	1,237	954	809
4 Div. & int., international	—85	—68	—46	—51	—26	—17	—8	—7
5 Corporate savings	23	95	207	271	53	279	—9	—287
6 Net income	7,274	8,175	9,150	10,450	7,901	9,202	9,759	9,673
RENT PAID								
1 Total rent paid	2,979	3,104	3,322	3,592	3,819	4,122	4,738	4,962
INCOME PAYMENTS-BUSINESS SAVINGS AGGREGATE								
1 Wages & salaries	17,929	18,735	21,611	24,865	30,947	33,808	39,013	32,759
2 Other employee compensation	306	317	435	394	680	796	1,014	1,005
3 Total employee compensation	18,235	19,052	22,046	25,259	31,627	34,604	40,027	33,764
4 Entrepreneurial withdrawals	7,892	7,912	8,414	10,438	10,965	12,822	13,714	12,138
5 Entrepreneurial savings	551	1,694	3,313	6,215	4,864	7,448	2,427	—1,751
6 Dividends	2,055	2,074	3,336	3,774	3,544	3,226	3,111	2,958
7 Interest	1,464	1,575	1,631	1,760	1,967	2,585	2,702	2,753
8 Div. & int., international	—85	—68	—46	—51	—26	—17	—8	—7
9 Rent	2,979	3,104	3,322	3,592	3,819	4,122	4,738	4,962
10 Corporate savings	246	1,371	3,048	3,576	1,170	3,580	1,360	—2,811
11 Income payments-business savings aggregate	33,337	36,714	45,064	54,563	57,930	68,370	68,071	52,006

LINE

AGRICULTURE

1 W. I. King, *National Income and Its Purchasing Power*, p. 122.

2 Difference between entrepreneurial net income (*ibid.*, p. 308) and line 3.

3 Simon Kuznets, *National Income and Its Composition*, pp. 470 and 456.

4 King, *op. cit.*, p. 308.

5 Sum of lines 1 through 4.

MINING

1 King, *op. cit.*, p. 122.

2 Difference between realized income of entrepreneurs and property holders (*ibid.*, p. 108) and dividends and interest (see note to lines 4 and 5) and rent (unpublished worksheets underlying the estimates).

Appendix Table III 9 continued:

LINE

MINING (*concl.*)

3 *1914-18:* difference between total and corporate savings (for the latter see notes to line 6). Total savings are obtained by raising corporate by the ratio of the total value of product to corporate (*Census of Mines and Quarries* for 1909 and 1919) and interpolating along a straight line for the intercensal years.
1919-21: Kuznets, *op. cit.*, p. 312.

4 & 5 King, *op. cit.*, pp. 186, 189, 191.

6 *1914-18:* difference between corporate net income after taxes (*Statistics of Income for 1916-18* and extrapolated back to 1914 by a corporate sample) and dividends paid. For 1918 net dividends (see note to line 4) are subtracted since the net income figures exclude dividend receipts by corporations; for the earlier years, gross dividends are subtracted (King, *op. cit.*, pp. 182 and 184).
1919-21: Kuznets, *op. cit.*, p. 312.

7 Sum of lines 1 through 6.

MANUFACTURING

1 Difference between wages and salaries (King, *op. cit.*, pp. 132, 138) and 'duplication' and 'transfer to other industries' (Kuznets, *op. cit.*, pp. 470 and 456).

2 Difference between total employee compensation and wages and salaries (King, *op. cit.*, pp. 122, 132, 138).

3 Sum of lines 1 and 2.

4 See notes to *Mining*, line 2.

5 See notes to *Mining*, line 3. The ratio of the total value of product to corporate is from unpublished worksheets underlying the estimates in King, *op. cit.*

6 & 7 See notes to *Mining*, lines 4 and 5.

8 See notes to *Mining*, line 6.

9 Sum of lines 3 through 8.

CONSTRUCTION

1 See notes to *Mining*, line 1.

2 King, *op. cit.*, p. 108.

3 & 4 *1914-18:* total savings estimated by applying to line 2 the ratio of savings to entrepreneurial withdrawals, dividends, and interest computed from the totals for mining, manufacturing, steam railroads, street railways, water transportation, telephone, telegraph, electric light and power, trade, and banking. The division into entrepreneurial and corporate savings for 1917 and 1918 is based on unpublished estimates by W. I. King for profits of individual contractors and corporate contractors; for 1914-16, the ratio of individual savings to total is extrapolated by the similar ratio for the unclassified industries.

5 Sum of lines 1 through 4.
1919-21: Kuznets, *op. cit.*, p. 312.

STEAM RAILROADS, PULLMAN, AND EXPRESS

1 King, *op. cit.*, pp. 133, 139.

2 Difference between lines 1 and 3.

3 King, *op. cit.*, p. 123.

4 Unpublished estimates of uncollectible revenue and compensation for injuries to nonemployees.

5 & 6 King, *op. cit.*, pp. 186, 189, 191.

7 *1914-18:* computed from data in *Statistics of Railways and Preliminary Abstract of Statistics of Common Carriers* (Interstate Commerce Commission).
1919-21: Kuznets, *op. cit.*, p. 673.

8 Sum of lines 3 through 7.

INE

STREET RAILWAYS

1-3 King, *op. cit.*, pp. 123, 186, 189, 191.

4 *1917 and 1918:* see notes describing estimates for 1919 and later years in Kuznets, *op. cit.*, Part Four; 1914-16 savings are estimated by interpolating between the 1912 and 1917 Census values by a corporate sample.
1919-21: ibid., p. 674.

5 Sum of lines 1 through 4.

WATER TRANSPORTATION

1 King, *op. cit.*, p. 123.

& 4 Unpublished data underlying the estimates in *ibid.*

& 6 *1914-18:* see notes to lines 2 and 4.
1919-21: Kuznets, *op. cit.*, pp. 662 and 674.

5 *Ibid.*, p. 186.

7 Sum of lines 1 through 6.

TELEPHONE

1 King, *op. cit.*, pp. 133, 139.

2 Difference between lines 1 and 3.

3 King, *op. cit.*, p. 123.

4 Unpublished data underlying the estimates in *ibid.*

& 6 See *ibid.*, pp. 186, 189, 191.

7 See notes to *Street Railways*, line 4.

8 Sum of lines 3 through 7.

TELEGRAPH

1 King, *op. cit.*, pp. 133, 139.

2 Difference between lines 1 and 3.

3 King, *op. cit.*, p. 123.

& 5 *Ibid.*, pp. 186, 189, 191.

6 *1917 and 1918:* see notes describing estimates for 1919 and later years in Kuznets, *op. cit.*, Part Four; 1914-16 savings are the difference between net income and gross dividends paid. Net income (for 1912 and 1917 from the *Census of Electrical Industries*) is interpolated for intercensal years by the net income of Western Union Telegraph Company reported in the *Statistical Abstract*. Gross dividends are from King, *op. cit.*, pp. 182 and 184.
1919-21: Kuznets, *op. cit.*, p. 674.

7 Sum of lines 3 through 6.

ELECTRIC LIGHT AND POWER AND MANUFACTURED GAS

1 Sum of wages and salaries in electric light and power (King, *op. cit.*, p. 123) and in manufactured gas (*Census of Manufactures* for 1914 and 1919, interpolated for 1915-18 with the estimates for electric light and power as index). For 1920 and 1921, Kuznets, *op. cit.*, p. 674.

& 3 King, *op. cit.*, pp. 186, 189, 191.

4 See notes to *Telegraph*, line 6. The interpolating index for net income between 1912 and 1917 is the net income reported by sample corporations.

TRADE

1 King, *op. cit.*, p. 122.

2 Unpublished data underlying the estimates in *ibid.*

3 *1914-18:* difference between total and corporate savings (for the latter see note to line 6). Total savings are obtained by raising corporate by the ratio of total sales to corporate (available for 1919 in the data underlying estimates for 1919-38 and extrapolated back to 1914 by the manufacturing ratio of total value of product to corporate).
1919-21: Kuznets, *op. cit.*, p. 312.

Appendix Table III 9 continued: TRADE (*concl.*)

LINE

4 & 5 Unpublished data underlying the estimates in King, *op. cit.*

6 *1916-18:* the difference between corporate net income after taxes (*Statistics of Income*) ar dividends paid (see line 4). For 1914 and 1915 corporate savings are extrapolated from 191 with sample corporate data as index.
1919-21: Kuznets, *op. cit.*, p. 312.

7 Sum of lines 1 through 6.
For 1920 and 1921, lines 1, 2, and 5: King's total payments for 1920 and 1921 were adjuste to the trend of the estimates in *National Income and Its Composition,* i.e., the ratio of tot payments for trade to aggregate payments, computed for 1919 from King's data, was extr polated for 1920-21 by the similar ratio for Kuznets' data. The various types of payment withi the group were based on the revised total payments and King's original percentage distributio of payments, by type, on the assumption that dividends, as computed by King, were correct.

BANKING

1 & 2 King, *op. cit.*, pp. 122, 191.

3 *1914-18: Income in the United States,* Vol. 2, p. 236.
1919-21: Kuznets, *op. cit.*, p. 736.

4 Sum of lines 1 through 3.

GOVERNMENT

1 King, *op. cit.*, p. 138.

2 Difference between lines 1 and 3.

3 King, *op. cit.*, p. 122.

4 *Ibid.*, p. 370.

5 Sum of lines 3 and 4.

UNCLASSIFIED

1 Wages and salaries reported in King, *op. cit.*, p. 122, plus wages and salaries transferred fro manufacturing (see notes to *Manufacturing,* line 1) minus wages and salaries for manufacture gas (see notes to *Electric Light and Power and Manufactured Gas,* line 1). A further adjus ment is made for 1920 and 1921 (see notes to *Trade*).

2 Difference between realized income of entrepreneurs and property holders (King, *op. cit.,* 108) and rent paid (unpublished estimates underlying the data in *ibid.*). An adjustment made for 1920 and 1921 (see notes to *Trade*).

3 *1914-18:* difference between total (see notes to *Construction,* lines 3 and 4) and corporate sa
& ings. The division into entrepreneurial and corporate savings is based on the division of tot
5 net profits into those of entrepreneurs and corporations calculated from unpublished data unde lying the estimates in King, *op. cit.*
1919-21: Kuznets, *op. cit.*, p. 312 (difference between the total and the specified industries

4 King, *op. cit.*, p. 379.

6 Sum of lines 1 through 5.

RENT PAID

1 The sum of unpublished estimates underlying the data in King, *op. cit.*, it includes rent paid b agriculture, mining, manufacturing, steam railroads, Pullman, and express, street railway telephone, telegraph, trade, and unclassified industries, and rent of leased dwellings.

INCOME PAYMENTS-BUSINESS SAVINGS AGGREGATE

1-3, 5, 8, 9, 10 Sum of items shown above for specific industries.

4 Realized income of entrepreneurs and property holders (King, *op. cit.*, p. 108) minus intere payments (line 7, below), interest paid by banks (unpublished), dividends (line 6, below rent paid (*Rent,* line 1), agricultural savings (*Agriculture,* line 3), miscellaneous income oth than rent paid on leased dwellings (King, *op. cit.*, p. 379) and imputed rent on owner-occupi farm dwellings (unpublished).

LINE

6 See *ibid.*, pp. 189, 191.

7 Interest paid by corporations (*ibid.*, p. 186) plus agricultural interest (*Agriculture*, line 4) plus government interest (*Government*, line 4).

11 Sum of lines 3 through 10.

Appendix Table III 10

This table provides the basis data for the analysis in Table III 6 of the text. Two aspects of the estimates should be noted. First, for World War I the number employed is reduced to full-time units in the industries for which it is possible to do so; for World War II it is not. Second, the figures for government include employees of government owned and operated arsenals and shipyards.

Appendix Table III 10

Total Engaged, by Industry, World Wars I and II
(millions)

A World War I

		1914	*1915*	*1916*	*1917*	*1918*	*1919*
1	Agriculture, employees	2.2	2.2	2.2	2.2	2.2	2.3
2	Agriculture, entrepreneurs	6.4	6.4	6.4	6.4	6.4	6.4
3	Agriculture, total (1 + 2)	8.5	8.6	8.5	8.6	8.6	8.7
4	Mining, employees	1.1	1.1	1.1	1.2	1.2	1.2
5	Mining, entrepreneurs	0.03	0.03	0.03	0.02	0.02	0.02
6	Mining, total (4 + 5)	1.2	1.1	1.2	1.2	1.2	1.2
7	Manufacturing, employees	7.4	7.5	8.8	9.5	9.9	9.9
8	Manufacturing, entrepreneurs	0.2	0.2	0.2	0.2	0.2	0.2
9	Manufacturing, total (7 + 8)	7.7	7.7	9.0	9.7	10.2	10.1
10	Construction, employees	1.0	1.0	1.0	1.0	0.8	1.0
11	Construction, entrepreneurs	0.2	0.2	0.2	0.2	0.2	0.2
12	Construction, total (10 + 11)	1.2	1.2	1.2	1.1	0.9	1.2
13	Transp. & other pub. util., employees	2.7	2.7	2.8	2.9	3.1	3.2
14	Transp. & other pub. util., entrepreneurs	0.03	0.03	0.03	0.03	0.03	0.03
15	Transp. & other pub. util., total (13 + 14)	2.8	2.7	2.8	3.0	3.1	3.3
16	Trade, employees	2.7	2.8	2.9	2.9	2.9	3.0
17	Trade, entrepreneurs	1.3	1.3	1.4	1.4	1.3	1.4
18	Trade, total (16 + 17)	4.0	4.1	4.3	4.3	4.2	4.4
19	Government, employees	1.9	2.0	2.1	2.7	5.2	3.8
20	Unclassified, employees	7.9	8.3	8.4	7.5	5.5	5.5
21	Unclassified, entrepreneurs	1.8	1.8	1.8	1.8	1.7	1.8
22	Unclassified, total (20 + 21)	9.8	10.1	10.2	9.4	7.2	7.2
23	Total	37.0	37.5	39.3	40.0	40.6	39.8

Appendix Table III 10 continued:

B WORLD WAR II

		1939	*1940*	*1941*	*1942*	*1943*
1	Agricultural	9.40	9.30	8.64	8.64	8.28
2	Nonagricultural	35.75	37.10	40.45	43.47	44.14
3	Wage & salary excl. domestic service	30.35	31.78	35.67	38.45	39.72
4	Domestic	2.33	2.30	2.20	2.15	1.69
5	Other (2 — 3 — 4)	3.07	3.02	2.58	2.87	2.73
6	Mining, wage & salary	.84	.92	.95	.97	.89
7	Mining, other (0.8% of line 5)	.02	.03	.02	.02	.02
8	Mining, total (6 + 7)	.86	.95	.97	.99	.91
9	Manufacturing, wage & salary	10.08	10.78	12.97	15.05	16.92
10	Manufacturing, other (5.9% of line 5)	.18	.18	.15	.17	.16
11	Manufacturing, total (9 + 10)	10.26	10.96	13.12	15.22	17.08
12	Construction, wage & salary	1.75	1.72	2.24	2.08	1.26
13	Construction, other (10.3% of line 5)	.32	.31	.26	.30	.28
14	Construction, total (12 + 13)	2.07	2.03	2.50	2.38	1.54
15	Transp. & other pub. util., wage & salary	2.91	3.01	3.25	3.43	3.62
16	Transp. & other pub. util., other (4.1% of line 5)	.13	.12	.11	.12	.11
17	Transp. & other pub. util., total (15 + 16)	3.04	3.13	3.36	3.55	3.73
18	Trade, wage & salary	6.62	6.91	7.38	7.26	7.03
19	Trade, other (44.8% of line 5)	1.37	1.35	1.16	1.28	1.23
20	Trade, total (18 + 19)	7.99	8.26	8.54	8.54	8.26
21	Gov., wage & salary, civilian	3.99	4.14	4.45	5.20	5.89
22	Finance, service, & misc., wage & salary (excl. domestic service)	4.16	4.31	4.44	4.45	4.12
23	Finance, service, & misc., other (34.1% of line 5)	1.05	1.03	.88	.98	.93
24	Finance, service, & misc., total excl. domestic service (22 + 23)	5.21	5.34	5.32	5.43	5.05
25	Finance, service, & misc., total incl. domestic service (4 + 24)	7.54	7.64	7.52	7.58	6.74
26	Total employed, civilian (1 + 2)	45.15	46.40	49.09	52.11	52.42
27	Armed forces	.40	.60	1.70	4.20	8.90
28	Total employed (26 + 27)	45.55	47.00	50.79	56.31	61.32

LINE PART A

1 Unpublished data underlying the estimates of the number of employees attached in King, *National Income and Its Purchasing Power*, Tables IV and V, pp. 56 and 60.

2 *Ibid.*, Table VI, p. 62.

4 See notes to line 1.

5 King, *op. cit.*, Table VI, p. 62.

7 King's unpublished estimates of the number at work, revised to exclude (1) employees in railroad repair shops (a duplicated item); (2) employees in manufactured gas (transferred to public utilities); and (3) power laundry employees (covered in unclassified).

8 King, *op. cit.*, Table VI, p. 62.

10 See note to line 1.

11 King, *op. cit.*, Table VI, p. 62.

13 See note to line 1. Estimates of manufactured gas employees are added.

14 Unpublished estimates underlying those in King, *op. cit.*, Table VI, p. 62.

16 See note to line 1.

LINE

17 King, *op. cit.*, Table VI, p. 62.

19 See note to line 1.

20 Total labor force is given in Clarence D. Long's 'The Labor Force in Wartime America', National Bureau *Occasional Paper 14,* March 1944, p. 40.

Employees attached to unclassified are estimated by subtracting from this total (1) the number of entrepreneurs (lines 2, 5, 8, 11, 14, 17, and 21) and (2) the number of employees attached to specific industries. The latter for agriculture, mining, construction, trade, and government are given in King, *op. cit.*, Tables IV and V, pp. 56 and 60; for manufacturing and transportation and other public utilities, estimated on the assumption that the percentage of unemployment was the same as King used. Multiplying the number attached to unclassified by the ratio of employed to attached for agriculture, mining, manufacturing, construction, transportation and other public utilities, and trade yields the number of employees engaged in the unclassified industries.

21 King, *op. cit.*, Table VI, p. 62. The total reported minus entrepreneurs in transportation included in Unclassified in Table VI plus entrepreneurs in banking shown separately.

PART B

1 & 2 The estimates for 1940-43 are from the Census *Monthly Report on the Labor Force,* June 13, 1944. The 1939 data are comparable estimates based on BLS and BAE data.

3, 6, 9, 12, 15, 18, 21, 22 BLS estimates as given in BLS release LS44-4087 (May 29, 1944). The government estimates include employees at government arsenals and shipyards.

4 Based on unpublished Census tabulations of the labor force survey data adjusted to the 1940 decennial census.

7, 10, 13, 16, 19, 23 Line 5 distributed proportionately to the distribution of self-employed and unpaid family workers as reported in the 1940 decennial census.

27 *1939-42:* the estimates are from S. M. Livingston, 'Post-war Manpower and Its Capacity to Produce', *Survey of Current Business,* April 1943, p. 10, Table 1.
1943: it is an average of the monthly figures from January through November (*Occasional Paper 14,* p. 68) and the January 1, 1944 figure (*Survey,* Feb. 1944, p. 5, Table 5).

APPENDIX TABLE III 11

In this table physical output indexes are assembled for as many industries as are covered by data for both wars. No attempt has been made to include indexes that are available for recent years alone.

The comparison of indexes of physical output with gross national product in constant prices is subject to one major qualification: a larger increase in the physical output of an industry than in national product in constant prices does not necessarily mean that the share of the net value product of the industry, in real terms, increases relative to the net product of the economy. Physical output indexes measure the full gross value product of an industry,

and an increase in it may be due to a bigger draft by the industry upon other industries. In other words, in any given industry the ratio of net value product (or of some gross value product short of the full value of output) to the full value of output need not remain constant over time.

It is doubtful, however, that changes in this ratio can be substantial during brief periods, especially for industrial categories as comprehensive as those in Appendix Table III 11. So long as comparisons are confined to categories as comprehensive and to periods as brief as those in this table, the qualification is not of great moment.

APPENDIX TABLE III 11

Physical Production Indexes, Major Industrial Divisions

World Wars I and II

WORLD WAR I (1914=100)

		1914	*1915*	*1916*	*1917*	*1918*
1	Agriculture	100	100	92	96	101
2	Mining	100	109	126	133	134
3	Manufacturing	100	117	139	138	137
4	Construction	100	89	91	93	94.5
5	Transportation					
	a) Railroad	100	107	124	136	142
6	Gross national product (1914 prices)	100	108	114	120	115

WORLD WAR II (1939=100)

		1939	*1940*	*1941*	*1942*	*1943*
7	Agriculture	100	103	106	117	122
8	Mining	100	110	118	122	125
9	Manufacturing	100	116	154	194	237
10	Construction	100	114	168	191	104
11	Transportation: Total	100	108	134	169	202
	a) Railroad	100	110	139	192	231
12	Gross national product (1939 prices)	100	109	127	138	161

LINE

1 & 2 Harold Barger and S. H. Schurr, *The Mining Industries, 1899-1939: A Study of Output, Employment and Productivity* (National Bureau of Economic Research, 1944), p. 14.

3 Solomon Fabricant, *Employment in Manufacturing, 1899-1939: An Analysis of Its Relation to the Volume of Production* (National Bureau of Economic Research, 1942), p. 331.

4 Deflated dollar figures of the value of new construction (including publicly-financed) in 1915 prices for 1915-18 are from unpublished worksheets of the Bureau of Foreign and Domestic Commerce.

The total value of construction was deflated by components; military construction is included.

LINE

The 1914 figure is an extrapolation of the 1915 figure (unpublished BFDC worksheet) by the 1914 and 1915 values of the index of the physical volume of new construction plotted on Figure 8, p. 33, of L. J. Chawner's *Construction Activity in the United States, 1915-37* (Domestic Commerce Series 99).

5 The index compiled by W. W. Stewart (*American Economic Review,* Vol. 11, p. 68, 1921) was used. The transportation index, 'total transportation', consists of two parts: freight, measured in ton-miles; and passenger, measured in passenger-miles. They were combined by using the 1914 value added as weights; but how the total value added by the railroad industry was divided between freight and passenger is not described.

6 Based on Table III 1, line 3.

7 Index of the physical volume of farm marketings prepared by the Bureau of Agricultural Economics and the Bureau of Foreign and Domestic Commerce, given for 1939-42 in the *Survey of Current Business,* April 1943, p. 24, Table 1, and calculated for 1943 from the monthly data published in subsequent issues.

8 The 'minerals' component of the Federal Reserve Board index of industrial production is used (the latest revision is described in the *Federal Reserve Bulletin,* Oct. 1943). Covering three fuels and six metals, it is computed by using as weights the average value of production in 1935-39. Failure to include the newer metals and retention of gold and silver at the old weights undoubtedly lead to an understatment of the impact of the war on mining.

9 Same source and method of weighting as in line 8. The Federal Reserve Board index, as revised in October 1943, comprises some 95 individual series in the 'manufactures' component, of which 32 represent durable manufactures. Products not readily measurable in physical terms are included in the index by substituting man hours figures corrected for productivity changes.

10 Deflated dollar figures on the value of new construction in 1939 prices were computed as follows: an implicit price index was obtained by dividing estimates of private construction in current prices (*Survey of Current Business,* April 1944) by Department of Commerce estimates in 1939 prices; this index was then used to deflate estimates of total new construction (*ibid.,* June 1943 and monthly thereafter). From this deflated construction series the construction index was computed. Revisions of the construction data, which appeared in the June 1944 *Survey of Current Business,* do not warrant recalculation of the index.

11 The index for the total, representing commercial forms of transportation as calculated by the Bureau of Foreign and Domestic Commerce (*Survey of Current Business,* May 1943 and subsequent issues), is based on ton-miles for 5 types of commodity transportation (railroad, water, inter-city motor truck and bus, air, and oil and gas pipelines) and passenger-miles for 4 types of passenger transportation (railroad, intercity motor bus, local transit lines, and air). Ton- and passenger-miles are weighted according to the proportion of operating revenues for each type of transportation in the base period, 1935-39. The index of railroad transportation, a component of the BFDC index of total transportation includes both commodity and passenger transportation. It too is published monthly in the *Survey.*

12 Based on Table III 1, line 6b.

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