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But the chief determinants of the longer-run trends in the general level of real wages and in the level of real wages in individual industries appear to be those with which we began our discussion.

RECENT PRODUCTIVITY TRENDS IN PERSPECTIVE

Recent events are always of special interest. We therefore now take a closer look at productivity and a few related changes since World War II, viewing them in the perspective of the full record. For the private domestic economy we find that:

Output per manhour (and much the same may be said of output per weighted manhour) rose between 1945 and 1957 at an average rate that was high, though not unprecedently so, for a twelve-year period. The postwar rate was significantly higher than the average rate over the full period 1919-57, and still more so than the rate over 1889-1957.

Tangible capital was pushed up at an extraordinarily high rate — faster than in any preceding period of similar length. Since output rose at a rate only moderately better than average, output per unit of tangible capital fell.

Output per unit of labor and capital combined rose during 1945-57 at a rate slightly better than the long-run average and about the same as the average for 1919-57.

Real hourly earnings in manufacturing — not including certain types of supplementary employee remuneration — rose about as rapidly as over the full period 1919-57, and therefore less rapidly over the postwar period than output per manhour and more rapidly than total productivity. The postwar difference between the annual rates for real hourly earnings in manufacturing and total productivity appears to have been about the same as the difference over the longer period 1919-57 and between 1889 and 1919.

Most of these facts have already been presented in the charts above. The set of calculations provided in Table 7 may be helpful. It should be emphasized that because of cyclical and other fluctuations in the figures, the average rates of change over the postwar period were calculated by comparing the average level in 1945-48 with the average in 1953-57; and that we are focusing on output, input, and earnings expressed only in real terms (that is, adjusted

for price change), and are thus passing over aspects of recent developments that are crucial for the problem of inflation.

It may surprise those people who have heard of the "new" technological age that output per manhour (and also output per weighted manhour) rose during the period after the war at an average rate that, though high, was within the range of experience for earlier periods of similar length. Even if the average postwar rate is calculated for the period beginning with 1947 and ending with 1955, it is not without an earlier parallel.

The index of output per unit of labor and capital combined is, of course, a weighted average of the labor and capital productivity indexes. Since output per unit of tangible capital fell substantially between 1945 and 1949, and then fluctuated about a fairly constant level, output per unit of labor and capital combined rose much less rapidly than output per manhour. The considerable diversity of experience to which total productivity was subjected during the postwar period averaged out to an annual rate of 2.1 per cent for the period as a whole — the same, as has been mentioned, as the average for the longer period 1919-57.

The rise in real hourly earnings relative to total productivity came mainly in the second half of the period. In manufacturing, for example (which appears to have had a fairly typical experience),²⁷ real hourly earnings rose between 1948-53 and 1953-57 about five per cent more than total productivity. Over the full postwar period — comparing 1945-48 with 1953-57 — real hourly earnings in manufacturing rose at a rate approximately halfway between the

²⁷Indexes of real average (gross) hourly earnings of production workers or nonsupervisory employees in the nonagricultural industries for which data are available are as follows for selected periods:

| | 1945-1948 | 1948-1953 | 1953-1957 |
|--------------------------|-----------|-----------|-----------|
| Metal mining | 100.0 | 112.7 | 137.9 |
| Railroads (Class I) | 100.0 | 119.3 | 137.7 |
| Bituminous coal mining | 100.0 | 115.7 | 134.0 |
| Building construction | 100.0 | 111.1 | 131.0 |
| Electric light and power | 100.0 | 107.7 | 126.7 |
| Manufacturing | 100.0 | 109.2 | 125.5 |
| Retail trade | 100.0 | 108.0 | 123.6 |
| Hotels (year-round) | 100.0 | 107.1 | 123.3 |
| Wholesale trade | 100.0 | 106.4 | 123.1 |
| Telephone | 100.0 | 105.9 | 122.5 |
| Laundries | 100.0 | 101.0 | 107.6 |

(The hourly earnings are those reported by the U.S. Bureau of Labor Statistics, deflated by the BLS consumer price index. The averages are calculated with the terminal years — for example, 1945 and 1948, in the case of 1945-1948 — given half weight.)

TABLE 7

Rates of Increase in Productivity in the Private Domestic Economy,
and in Real Hourly Earnings in Manufacturing, 1945-1957

| PRIVATE DOMESTIC ECONOMY | | | | | |
|--|--|--|--|--|--|
| | <i>Output per unweighted manhour</i> | <i>Output per weighted manhour</i> | <i>Output per unit of tangible capital</i> | <i>Output per unit of labor and capital combined</i> | <i>Real Hourly Earnings in Manufac- turing</i> |
| Annual Percentage Rate of Change | | | | | |
| 1945-46 | -5.1 | -5.2 | -6.5 | -5.5 | -2.1 |
| 1946-47 | 0.4 | -0.6 | -2.4 | -1.0 | -0.5 |
| 1947-48 | 3.4 | 2.9 | -1.4 | 2.0 | 1.4 |
| 1948-49 | 3.8 | 4.4 | -4.6 | 2.3 | 4.8 |
| 1949-50 | 7.8 | 6.5 | 5.5 | 6.3 | 3.6 |
| 1950-51 | 2.5 | 1.5 | 0.3 | 1.3 | 0.5 |
| 1951-52 | 2.1 | 1.5 | -0.3 | 1.1 | 2.7 |
| 1952-53 | 4.0 | 3.2 | -0.2 | 2.4 | 5.1 |
| 1953-54 | 2.4 | 3.1 | -4.4 | 1.2 | 1.9 |
| 1954-55 | 4.8 | 4.7 | 5.7 | 5.0 | 4.2 |
| 1955-56 | 0.8 | 0.6 | -1.2 | 0.2 | 3.8 |
| 1956-57 | 2.5 | 2.4 | -1.9 | 1.3 | 1.0 |
| Average Annual Percentage Rate of Change | | | | | |
| 1945-48 to 1948-53 | 3.4 | 2.8 | -1.0 | 2.0 | 2.2 |
| 1948-53 to 1953-57 | 3.2 | 2.9 | 0.0 | 2.2 | 3.1 |
| 1945-48 to 1953-57 | 3.3 | 2.9 | -0.5 | 2.1 | 2.7 |

Source: Tables A and C. The estimates for the more recent years are preliminary. In calculating the averages for 1945-48, 1948-53, and 1953-57, terminal years were given a weight of one-half.

corresponding rates for output per manhour and output per unit of labor and capital. Real hourly earnings in the economy as a whole seem to have risen more rapidly than in manufacturing, however, and therefore more rapidly than both output per manhour and total productivity during the postwar period. Since the economy-wide index of earnings covers supplementary employee benefits, and the manufacturing index does not, some difference in this direction is to be expected.²⁸ But the estimate for all workers is probably too rough to be taken seriously as an accurate indication of the trend over so short a period.

Indeed, in any analysis of trends in the postwar period it is necessary to keep in mind not only that there have been considerable year-to-year variations in the rate of growth in real wages, in pro-

²⁸See the discussion in the second paragraph following.

ductivity, and in the relation between the two, but also that the figures are subject to a considerable margin of error, especially large in proportion to the annual changes. Although the data for recent years are, as a rule, more complete and of better quality than those for the earlier decades, they suffer in some degree from the usual statistical deficiencies.

Further, the recent period has seen a number of developments that serve to feed doubts about the precision of the estimates. These include a growing disparity between hours worked and hours paid for, a matter stressed first by the presentation of two alternative estimates of output per manhour in the January 1958 Economic Report of the President and second by the prospective initiation by the Bureau of Labor Statistics of a periodic survey to measure the difference between hours paid for and hours worked in manufacturing industries.²⁹

Also of growing importance have been items of supplementary employee remuneration — “fringe benefits” — that do not enter the usual calculations of hourly earnings. In 1953 manufacturing establishments reporting such items to the Bureau of Labor Statistics paid out 7 cents per payroll hour for private pensions credits, 3 cents for “insurance, health, and welfare,” and 6.5 cents for such legally required payments as Old Age and Survivors insurance, unemployment and workmen’s compensation, and state temporary disability insurance.³⁰ The total of these amounted to almost 9 per cent of the 1953 payroll of reporting establishments. The percentage was undoubtedly smaller in earlier years and larger in later. The rise

²⁹The two Economic Report estimates of average annual percentage change in output per manhour in the private economy differ as follows with respect to growth between 1948-53 and 1953-57. (Year-to-year changes, of course, differ even more widely.) Based on manhours paid for (as estimated on the basis of Bureau of Labor Statistics data), output per manhour rose at an average annual rate of 3.0 per cent. Based on manhours worked (as estimated on the basis of Bureau of the Census data), the rate of increase was 3.5 per cent.

Kendrick’s series falls about midway between the two, though his index, like the second one above, is based primarily on hours worked. But there are other sources of difference between his and the other indexes in the choice of the weight-base and of employment estimates, and in the treatment of income on foreign assets.

³⁰*Problems in Measurement of Expenditures on Selected Items of Supplementary Employee Remuneration*, Bulletin No. 1186, Department of Labor, 1956. The study was undertaken by the Bureau of Labor Statistics with financial assistance from the National Bureau.

Kendrick’s index of real hourly earnings in the economy at large includes an allowance for these items, as estimated by the Department of Commerce.

in the real hourly earnings of factory workers in recent years has thus been understated.

Less clear in their effect on the postwar statistics are difficulties in the estimation of tangible capital. These have been caused by inflation, coupled with the prevalence of original-cost depreciation accounting; and by a number of temporary and permanent revisions in the internal revenue code governing the calculation of depreciation changes.

Developments since the war have affected not only the statistics that one must use to describe the course of events. As is always the case, these developments have also generated new factors that played a part in recent events. Some are factors that will persist and influence the trends of the future. Others will turn out to be peculiar to the period. A detailed study of the period is essential if the nature and significance of these new factors are to be assessed. Essential also is a study of the longer record. For only in the light of the longer record can the new factors be recognized and weighed.

Even our brief survey of this record suggests, however, that the postwar period probably resembles past periods more than it departs from them. In the recent, as in the early decades of the period since 1889, the *main* source of the rise in real wages is to be found not in special factors but in the persistent features of our economic development — the upward trend in productivity and the upward trend in tangible and other capital per worker.

TABLE A

Annual Indexes of Output, Input, and Productivity, 1889-1957
Estimates for the Private Domestic Economy

| YEAR | GROSS PHYSICAL OUTPUT | INPUT | | | | | |
|------|-----------------------------|-------------|----------|------------------|----------|------------------------------------|------------|
| | | Manhours | | Tangible Capital | | Total Input, Weighted ^a | |
| | | Un-weighted | Weighted | Un-weighted | Weighted | Estimate A | Estimate B |
| 1889 | 22.3 | 51.1 | 44.6 | 30.7 | 29.8 | 44.5 | 39.8 |
| 1890 | 24.2 | 53.0 | 46.2 | 32.2 | 31.1 | 46.3 | 41.3 |
| 1891 | 25.3 | 54.3 | 47.6 | 34.0 | 32.8 | 47.8 | 42.8 |
| 1892 | 27.7 | 56.1 | 49.5 | 36.0 | 34.8 | 49.6 | 44.8 |
| 1893 | 26.3 | 55.5 | 48.6 | 37.8 | 36.6 | 49.9 | 44.8 |
| 1894 | 25.5 | 53.5 | 46.1 | 39.1 | 37.7 | 49.0 | 43.6 |
| 1895 | 28.8 | 56.8 | 49.9 | 40.6 | 39.2 | 51.8 | 46.7 |
| 1896 | 28.1 | 56.8 | 49.9 | 42.1 | 40.6 | 52.3 | 47.2 |
| 1897 | 31.0 | 58.6 | 51.7 | 43.4 | 41.7 | 53.9 | 48.7 |
| 1898 | 31.6 | 58.9 | 51.9 | 44.8 | 43.1 | 54.6 | 49.3 |
| 1899 | 34.6 | 63.2 | 56.7 | 46.2 | 44.4 | 57.9 | 52.9 |
| 1900 | 35.5 | 63.9 | 57.5 | 47.7 | 46.1 | 58.9 | 54.0 |
| 1901 | 39.6 | 66.7 | 60.7 | 49.1 | 47.6 | 61.3 | 56.7 |
| 1902 | 39.8 | 69.6 | 64.3 | 50.6 | 49.3 | 63.7 | 59.7 |
| 1903 | 41.9 | 71.6 | 66.6 | 52.4 | 51.3 | 65.6 | 61.9 |
| 1904 | 41.2 | 70.6 | 64.9 | 53.7 | 52.8 | 65.4 | 61.3 |
| 1905 | 44.3 | 74.0 | 69.0 | 55.2 | 54.2 | 68.2 | 64.4 |
| 1906 | 49.6 | 77.0 | 72.4 | 57.4 | 56.3 | 71.0 | 67.5 |
| 1907 | 50.5 | 78.7 | 74.3 | 59.5 | 58.6 | 72.8 | 69.5 |
| 1908 | 46.0 | 75.3 | 70.1 | 61.2 | 60.4 | 71.2 | 67.4 |
| 1909 | 52.1 | 79.4 | 74.9 | 62.6 | 61.8 | 74.4 | 71.0 |
| 1910 | 52.5 | 81.5 | 77.5 | 64.4 | 63.7 | 76.4 | 73.3 |
| 1911 | 54.5 | 83.0 | 79.0 | 66.1 | 65.7 | 77.9 | 75.0 |
| 1912 | 57.3 | 85.6 | 82.2 | 67.5 | 67.3 | 80.2 | 77.7 |
| 1913 | 59.7 | 86.3 | 83.2 | 69.2 | 69.4 | 81.2 | 79.0 |
| 1914 | 54.8 | 84.7 | 80.7 | 71.0 | 71.5 | 80.7 | 78.0 |
| 1915 | 56.4 | 83.9 | 80.4 | 72.5 | 73.2 | 80.6 | 78.3 |
| 1916 | 65.1 | 90.0 | 88.3 | 73.6 | 74.4 | 85.1 | 84.1 |
| 1917 | 63.0 | 91.9 | 90.7 | 75.0 | 76.3 | 86.8 | 86.3 |
| 1918 | 67.5 | 91.1 | 90.0 | 76.3 | 78.4 | 86.7 | 86.5 |
| 1919 | 69.7 | 88.2 | 86.7 | 77.5 | 80.3 | 85.1 | 84.9 |
| 1920 | 70.0 | 89.4 | 87.9 | 78.9 | 82.0 | 86.4 | 86.2 |
| 1921 | 67.5 | 80.5 | 77.8 | 79.8 | 83.2 | 80.3 | 79.3 |
| 1922 | 71.8 | 86.5 | 84.6 | 80.8 | 83.8 | 84.9 | 84.4 |
| 1923 | 82.0 | 93.4 | 93.0 | 82.9 | 85.5 | 90.4 | 90.9 |
| 1924 | 83.6 | 91.2 | 90.0 | 85.5 | 87.7 | 89.6 | 89.3 |

Source: John Kendrick, "Productivity Trends in the United States" (in preparation), Appendix A.

^aEstimate A is a weighted combination of unweighted manhours and unweighted tangible capital. Estimate B is a weighted combination of weighted manhours and weighted tangible capital.

PRODUCTIVITY: OUTPUT PER

| <i>Manhour</i> | | <i>Unit of Tangible Capital</i> | | <i>Unit of Total Input (weighted)</i> | | YEAR |
|--------------------|-----------------|-------------------------------------|-----------------|---|-------------------|-------------|
| Un-weighted | Weighted | Un-weighted | Weighted | Estimate A | Estimate B | |
| 43.6 | 50.0 | 72.6 | 74.8 | 50.1 | 56.0 | 1889 |
| 45.7 | 52.4 | 75.2 | 77.8 | 52.3 | 58.6 | 1890 |
| 46.6 | 53.2 | 74.4 | 77.1 | 52.9 | 59.1 | 1891 |
| 49.4 | 56.0 | 76.9 | 79.6 | 55.8 | 61.8 | 1892 |
| 47.4 | 54.1 | 69.6 | 71.9 | 52.7 | 58.7 | 1893 |
| 47.7 | 55.3 | 65.2 | 67.6 | 52.0 | 58.5 | 1894 |
| 50.7 | 57.7 | 70.9 | 73.5 | 55.6 | 61.7 | 1895 |
| 49.5 | 56.3 | 66.7 | 69.2 | 53.7 | 59.5 | 1896 |
| 52.9 | 60.0 | 71.4 | 74.3 | 57.5 | 63.7 | 1897 |
| 53.7 | 60.9 | 70.5 | 73.3 | 57.9 | 64.1 | 1898 |
| 54.7 | 61.0 | 74.9 | 77.9 | 59.8 | 65.4 | 1899 |
| 55.6 | 61.7 | 74.4 | 77.0 | 60.3 | 65.7 | 1900 |
| 59.4 | 65.2 | 80.7 | 83.2 | 64.6 | 69.8 | 1901 |
| 57.2 | 61.9 | 78.7 | 80.7 | 62.5 | 66.7 | 1902 |
| 58.5 | 62.9 | 80.0 | 81.7 | 63.9 | 67.7 | 1903 |
| 58.4 | 63.5 | 76.7 | 78.0 | 63.0 | 67.2 | 1904 |
| 59.9 | 64.2 | 80.3 | 81.7 | 65.0 | 68.8 | 1905 |
| 64.4 | 68.5 | 86.4 | 88.1 | 69.9 | 73.5 | 1906 |
| 64.2 | 68.0 | 84.9 | 86.2 | 69.4 | 72.7 | 1907 |
| 61.1 | 65.6 | 75.2 | 76.2 | 64.6 | 68.2 | 1908 |
| 65.6 | 69.6 | 83.2 | 84.3 | 70.0 | 73.4 | 1909 |
| 64.4 | 67.7 | 81.5 | 82.4 | 68.7 | 71.6 | 1910 |
| 65.7 | 69.0 | 82.5 | 83.0 | 70.0 | 72.7 | 1911 |
| 66.9 | 69.7 | 84.9 | 85.1 | 71.4 | 73.7 | 1912 |
| 69.2 | 71.8 | 86.3 | 86.0 | 73.5 | 75.6 | 1913 |
| 64.7 | 67.9 | 77.2 | 76.6 | 67.9 | 70.3 | 1914 |
| 67.2 | 70.2 | 77.8 | 77.0 | 70.0 | 72.0 | 1915 |
| 72.3 | 73.7 | 88.5 | 87.5 | 76.5 | 77.4 | 1916 |
| 68.6 | 69.5 | 84.0 | 82.6 | 72.6 | 73.0 | 1917 |
| 74.1 | 75.0 | 88.5 | 86.1 | 77.9 | 78.0 | 1918 |
| 79.0 | 80.4 | 89.9 | 86.8 | 81.9 | 82.1 | 1919 |
| 78.3 | 79.6 | 88.7 | 85.4 | 81.0 | 81.2 | 1920 |
| 83.8 | 86.8 | 84.6 | 81.1 | 84.1 | 85.1 | 1921 |
| 83.0 | 84.9 | 88.9 | 85.7 | 84.6 | 85.1 | 1922 |
| 87.8 | 88.2 | 98.9 | 95.9 | 90.7 | 90.2 | 1923 |
| 91.7 | 92.9 | 97.8 | 95.3 | 93.3 | 93.6 | 1924 |

(table concludes on next pages)

TABLE A, *concluded*

| YEAR | GROSS PHYSICAL OUTPUT | I N P U T | | | | | |
|------|-----------------------------|-----------------|----------|-------------------------|----------|--|------------|
| | | <i>Manhours</i> | | <i>Tangible Capital</i> | | <i>Total Input, Weighted^a</i> | |
| | | Un- weighted | Weighted | Un- weighted | Weighted | Estimate A | Estimate B |
| 1925 | 86.6 | 94.5 | 93.6 | 88.2 | 89.8 | 92.7 | 92.5 |
| 1926 | 92.0 | 97.8 | 97.5 | 91.6 | 92.7 | 96.0 | 96.1 |
| 1927 | 93.0 | 97.2 | 97.3 | 94.6 | 95.4 | 96.5 | 96.8 |
| 1928 | 93.9 | 98.1 | 97.9 | 97.5 | 97.7 | 97.9 | 97.8 |
| 1929 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1930 | 90.8 | 93.1 | 91.9 | 101.7 | 102.0 | 95.2 | 94.3 |
| 1931 | 84.0 | 85.4 | 82.3 | 101.9 | 102.1 | 89.4 | 87.1 |
| 1932 | 71.8 | 75.6 | 71.2 | 100.3 | 99.9 | 81.5 | 78.1 |
| 1933 | 70.0 | 74.9 | 70.5 | 97.6 | 96.5 | 80.3 | 76.7 |
| 1934 | 76.9 | 73.6 | 70.8 | 95.2 | 93.8 | 78.8 | 76.3 |
| 1935 | 83.8 | 77.6 | 74.9 | 94.2 | 92.5 | 81.6 | 79.1 |
| 1936 | 94.5 | 83.4 | 82.6 | 94.1 | 92.5 | 86.0 | 85.0 |
| 1937 | 101.0 | 88.6 | 87.4 | 95.3 | 93.8 | 90.2 | 88.9 |
| 1938 | 95.4 | 81.0 | 79.3 | 95.9 | 94.6 | 84.4 | 82.8 |
| 1939 | 104.1 | 85.2 | 84.2 | 96.0 | 94.3 | 87.7 | 86.6 |
| 1940 | 110.2 | 88.9 | 88.6 | 97.3 | 95.9 | 90.9 | 90.3 |
| 1941 | 130.4 | 96.9 | 99.3 | 99.7 | 99.0 | 97.6 | 99.3 |
| 1942 | 142.6 | 104.4 | 108.6 | 101.6 | 101.7 | 103.9 | 107.1 |
| 1943 | 153.1 | 108.2 | 114.2 | 101.6 | 101.8 | 106.8 | 111.5 |
| 1944 | 162.8 | 106.7 | 112.7 | 100.7 | 100.9 | 105.5 | 110.1 |
| 1945 | 160.4 | 100.9 | 106.3 | 99.7 | 99.8 | 100.7 | 104.9 |
| 1946 | 153.5 | 101.7 | 107.3 | 100.9 | 102.1 | 101.6 | 106.2 |
| 1947 | 157.4 | 103.9 | 110.6 | 104.0 | 107.3 | 104.0 | 110.0 |
| 1948 | 163.8 | 104.5 | 111.9 | 108.0 | 113.3 | 105.4 | 112.3 |
| 1949 | 162.9 | 100.1 | 106.6 | 112.2 | 118.1 | 102.8 | 109.1 |
| 1950 | 178.7 | 101.9 | 109.8 | 116.3 | 122.8 | 105.0 | 112.6 |
| 1951 | 188.5 | 105.1 | 114.4 | 121.5 | 129.1 | 108.6 | 117.5 |
| 1952 | 194.0 | 105.7 | 115.7 | 125.8 | 133.2 | 110.0 | 119.4 |
| 1953 | 202.9 | 106.3 | 117.2 | 129.6 | 139.6 | 111.3 | 121.9 |
| 1954 | 199.5 | 102.1 | 111.8 | 133.0 | 143.6 | 108.6 | 118.5 |
| 1955 | 217.3 | 106.1 | 116.3 | 137.1 | 148.0 | 112.6 | 122.9 |
| 1956 | 222.6 | 107.8 | 118.4 | 142.1 | 153.4 | 115.0 | 125.7 |
| 1957 | 225.2 | 106.4 | 116.9 | 146.5 | 158.2 | 114.8 | 125.5 |

PRODUCTIVITY: OUTPUT PER

| <i>Manhour</i> | | <i>Unit of Tangible Capital</i> | | <i>Unit of Total Input (weighted)</i> | | <i>YEAR</i> |
|--------------------|-----------------|-------------------------------------|-----------------|---|-------------------|-------------|
| <i>Un-weighted</i> | <i>Weighted</i> | <i>Un-weighted</i> | <i>Weighted</i> | <i>Estimate A</i> | <i>Estimate B</i> | |
| 91.6 | 92.5 | 98.2 | 96.4 | 93.4 | 93.6 | 1925 |
| 94.1 | 94.4 | 100.4 | 99.2 | 95.8 | 95.7 | 1926 |
| 95.7 | 95.6 | 98.3 | 97.5 | 96.4 | 96.1 | 1927 |
| 95.7 | 95.9 | 96.3 | 96.1 | 95.9 | 96.0 | 1928 |
| 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1929 |
| 97.5 | 98.8 | 89.3 | 89.0 | 95.4 | 96.3 | 1930 |
| 98.4 | 102.1 | 82.4 | 82.3 | 94.0 | 96.4 | 1931 |
| 95.0 | 100.8 | 71.6 | 71.9 | 88.1 | 91.9 | 1932 |
| 93.5 | 99.3 | 71.7 | 72.5 | 87.2 | 91.3 | 1933 |
| 104.5 | 108.6 | 80.8 | 82.0 | 97.6 | 100.8 | 1934 |
| 108.0 | 111.9 | 89.0 | 90.6 | 102.7 | 105.9 | 1935 |
| 113.3 | 114.4 | 100.4 | 102.2 | 109.9 | 111.2 | 1936 |
| 114.0 | 115.6 | 106.0 | 107.7 | 112.0 | 113.6 | 1937 |
| 117.8 | 120.3 | 99.5 | 100.8 | 113.0 | 115.2 | 1938 |
| 122.2 | 123.6 | 108.4 | 110.4 | 118.7 | 120.2 | 1939 |
| 124.0 | 124.4 | 113.3 | 114.9 | 121.2 | 122.0 | 1940 |
| 134.6 | 131.3 | 130.8 | 131.7 | 133.6 | 131.3 | 1941 |
| 136.6 | 131.3 | 140.4 | 140.2 | 137.2 | 133.1 | 1942 |
| 141.5 | 134.1 | 150.7 | 150.4 | 143.4 | 137.3 | 1943 |
| 152.6 | 144.5 | 161.7 | 161.3 | 154.3 | 147.9 | 1944 |
| 159.0 | 150.9 | 160.9 | 160.7 | 159.3 | 152.9 | 1945 |
| 150.9 | 143.1 | 152.1 | 150.3 | 151.1 | 144.5 | 1946 |
| 151.5 | 142.3 | 151.3 | 146.7 | 151.3 | 143.1 | 1947 |
| 156.7 | 146.4 | 151.7 | 144.6 | 155.4 | 145.9 | 1948 |
| 162.7 | 152.8 | 145.2 | 137.9 | 158.5 | 149.3 | 1949 |
| 175.4 | 162.8 | 153.7 | 145.5 | 170.2 | 158.7 | 1950 |
| 179.4 | 164.8 | 155.1 | 146.0 | 173.6 | 160.4 | 1951 |
| 183.5 | 167.7 | 154.2 | 145.6 | 176.4 | 162.5 | 1952 |
| 190.9 | 173.1 | 156.6 | 145.3 | 182.3 | 166.4 | 1953 |
| 195.4 | 178.4 | 150.0 | 138.9 | 183.7 | 168.4 | 1954 |
| 204.8 | 186.8 | 158.5 | 146.8 | 193.0 | 176.8 | 1955 |
| 206.5 | 188.0 | 156.7 | 145.1 | 193.6 | 177.1 | 1956 |
| 211.7 | 192.6 | 153.7 | 142.4 | 196.2 | 179.4 | 1957 |

TABLE B
Summary Statistics for Individual Industrial Groups and Divisions
Indexes for 1953 Relative to 1899

| | I N P U T | | | O U T P U T P E R U N I T O F | | | | Real Hourly Earnings | Price of Product |
|--------------------------------|-----------|-------|---------------------|-------------------------------|-------|---------------------|------------------|----------------------------|---------------------|
| | Output | Labor | Tangible Capital | Total | Labor | Tangible Capital | Total Input | | |
| Farming, based on gross output | 203 | } 62 | 151 | 83 | } 330 | 134 | 244 | } 247 | 420 |
| Farming, based on net output | 153 | | | | | | | | |
| Mining | | | | | | | | | |
| Metals | 279 | 71 | 121 | 88 | 391 | 231 | 317 | 239 | 220 |
| Anthracite coal | 51 | 35 | 50 | 35 | 148 | 103 | 147 | 362 | 436 |
| Bituminous coal | 237 | 95 | 267 | 103 | 248 | 89 | 230 | 378 | 725 |
| Oil and gas | 2,434 | 401 | 855 | 486 | .607 | 285 | 501 | 409 | 613 |
| Nonmetals | 671 | 143 | 239 | 172 | 470 | 280 | 390 | 158 | 210 |
| Manufacturing | | | | | | | | | |
| Foods | 554 | 220 | 299 | 230 | 252 | 186 | 241 | 308 | 355 |
| Beverages | 475 | 196 | 202 | 200 | 242 | 235 | 238 | 224 | 283 |
| Tobacco | 661 | 46 | 700 | 106 | 1,442 | 94 | 620 | 276 | 257 |
| Textiles | 382 | 108 | 177 | 118 | 354 | 216 | 325 | 378 | 308 |
| Apparel | 552 | 205 | 550 | 224 | 269 | 100 | 246 | 313 | 283 |
| Lumber products | 128 | 67 | 152 | 72 | 192 | 84 | 177 | 334 | 1,061 |
| Furniture | 486 | 240 | 248 | 233 ^b | 202 | 196 | 208 ^b | 326 | 479 |
| Paper | 1,406 | 342 | 765 | 391 | 411 | 184 | 359 | 405 | 345 |
| Printing, publishing | 1,058 | 238 | 282 | 245 | 444 | 376 | 432 | 321 | 571 |
| Chemicals | 2,335 | 400 | 942 | 537 | 583 | 248 | 435 | 377 | 178 |
| Petroleum, coal products | 2,875 | 385 | 1,431 | 831 | 746 | 201 | 346 | 577 | 194 |
| Rubber products | 4,953 | 507 | 1,399 | 564 | 978 | 354 | 878 | 371 | 58 |
| Leather products | 185 | 90 | 115 | 94 | 206 | 161 | 198 | 306 | 432 |

TABLE B, concluded

| | INPUT | | | OUTPUT PER UNIT OF | | | | Real Hourly Earnings | Price of Product |
|-------------------------------------|--------|-------|---------------------|--------------------|-------|---------------------|------------------|----------------------------|---------------------|
| | Output | Labor | Tangible Capital | Total | Labor | Tangible Capital | Total Input | | |
| Manufacturing (cont.) | | | | | | | | | |
| Stone, clay, glass | 757 | 171 | 348 | 184 | 443 | 217 | 412 | 334 | 334 |
| Primary metals | 910 | 267 | 629 | 321 | 341 | 145 | 284 | 366 | 245 |
| Fabricated metals | 1,133 | 358 | 638 | 389 | 316 | 178 | 291 | 347 | 319 |
| Machinery, nonelectric | 1,046 | 384 | 581 | 418 | 272 | 180 | 251 | 333 | 339 |
| Electrical machinery | 6,264 | 1,693 | 2,742 | 1,854 | 370 | 228 | 338 | 332 | 276 |
| Transportation equipment | 4,059 | 615 | 1,026 | 669 | 661 | 396 | 608 | 398 | 415 |
| Miscellaneous mfg. | 1,038 | 331 | 556 | 355 | 313 | 187 | 292 | 223 | 314 |
| Transportation* | | | | | | | | | |
| Railroads | 396 | 91 | 152 | 102 | 437 | 261 | 390 | 352 | 191 |
| Local transit | 296 | 84 | 50 | 80 | 351 | 595 | 372 | 296 | 270 |
| Communications, public utilities | | | | | | | | | |
| Telephone | 4,048 | 1,391 | 1,704 | 1,318 ^b | 291 | 238 | 307 ^b | 308 | 230 |
| Telegraph | 310 | 130 | 76 | 118 | 239 | 409 | 263 | 306 | 286 |
| Electric light and power | 24,550 | 964 | 2,035 | 1,390 | 2,560 | 1,207 | 1,764 | 289 | 62 |
| Manufactured gas | 846 | 69 | 75 | 72 | 1,219 | 1,129 | 1,176 | 431 | 86 |
| Natural gas | 3,311 | 673 | 3,551 | 1,118 | 492 | 93 | 296 | 333 | 442 |

Source: Kendrick, "Productivity Trends in the United States" (in preparation). Slight inconsistencies are due to rounding of figures.

*The index in Chart 4 covers also waterways, motor transport, pipelines, airlines, and services allied to transportation.

^bInconsistency due to chaining indexes calculated on several weight-bases. See Kendrick's forthcoming report for a full explanation.

TABLE C

Indexes of Real Hourly Earnings, 1889-1957

| Year | Private Domestic Economy, | | Year | Private Domestic Economy, | |
|------|--|--------------------------|------|--|--------------------------|
| | Manufacturing, Wage Earners ^a | All Workers ^b | | Manufacturing, Wage Earners ^a | All Workers ^b |
| 1889 | 47.3 | 47.0 | 1924 | 96.9 | |
| 1890 | 48.5 | | 1925 | 94.4 | |
| 1891 | 48.5 | | 1926 | 93.9 | |
| 1892 | 48.9 | | 1927 | 96.0 | |
| 1893 | 51.3 | | 1928 | 99.3 | |
| 1894 | 49.5 | | 1929 | 100.0 | 100.0 |
| 1895 | 50.1 | | 1930 | 100.1 | |
| 1896 | 52.1 | | 1931 | 102.6 | |
| 1897 | 51.2 | | 1932 | 98.9 | |
| 1898 | 50.2 | | 1933 | 103.6 | |
| 1899 | 53.1 | 53.4 | 1934 | 120.5 | |
| 1900 | 54.4 | | 1935 | 121.3 | |
| 1901 | 56.1 | | 1936 | 121.4 | |
| 1902 | 58.1 | | 1937 | 131.5 | 125.3 |
| 1903 | 58.3 | | 1938 | 134.6 | |
| 1904 | 57.4 | | 1939 | 138.0 | |
| 1905 | 59.0 | | 1940 | 143.0 | |
| 1906 | 61.8 | | 1941 | 150.1 | |
| 1907 | 61.3 | | 1942 | 158.5 | |
| 1908 | 60.4 | | 1943 | 168.1 | |
| 1909 | 61.8 | 62.3 | 1944 | 175.4 | |
| 1910 | 62.9 | | 1945 | 172.3 | |
| 1911 | 64.2 | | 1946 | 168.6 | |
| 1912 | 64.6 | | 1947 | 167.8 | |
| 1913 | 67.4 | | 1948 | 170.1 | 166.0 |
| 1914 | 66.5 | | 1949 | 178.2 | |
| 1915 | 64.7 | | 1950 | 184.6 | |
| 1916 | 70.3 | | 1951 | 185.5 | |
| 1917 | 70.6 | | 1952 | 190.6 | |
| 1918 | 74.6 | | 1953 | 200.3 | 210.3 |
| 1919 | 83.5 | 77.5 | 1954 | 204.2 | |
| 1920 | 83.9 | | 1955 | 212.7 | |
| 1921 | 87.3 | | 1956 | 220.7 | |
| 1922 | 88.6 | | 1957 | 223.0 | 237.6 |
| 1923 | 92.7 | | | | |

^aSource: Hourly earnings for 1919-57 are those of the Department of Labor; 1890-1914, Rees, "Real Wages in Manufacturing, 1890-1914" (typescript, 1958); 1914-19, interpolated by the index for payroll manufacturing industries given by Douglas, *Real Wages in the United States, 1890-1926* (Houghton-Mifflin, 1930); 1889, Rees's figure for 1890 extrapolated by data in Long, *Wages and Earnings in the United States: 1860-1890*, in press. The cost of living index for 1914-57 is that of the Department of Labor; 1890-1914, Rees; 1889-90, Long.

^bSource: Kendrick, Chapter V. This index is derived by multiplying the index of real gross national product per unweighted manhour (in the private domestic economy) by an index of the estimated percentage of national income (also for the private domestic economy) received by wage earners, salaried workers and entrepreneurs. The deflator involved is the implicit index

of price of the national product at "factor cost." Alternative indexes of real hourly earnings, obtained by deflating by the implicit index of national product price at "market" (A, below) or by the BLS-Rees-Long index of the cost of living (B, below), are as follows:

| | A | B |
|------|-------|-------|
| 1889 | 52.1 | 54.0 |
| 1899 | 59.2 | 60.3 |
| 1909 | 64.9 | 74.3 |
| 1919 | 76.6 | 82.3 |
| 1929 | 100.0 | 100.0 |
| 1937 | 120.5 | 118.2 |
| 1948 | 171.8 | 176.7 |
| 1953 | 209.6 | 215.0 |
| 1957 | 236.8 | 249.0 |

Index A is given in the work by Kendrick cited. It should be noted that Kendrick's deflators, and the deflators in the sources he used, were calculated before the new indexes of Rees and Long were available.

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