

November 7, 1955

Mr. Allan Sproul, Vice Chairman,
Federal Open Market Committee,
c/o Federal Reserve Bank of New York,
New York 45, New York.

Dear Mr. Sproul:

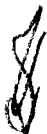
Enclosed is a copy of a letter which I am sending to all of the Open Market Committee members located at Federal Reserve Banks and to the other Reserve Bank presidents today, transmitting a copy of Ralph Young's letter to you dated November 4, regarding productivity increases. A similar letter is also being sent to members of the Committee and the Open Market staff here in Washington.

Two additional copies of Mr. Young's letter are enclosed for the use of members of your staff.

Sincerely yours,

Winfield W. Riefner, Secretary,
Federal Open Market Committee.

Enclosures.

 MS:mcc

November 4, 1955

Mr. Allan Sproul, President,
Federal Reserve Bank of New York,
New York (45) N. Y.

Dear Allan:

Your letter of September 29 concerning the postwar relation between wage increases and increases in productivity has naturally prompted me to give some further consideration to this subject. Your understanding of my remarks at the September 14 meeting of the Open Market Committee is quite correct--regrettably from my standpoint, because my statement at the meeting was confused and certainly inaccurate. The confusion which I introduced carries over into the observation contained in your letter, so that the best road to clarification of the question is to start answering it afresh. This will give opportunity, too, for proper qualification, for the factual data available for an answer are not made to order. A fair assumption is, I think, that the original question pertained to productivity and wages in manufacturing. It is quite enough of a question to confine the discussion to this one area.

To begin with, we need the question properly formulated. Productivity, as it is usually employed, is a term relating to physical output per manhour. The term wage rates, in contrast, has a value content. A meaningful examination of wage rate and productivity trends requires that the data used to bring out the relationship be on a basis suitable for comparative analysis; otherwise, any answer arrived at will be confused.

As a first approximation to a meaningful factual basis for comparison, we can derive an index of "value productivity per manhour" by multiplying an index of physical output per manhour by an index of industrial prices. The derived index is admittedly a crude measure of the change in gross dollar returns per hour of labor resulting from changes in both productivity and product prices, but for comparison with hourly wage rates, it is perhaps a step forward.

The results are set forth in Chart 1. They show that "value productivity per manhour" has risen more than 110 per cent since 1946 whereas average hourly earnings have risen about 70 per cent. Virtually all of this divergent movement occurred between 1946 and 1951. Considering the inflationary pressures affecting industrial demands and prices

Mr. Allan Sproul, - #2

November 4, 1955

over much of the postwar period, and the generally sustained high profitability of manufacturing industry, this result is not in the least surprising. Employers will not keep on bidding up wage and other cost elements unless the wherewithall to do so is available to them in value product.

An alternative way of putting the relationship between postwar factory wage rate and productivity trends is to express hourly wage rates or earnings in real terms to the wage earner, and to compare this index series with an index of output per manhour. This adaptation of hourly earnings data is effected by dividing the index of hourly earnings by the index of consumer prices.

The resulting comparison is shown on Chart 2. On this basis, the rise in manufacturing productivity of 43 per cent over the postwar period compares with a rise of 26 per cent in real earnings. Again the divergency of movement is shown to have occurred mainly between 1946 and 1951.

Still a third approach to studying the relationship between postwar trends in wages and productivity is possible. This approach involves combining the productivity (output per manhour) and the wage rate (average hourly earnings) series, by dividing the latter by the former, thus deriving a rough index of direct unit factory labor costs. This index may then be compared with an index of industrial prices.

Chart 3, which makes this comparison, shows that since 1946 industrial prices have risen more than unit labor costs--the price rise amounting to 48 per cent and the unit labor cost rise amounting to 20 per cent. This chart likewise brings out that most of the price rise and virtually all of the postwar rise in unit labor costs occurred up to 1951.

In Chart 4, the industrial price-unit labor cost data are plotted on a quarterly basis, both to indicate the fact that annual data obscure short-term movements and to bring developments as up-to-date as possible. Since late 1951 unit labor costs have fluctuated about a horizontal line, rising in late 1952 and early 1953, declining about the same amount from late 1953 to late 1954, and rising again after the first quarter of this year. Consumer prices, not shown on the chart, also showed a sidewise movement after 1951 until mid-1955. Recently, the consumer price index has moved up some, although very little as compared to industrial prices.

Mr. Allan Sproul, - #3

November 4, 1955

The preceding charts raise the questions for the whole period since 1946 as to why hourly wages have risen less than value productivity, why real hourly earnings have risen less than output per manhour, or why unit direct labor costs have risen less than industrial prices. These are all, it is to be emphasized, different perspectives on the same fundamental phenomenon. The answer is probably to be found in the unusual relationship that obtained between wage, price, and labor productivity factors at the end of the war, combined with the unusual inflationary developments operating to sustain demand pressure over postwar years-- particularly up to 1951. With respect to the very recent behavior of the industrial sector of economic activity, we once more seem to have an interplay of wage-cost-price-profit relations suggestive of a dominance by final (perhaps even inflationary) demand.

All of this raises problems of the hen-egg variety, so that it is perhaps best at this point to let the subject drop, with the facts, such as they are, speaking for themselves. Before doing so, however, one more set of facts may be added, but without comment. There is attached an interesting long-term chart on annual price, average hourly earnings, and productivity changes for the period 1923 to 1955. The data qualifications expressed below with reference to the postwar period need to be underscored with a printer's pencil for the long interval 1923 to 1946.

The above reference to "the facts, such as they are" is to stress that in this letter and the chart attachments, there has been some free-wheeling use of available data. While the data are probably accurate enough to permit such broad trend comparisons as are made above, important cautions about the facts are necessary, even at the risk of making this communication unduly long.

First, the data on average hourly earnings in manufacturing, output per manhour, and wholesale prices other than farm products and foods are subject to the weakness of aggregates. Individual industries and companies undoubtedly exhibit a large range of variation in their experiences and even the most tentative conclusions drawn from these aggregative data might not be applicable to these individual economic units. Moreover, there are differences in internal weighting structure among the aggregative measures. Use of comparable weighting procedures would to some extent modify the relationships traced above.

Second, in addition to differences in weighting structure, the wholesale price index used to represent industrial prices is an index relating to prices of commodities other than farm products and foods. It, therefore, differs in industry coverage from the other measures (e.g., by including commodities produced in the mining and utilities industries) which are not included in the data on average hourly earnings or output per manhour in manufacturing industries.

Mr. Allan Sproul, - #4

November 4, 1955

On the other hand, manufactured foods--which are part of the indexes of output and hourly earnings in manufacturing--are not included in the price index used. Furthermore, a comparison of changes in unit labor costs and industrial prices, as both are defined in this letter, must take into account the fact that industrial prices are influenced by changes in such cost components as raw materials, intermediate products, transportation expense, and non-production worker payrolls, as well as by changes in labor costs.

Third, the index of unit production worker labor costs in manufacturing, derived by dividing changes in average hourly earnings by changes in output per manhour, does not take into account those labor costs which are not reflected in wages paid and hence in average hourly earnings. It should also be noted that the manhour figures include all time paid for and not solely manhours worked. Such labor costs as reflect more paid vacation and holidays or premium payments are covered in average hourly earnings, but such costs as "fringe" benefits in the form of supplemental unemployment compensation payments, company-paid pensions, and other benefits are not covered in this index.

The impression is widespread, although the available data do not permit adequate quantitative statements, that these "non-payroll" benefits have risen more sharply than the other gains--especially in recent years. However, the hourly costs of such benefits are probably a small, though important component of total labor costs, so that a smaller percentage rise in hourly earnings than in these non-payroll benefits would have a greater absolute effect on total labor costs. Here is an area, however, where the experience of individual companies would probably vary considerably.

Fourth, with regard to the Board's production index which was used to derive the output per manhour measure, various problems might be mentioned which affect the degree of confidence individual analysts have in the results. Without going into the numerous technical problems--which, of course, may have considerable bearing on the results--the figures at the two ends of the period covered (i.e., the 1946-47 and 1954-55 changes) are most likely to be significantly affected by subsequent revision. Thus, the 1946 figure was not reviewed at the time of the 1953 revision of the index from 1947 on, and the 1946-47 change is therefore subject to revision.

As you know, the methods of measuring monthly changes in output differ in many ways from the annual measures. The 1954 and 1955 data are averages of monthly figures without an independent check on their level, and are subject to revision on the basis of subsequent annual reviews. Indeed, the index for the entire period from 1947 to date is subject to revision on the basis of results from the 1954 Census of Manufactures.

Mr. Allan Sproul, - #5

November 4, 1955

Similarly, the BLS manhour figures used--which have an important influence on both the monthly output index and the index of output per manhour--are adjusted to benchmark levels only through the first quarter of 1954, with later figures subject to revision.

Even when all the benchmark data are in, however, the definition and measurement of productivity are highly complex and hardly clear-cut. Space is not available to elaborate on this subject here, but I may point out that complexities in the measurement of productivity were highlighted only the other day when Secretary Mitchell announced the findings of the Department of Labor on the use in output per manhour in manufacturing from 1947 to 1953. He reported that the Labor Department had computed four different (conceptually) labor productivity indexes, and that the average annual rate of increase over the period ranged from 3.1 to 3.6 per cent, depending on the method of computation. The measure we have used in this analysis shows an average annual rate of increase for the same period of 4 per cent. These differences clearly bear close and probably long study.

A final caution that should be made about any manipulation of available figures is that small errors in one or both of two indexes that are being compared (e.g., output and manhours) may be "blown up" into much larger errors in an index derived by dividing or multiplying the original series.

In closing this all too long communication, it is relevant to note that a summary table follows the charts and sets forth the pertinent annual numbers for each of the years 1946 to 1955.

Yours sincerely,

Ralph A. Young, Director,
Division of Research and Statistics.

Enclosures
LW RAY dr

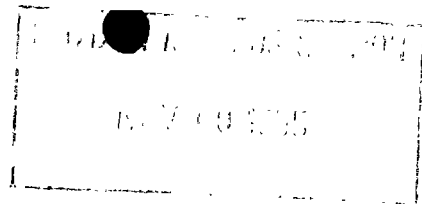


CHART 1

AVERAGE HOURLY EARNINGS AND "VALUE" OF OUTPUT PER MANHOUR IN MANUFACTURING *

Indexes, 1947-1949=100

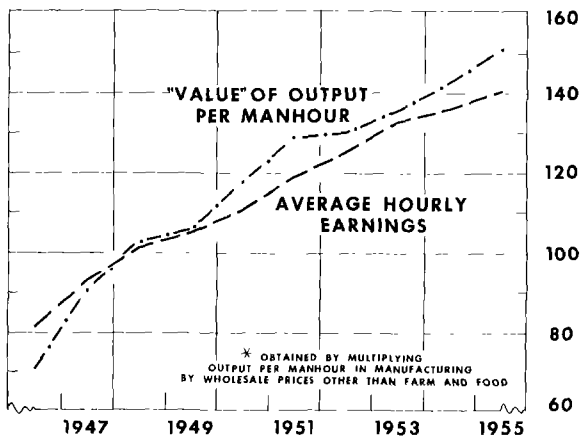


CHART 2

OUTPUT PER MANHOUR AND EARNINGS IN MANUFACTURING

Indexes, 1947-1949=100

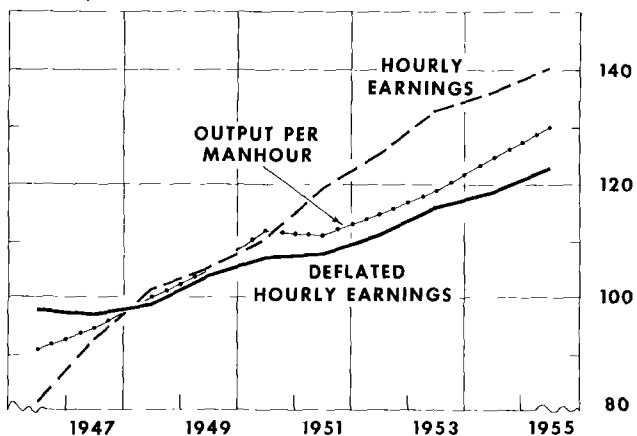


CHART 3

INDUSTRIAL PRICES AND UNIT LABOR COST IN MANUFACTURING *

Indexes, 1947-1949=100

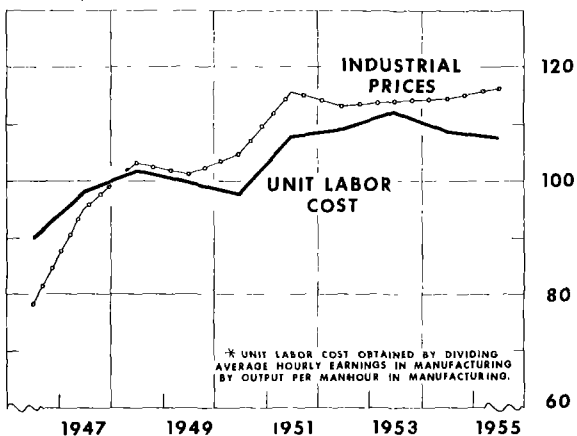
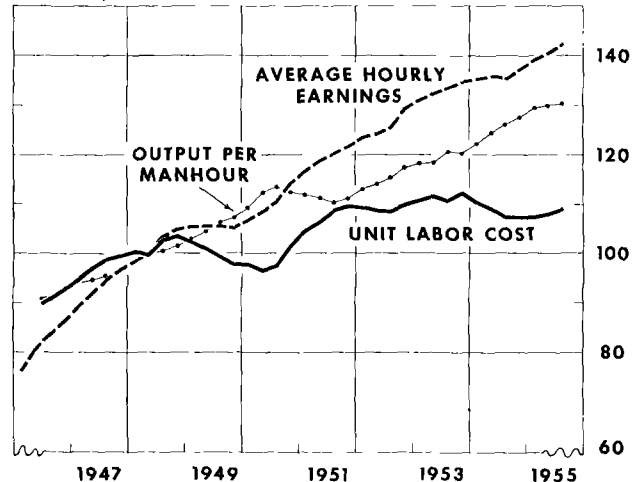


CHART 4

UNIT LABOR COST IN MANUFACTURING

Indexes, 1947-1949=100

Quarterly



ANNUAL DATA FOR ALL YEARS AND AN AVERAGE OF THE FIRST 9 MONTHS FOR 1955 ARE USED IN CHARTS 1 TO 3.

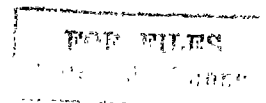
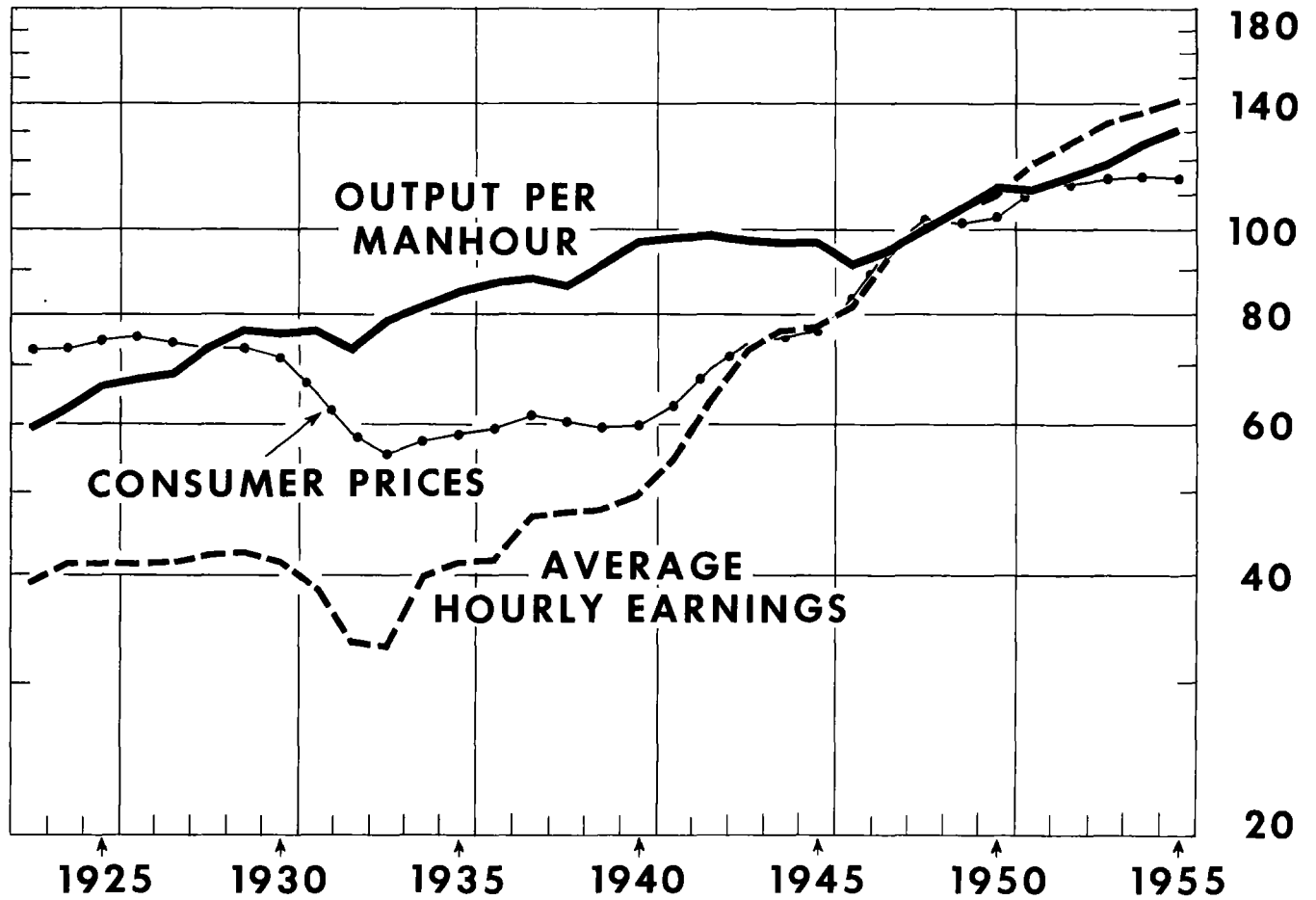


CHART 5

OUTPUT PER MANHOUR AND EARNINGS IN MANUFACTURING AND CONSUMER PRICES

Indexes, 1947-1949 = 100



MANUFACTURING WAGES, PRODUCTIVITY, AND PRICES
Index numbers, 1947-1949=100

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Average hourly earnings in manufacturing	Output per manhour in manufacturing	Wholesale prices other than farm and food	Change in value of output per manhour (2) x (3)	Unit labor costs (1) ÷ (2)	Consumer prices	"Real" hourly earnings (1) ÷ (6)
1946	81.7	91	78.3	71	90	83.4	98
1947	93.1	95	95.3	91	98	95.5	97
1948	101.6	100	103.4	103	102	102.8	99
1949	105.4	105	101.3	106	100	101.8	104
1950	110.2	112	105.0	118	98	102.8	107
1951	119.6	111	115.9	129	108	111.0	108
1952	125.7	115	113.2	130	109	113.5	111
1953	113.2	119	114.0	136	112	114.4	116
1954	136.2	125	114.5	143	109	114.8	119
1955 <u>1/</u>	140.5	130	116.2	151	108	114.4	123
Per cent change							
1946 - 1955 <u>1/</u>	72	43	48	113	20	37	26
1946 - 1951	46	22	48	82	20	33	10
1951 - 1955 <u>1/</u>	17	17	<u>2/</u>	17	0	3	14

1/ First nine months.

2/ Less than .05 per cent.

Sources.--Average hourly earnings and price indexes from Bureau of Labor Statistics. Output per manhour figures were derived by dividing the Federal Reserve Board's index of manufacturing production and the Bureau of Labor Statistics' index of production worker manhours in manufacturing.