Bulletin 1518

UNIT LABOR COST IN MANUFACTURING

TRENDS IN NINE COUNTRIES, 1950-65

UNITED STATES DEPARTMENT OF LABOR
W. Willard Wirtz, Secretary

BUREAU OF LABOR STATISTICS
Arthur M. Ross, Commissioner

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June 1966

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Preface

Changes in unit labor cost in manufacturing in the principal industrial nations of the free world are an important factor in changes in the balance of trade and the balance of payments. They are also useful in comparing wage and price stability at home and abroad.

This bulletin presents units labor cost indexes, the underlying statistical data from which the indexes are constructed, and related estimates of hourly labor cost and output per man-hour in nine countries for the period 1950–65. It also presents certain conclusions drawn from the data and describes the procedures and limitations involved in making the estimates.

The bulletin was prepared in the Bureau's Office of Foreign Labor and Trade by John H. Chandler, Chief, Branch of International Comparisons, and Patrick C. Jackman, Economist, under the general direction of William C. Shelton, Assistant Commissioner for the Office.

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Unit Labor Cost in Manufacturing

TRENDS IN NINE COUNTRIES, 1950–65

NOTE: All United States national accounts data in this bulletin are taken from estimates published by the U.S. Department of Commerce prior to the major revisions in benchmark levels currently being completed. Because of anticipated changes in benchmark estimates and the reworking of constant-value output estimates in terms of 1958 dollars instead of 1954 dollars, the indexes of U.S. labor cost and productivity presented here may require changes when the national accounts revisions are completed.

Introduction

For many years the United States has continued its effort to balance its international transactions while carrying out major commitments at home and abroad. Since the foreign trade account is by far the principal source of surplus in the U.S. balance of payments, trade occupies a crucial position in this effort. Hence, considerable importance attaches to the many factors affecting trade, including labor cost and other production costs at home and abroad.[1]

Compensation of labor is the principal cost factor in manufacturing as a whole (though not necessarily for individual industries) throughout the industrialized nations of the world. In the U.S. manufacturing sector, for example, employee compensation amounted to 68 percent of gross product originating in 1963; and for other industrial countries also, labor is the dominant input cost, although not necessarily as dominant as in this country. The purpose of this study is to examine trends in the relationship between industrial output and the cost of labor input for the principal industrial countries of the free world.

Unit labor cost is the ratio of labor expenditure to production. In this bulletin, labor expenditure includes all payments to labor, consisting of wages and other direct payments and legally required and voluntary supplements paid to employees or into special employee benefit funds. Production, as used in this study, refers to the total physical output of the manufacturing sector. An index of unit labor cost may be calculated from indexes of labor expenditure and production rather than from volume figures of expenditure and production. The technical problems of defining and measuring unit labor cost have been described in the *Monthly Labor Review*.[2]

The nine countries covered in the present study are the United States, Canada, France, Federal Republic of Germany, Italy, Japan, the Netherlands, Sweden, and the United Kingdom. The time period covered by the indexes is from 1950 through 1965. Published information and estimates on labor compensation, hours of work, production, and labor productivity have been included in the text or appendix materials.

The indexes of unit labor cost show the trends for all manufacturing within each country. However, the trends for specific manufacturing industries may diverge from these overall trends, and absolute unit labor cost in one country may be quite different from that of another country at any one point in time.

[1] See article by William C. Shelton and John H. Chandler, "The Role of Labor Cost in Foreign Trade," *Monthly Labor Review*, May 1963, pp. 485–490.

[2] See article by William C. Shelton and John H. Chandler, "International Comparisons of Unit Labor Cost: Concepts and Methods," *Monthly Labor Review*, May 1963, pp. 538–547.

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Long-Term Trends

From the standpoint of labor cost per unit of output, American manufacturers in the mid–1960's have achieved a better competitive position relative to foreign producers than they held in the late 1950's. This conclusion emerges clearly from an inspection of the time series indexes in all nine countries, taking account of changes in the exchange rates in four of the countries. For analytical purposes, the 14 years following 1950 may be divided into two contrasting periods of 7 years each, although other breaks could be used.

1950 to 1957. From 1950 to 1957, all nine countries underwent substantial inflationary pressures, varying in degree, but generally sufficient to buoy unit labor costs markedly upward. During this early period, the Korean conflict and the Suez incident interfered with the attempts being made in many of the countries to overcome domestic shortages, regain pre-World War II markets, and develop new markets. Nevertheless, rationing and price controls were greatly reduced, and the return to free market conditions increased export competition. Great progress was made toward liberalizing trade and reducing tariffs, but numerous trade restrictions and exchange controls remained in effect in 1957. These restrictions and controls were particularly important in transactions affecting the dollar zone.

From 1950 to 1957, unit labor cost in the United States rose about the same as the average in the other countries.[3] As shown by the all-employee changes in chart 1, at the end of the period this country occupied a middle position between Japan's decrease at the lower extreme and Sweden's 67-percent increase. France's doubling of all-employee cost far outstripped rises in the other nations.

Estimates of unit labor cost trends for wage earners in foreign countries and production workers in the United States[4] display slightly less change during 1950–57 than do the corresponding all-employee estimates. This differential movement is attributable largely to a tendency in each country for manufacturing industries to increase the proportion of managerial, technical, and clerical personnel to production workers, though differential changes in compensation had some effect.

1957 to 1965. After 1957, the international competition faced by U.S. manufacturers increased sharply for reasons other than cost. Domestic markets in many European countries and Japan were becoming saturated, reducing the propensity to import and encouraging producers to export. These countries found that they could match American competition in more and more markets, so they reduced restrictions on imports from the dollar zone and restored currency convertibility. The two devaluations of the French franc strengthened France's competitive position and permitted her to take a leading role in this movement.

Imports of manufactured goods into the United States, which had been very small relative to U.S. manufacturing output for almost 2 decades, increased sharply after 1957. At the same time, the U.S. Government, which had been concerned about the surplus in the balance of payments between 1946 and 1950, became concerned about the deficit. Under these circumstances, changes in relative unit labor cost in manufacturing among countries became highly important to the balance of payments problem.

The trends from 1957 to 1965 show a great improvement in the unit labor cost position of

[3] Two series of unit labor cost indexes have been constructed for the United States. As mentioned later, series based on national accounts (Series B for the United States) are preferred for international comparisons of unit labor cost trends for all manufacturing. These data are also preferred for the analysis of unit labor cost trends in manufacturing in the United States. Four of the countries covered in this article, however (Canada, Japan, the Netherlands, and Sweden), do not now publish adequate current data on the deflated value of the gross national product originating in manufacturing. For these countries, quantity indexes of industrial production have been used. For methodological comparability with these countries for which quantity indexes are used, a U.S. series based on the Federal Reserve index of manufacturing production (Series A) is included in this bulletin. From 1950 to 1957, Series B shows a 32-percent rise in unit labor cost, while Series A shows a 26-percent rise.

[4] The data actually pertain to "production and related workers" in the United States and "wage earners" in four European countries. Although the two terms have somewhat similar meanings, there are important differences. Production workers in the United States include workers and working foremen engaged in production or closely associated operations. They exclude executive, professional, technical, supervisory, clerical, sales, delivery, personnel (including cafeteria), major construction, and other nonproduction employees. In Europe the practices vary, but the term "wage earners" ordinarily refers to those who are paid by the hour, or perform manual work, irrespective of whether their work is closely associated with production.

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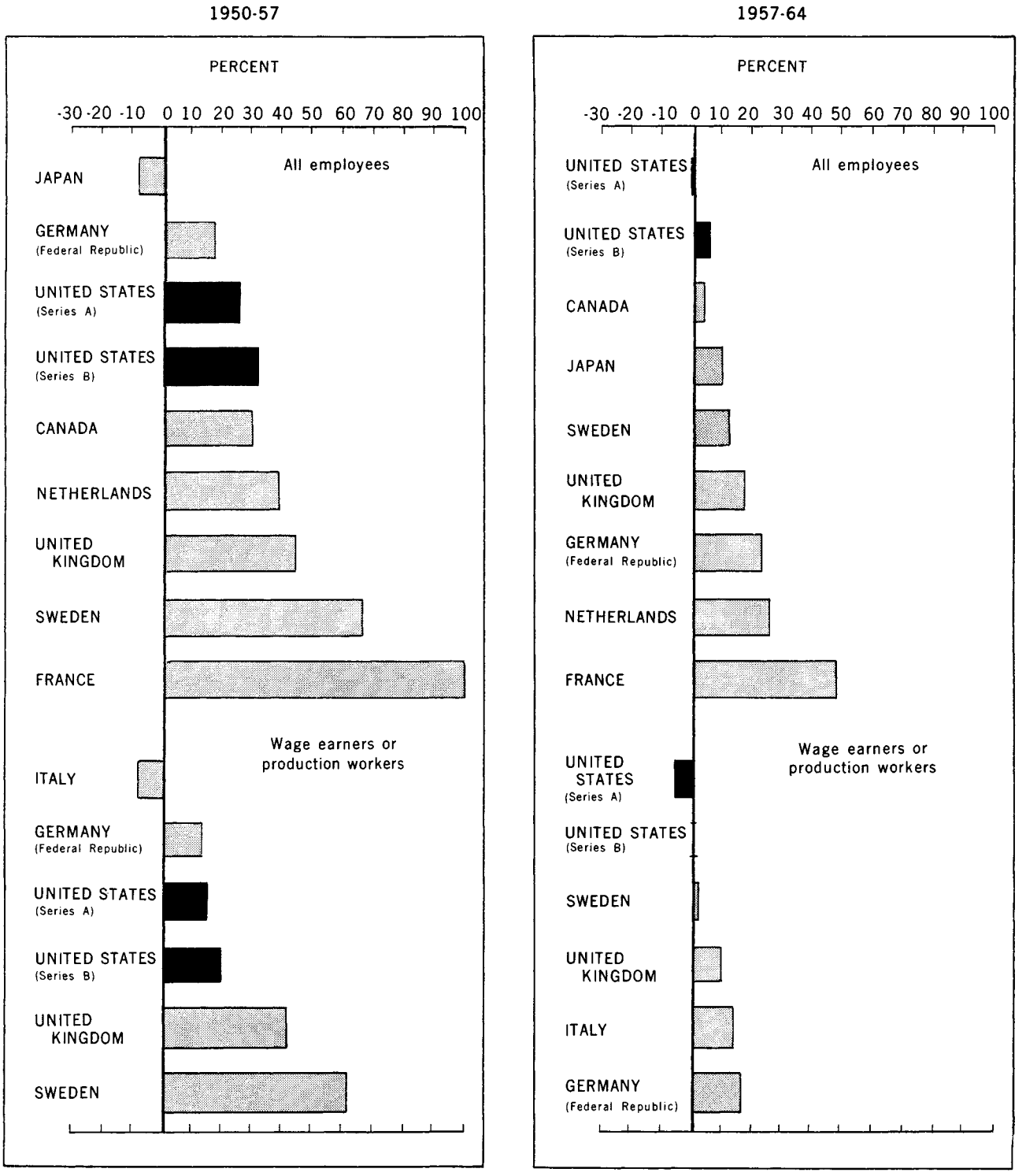
Chart 1. Percentage Changes in Unit Labor Cost in Manufacturing
(Not adjusted for changes in foreign exchange rates)



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the United States relative to its trading partners. For the nine countries as a whole, cost increases since 1957 have been more moderate than during 1950–57. All of the countries with the fastest rates of increase in the earlier period managed to reduce the rate of increase, while only Italy, Japan, and Germany showed greater increases than in the initial 7 years. As these trends developed, the United States and Canada came close to achieving unit labor cost stability.

For the 1957–64 period, as during 1950–57, the tendency for all-employee cost to increase at a faster pace than wage-earner and production-worker cost can be observed in the trends shown in chart 1. The year-to-year indexes are presented in table 1, with 1957 serving as the base year for all series. The trends are illustrated in a series of graphs on chart 2.

Over the 7-year period, there were movements which may represent a short-term cycle, probably related to the business cycle. In the 3 years from 1957 to 1960, unit labor cost for most countries was rather stable. This was followed by a 3-year period of considerable cost inflation in many of the countries. From 1963 to 1964, there was some return to stability; only France, the Netherlands, and Italy showed significant advances.

A distribution of the nine countries by percent increase in unit labor cost for the whole period 1950–64 shows that unit labor cost in France and Sweden increased the most, followed by increases in the Netherlands, the United Kingdom, and Germany. The increases were moderate in the United States and Canada (2 to 3 percent per year), while Japan and Italy showed the least increase.

Preliminary data for 1965 show a continuation of the unit labor cost trends of the previous 7 years; that is, no change in the United States, slight increases in Canada and the United Kingdom, and greater increases elsewhere. The 1965 estimates are highly tentative, however, because many are based on available indicators (of production, employment, and earnings), which are often changed significantly as more complete data become available.

TABLE 1. INDEXES OF UNIT LABOR COST IN MANUFACTURING FOR NINE COUNTRIES, 1950–65

[1957=100]

Country	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965 [1]
NATIONAL CURRENCY BASIS																
All employees:																
United States:																
Series A [2]	80	87	91	93	95	92	96	100	103	101	101	101	101	100	99	98
Series B [3]	76	82	86	90	92	90	97	100	102	102	106	106	104	105	105	([4])
Canada	77	84	90	92	94	91	93	100	101	101	104	103	102	103	103	105
France	50	67	76	80	82	87	92	100	110	112	115	123	131	140	148	(154)
Germany (F.R.)	86	96	93	92	91	91	98	100	104	102	105	112	119	123	123	(128)
Japan	109	107	113	102	105	106	106	100	106	100	98	100	108	113	111	(118)
Netherlands	72	78	81	78	81	85	92	100	103	98	100	108	111	119	126	(132)
Sweden [5]	60	69	83	85	89	92	97	100	102	101	102	106	110	112	110	([4])
United Kingdom	69	74	83	84	85	88	96	100	105	104	105	113	117	116	117	(119)
Production workers:																
United States:																
Series A [2]	87	95	97	98	97	95	98	100	100	98	98	95	95	95	94	95
Series B [3]	83	89	92	95	94	92	98	100	100	99	102	100	99	100	100	([4])
Wage earners:																
Germany (F.R.)	88	99	96	93	92	93	99	100	103	100	103	108	111	116	116	([4])
Italy	109	107	111	106	102	100	101	100	98	91	91	92	99	109	114	([4])
Sweden [5]	62	72	86	86	91	94	97	100	100	98	98	100	102	103	101	([4])
United Kingdom	70	75	83	85	86	90	97	100	103	102	103	109	111	109	110	([4])
U.S. DOLLAR BASIS [6]																
All employees:																
Canada	68	76	88	90	92	88	91	100	100	100	103	97	92	91	91	94
France	54	72	82	86	88	94	99	100	90	86	89	94	101	107	114	(119)
Germany	86	96	93	92	91	91	98	100	104	102	105	116	125	129	129	(135)
Netherlands	72	78	81	78	81	85	92	100	103	98	100	113	118	126	134	(139)
Wage earners:																
Germany (F.R.)	88	99	96	93	92	93	99	100	103	100	103	112	117	122	122	([4])

[1] Preliminary. Figures in parentheses are estimates based on sources of current production, wage, and employment data that differ from the sources used for earlier years.

[2] Based on Federal Reserve Board index of manufacturing production.

[3] Based on estimates of deflated gross national product originating in manufacturing.

[4] Not available.

[5] Manufacturing and mining.

[6] Adjusted for changes in the official or commercial exchange rate. Until 1961, the Canadian dollar had no par value and was allowed to fluctuate freely in international exchange markets. Adjustments for France are based upon changes that occurred in 1957 and 1958. Adjustments for Germany and the Netherlands are based upon changes in par value that occurred in March 1961.

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Exchange Revaluations

In relating changes in unit labor cost to international commercial competition, it is necessary to take account of changes in international exchange rates. France executed sizable devaluations in 1957 and 1958; Germany and the Netherlands revalued their currencies upward by 5 percent in 1961; and Canada set an official exchange rate in 1961 which was significantly below the value that had prevailed under the fluctuating exchange system previously operating. Adjustments have been made in the unit labor cost calculations for these four countries to reflect changes in the commercial exchange rate or par value of their currencies. The adjusted figures are shown in table 1 and chart 2. Where revaluations occurred during the middle of a calendar year, the old and new rates have been prorated into an average rate for the year without allowance for any time lag. No adjustments have been made for fluctuations in currency values within the limits of 0.75 percent on either side of the par value, generally permitted under International Monetary Fund trading regulations.

The effects of currency valuation adjustments can be seen clearly in the Canadian experience. When Canadian 1964 unit labor cost is measured in U.S. dollars—that is, adjusted for the exchange devaluation—it is 9 percent below the 1957 level, but it runs 3 percent above the 1957 level when measured in Canadian dollars. For France, after taking account of currency devaluations, unit labor cost increased by only 14 percent since 1957, as compared to a 48-percent increase when measured in francs. In Germany and the Netherlands, on the other hand, the cost increases are augmented when the 1961 revaluations are applied.

The situation in France from 1950 to 1957 presents a special analytical problem. The legal exchange rate was held at 350 francs to the dollar, but the effective commercial rate often differed from this figure because of an elaborate system of import charges and export incentives. This situation existed, with frequent regulatory changes in detail, from the early 1950's until the 1957 devaluation. In the indexes shown here, no attempt has been made to adjust the official rate to a more realistic average commercial rate. Nor has an attempt been made to adjust the rate for the British pound for the temporary import surtax that was introduced in October 1964.

TABLE 2. PERCENT CHANGE IN MANUFACTURING PRODUCTION, AGGREGATE LABOR COMPENSATION,[1] AND UNIT LABOR COST IN NINE COUNTRIES, ANNUAL AVERAGES, 1950–57 AND 1957–64

Country	1950–57			1957–64		
	Production	Labor compensation	Unit labor cost	Production	Labor compensation	Unit labor cost
All employees:						
United States:						
Series A	4.0	6.7	2.6	4.6	4.3	−0.3
Series B	3.1	6.7	3.5	3.7	4.3	.6
Canada	4.4	7.4	2.9	4.0	4.4	.3
France	5.3	14.2	8.4	5.8	11.6	5.5
Germany (F.R.)	11.8	13.3	1.3	8.3	12.0	3.4
Japan	17.2	16.1	−1.0	15.3	17.2	1.6
Netherlands	6.3	10.5	4.0	6.4	10.0	3.4
Sweden [2]	2.9	9.9	6.8	6.9	8.8	1.8
United Kingdom	3.4	8.6	5.0	3.5	6.1	2.4
Production workers:						
United States:						
Series A	4.0	5.4	1.3	4.6	3.6	−1.0
Series B	3.1	5.4	2.2	3.7	3.6	− .1
Wage earners:						
Germany (F.R.)	11.8	12.8	.9	8.3	11.0	2.4
Italy	8.5	6.9	−1.5	9.5	11.7	2.0
Sweden [2]	2.9	9.5	6.4	6.9	7.3	.4
United Kingdom	3.4	8.5	4.9	3.5	5.2	1.6
Adjusted for currency revaluations:						
Canada, all employees	------	-------	4.4	------	-------	−1.7
France, all employees	------	-------	7.9	------	-------	2.8
Germany:						
All employees	------	-------	1.8	------	-------	4.8
Wage earners	------	-------	.9	------	-------	3.4
Netherlands, all employees	------	-------	4.0	------	-------	4.5

[1] Aggregate labor compensation refers to total payments to labor for wages and salaries, social insurance, and voluntary supplements.
[2] Manufacturing and mining.
NOTE: Rates of change are computed from the least squares trend of the logarithms of the index numbers.

Growth in Manufacturing

Since unit labor cost is the ratio of labor expenditure to production, trends in unit labor costs may be analyzed in terms of the trends in labor expenditure and production, which are the numerator and denominator of the fraction. These data are set forth, in table 2, as annual rates of change for the two 7-year periods considered previously. In general, the United States has shown more moderate percent increases than other countries in total manufacturing labor expenditure and in total manufacturing production. Japan, Italy, and Germany have shown the most rapid increases in production and the most rapid increases in labor expenditure. In the earlier of the two periods, these countries were still replacing production facilities destroyed during World War

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Chart 2. Indexes of Unit Labor Cost in Nine Countries, 1950-65

1957=100 (Semilogarithmic scale)

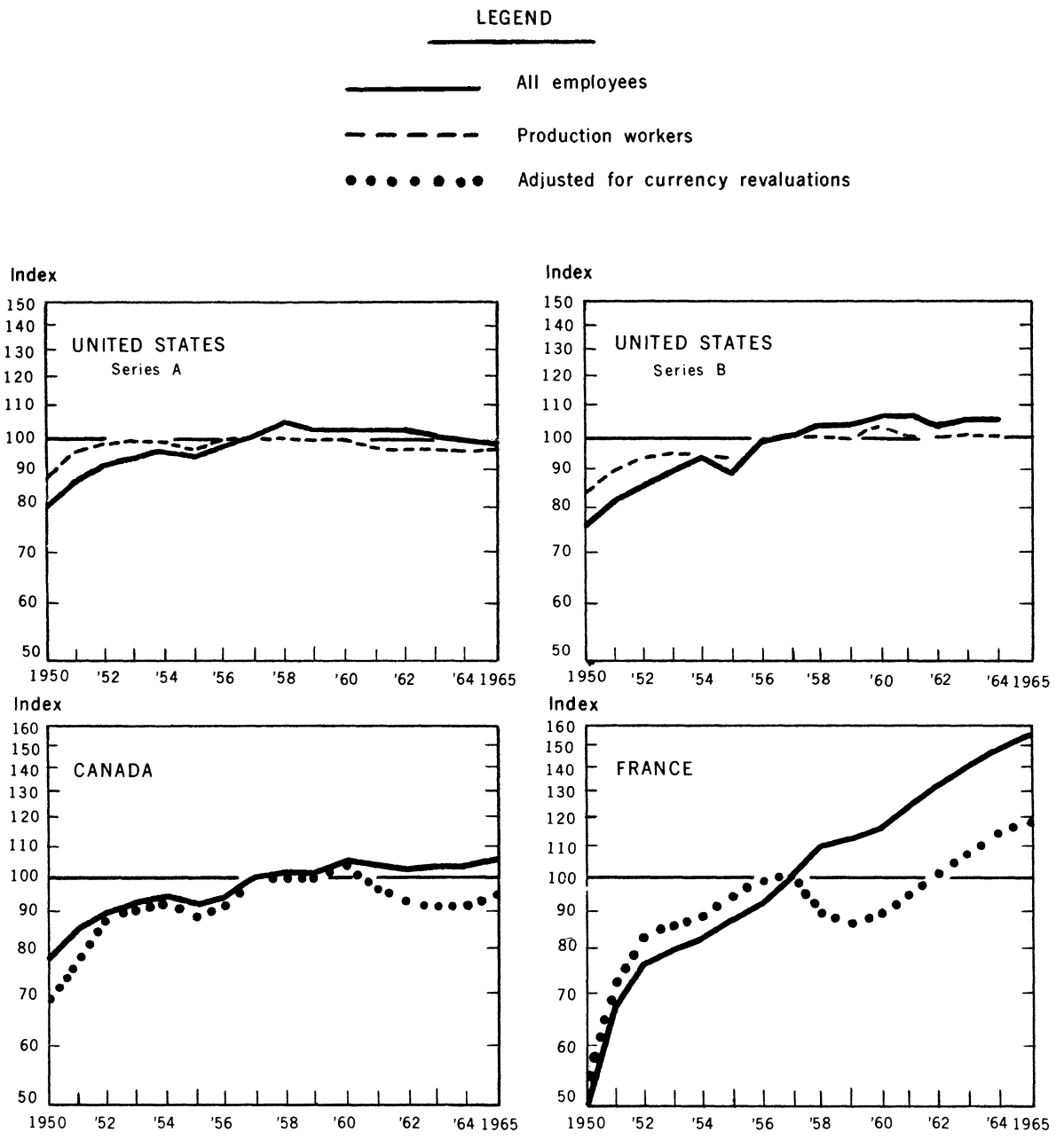

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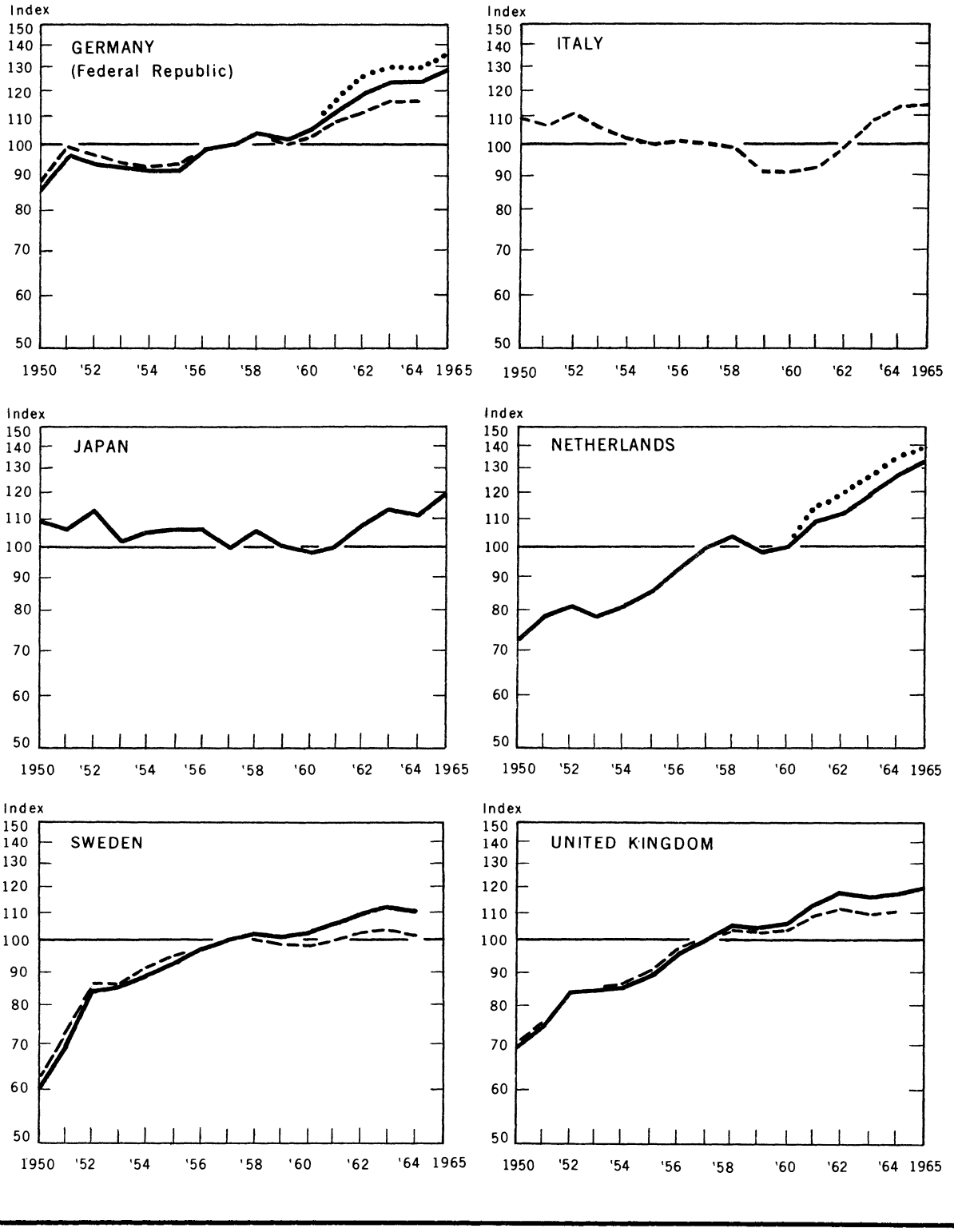
Chart 2. INDEXES OF UNIT LABOR COST IN NINE COUNTRIES, 1950-65 -- Continued



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II, but the continuation of the high industrial growth rates during 1957–64 was impressive. The most outstanding growth has occurred in Japan, where manufacturing production has more than quadrupled since 1953.

There is no clear-cut relationship between growth in manufacturing and control of unit labor cost. The countries which have shown the lowest rate of increase in unit labor cost are the United States and Canada, which had slow growth rates, and Japan, which had the highest growth rate.

Hourly Labor Cost

Another way to measure unit labor cost is to calculate the ratio of labor compensation per man-hour to output per man-hour. As long as identical hours data are reflected in the two denominators, this approach will yield the same result as a measurement based on the ratio of total labor expenditure to total output.

The total man-hours of labor figure constitutes a third aggregate for analysis; this figure makes it possible to determine other important ratios besides unit labor cost. When computed from aggregates, the ratios may be expressed as follows:

(1)

$$\frac{\text{Total compensation}}{\text{Total output}} = \text{Compensation per unit of output} = \text{Unit labor cost}$$

(2)

$$\frac{\text{Total compensation}}{\text{Total man-hours}} = \text{Compensation per man-hour} = \text{Hourly labor cost}$$

(3)

$$\frac{\text{Total output}}{\text{Total man-hours}} = \text{Labor productivity} = \text{Output per man-hour}$$

(4)

$$\frac{\text{Total man-hours}}{\text{Total output}} = \text{Man-hours per unit of output} = \text{Unit man-hours}$$

Man-hours are not measured in a uniform manner in all countries. In the United States and certain other countries, the principal hours data represent hours for which pay is given, or "paid hours." Elsewhere, hours data represent hours actually spent at the workplace, or "hours worked." An additional difficulty in estimating total man-hours is that salaried employees are usually compensated on a weekly or monthly basis, and many countries do not collect hours data for this employee class. Published or estimated data on total hours are presented in the appendix tables to this bulletin, with an indication of the hours definition used in each country. Trends in hourly labor cost are shown in index form in table 3.

The United States is the only country listed that did not at least double its average hourly compensation in manufacturing between 1950 and 1964. The U.S. increase was 94 percent over the 14 years, compared to 102 percent in Canada, 144 percent in the United Kingdom, 169 percent in Italy, and over 200 percent in France, Germany, Japan, and Sweden.

The relative rise from 1950 to 1957 was greater than from 1957 to 1964 in most countries. In the first 7 years, average hourly compensation in the United States rose 52 percent, but in the latter 7 years, by only 28 percent. In each period, the U.S. rise was about the lowest among all countries.

In spite of this slower rise, U.S. hourly labor cost is still the highest of any nation. The differences in the level of hourly compensation from one country to another are more difficult to analyze than the differences in trend. Compensation is paid in the currency of the individual country and is ordinarily spent within that country. From the welfare or benefit viewpoint, compensation must be measured in terms of its purchasing power within the country, and that is not attempted in this bulletin.

From the viewpoint of international trade, unit labor cost converted into U.S. dollars at the commercial or official rates of exchange is more meaningful than hourly labor cost.[5] Nevertheless, there are circumstances under which the comparison of hourly labor cost converted to U.S. dollars is meaningful. The following tabulation shows average hourly compensation in each country relative to the United States for all manufacturing in 1950, 1957, and 1964. The figures are based on conversions at the

[5] Shelton and Chandler, "The Role of Labor Cost in Foreign Trade," op. cit.

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official rates of exchange during the years given.

	Relative of average hourly compensation in manufacturing (U.S. = 100)		
	1950	*1957*	*1964*
United States	100	100	100
Canada	62	75	66
France	[1]21	24	([2]26)
Germany (F.R.)	22	25	39
Italy [3]	20	20	29
Japan	[1]7	8	([2]13)
Sweden	33	42	([2]54)
United Kingdom	26	28	33

[1] 1951.
[2] Estimate.
[3] Data for wage earners, compared to U.S. production workers.

Although average hourly compensation in the other countries has risen at a more rapid rate than in the United States, the table shows that the level of compensation in all of the other countries is still lower than in the United States. Average compensation in Canada has generally been about one-third below the U.S. level. (The relatively high Canadian level in 1957 was due almost entirely to the peak exchange value of the Canadian dollar during that year.) The Swedish level reached an estimated 54 percent of the U.S. level by 1964, and the level in the other countries was less than 40 percent of the U.S. level in all years.

Adjustment of the hourly compensation estimates for the lower prices of consumer goods and services abroad would raise some of the percentages (in terms of purchasing power) considerably, but would still leave all of them below the U.S. level. Such an adjustment for each of the 3 years would also reduce the percentage increase from 1950 to 1964 for most countries, because the consumer price index for each of these countries has risen more rapidly than that of the United States.

Output Per Man-Hour

Trends in output per man-hour in manufacturing, the third important ratio, are shown in table 4. The data show that output per man-hour in manufacturing increased by 40 percent in the United States [6] and 45 percent in the United Kingdom. The increases in Canada and France were about 50 percent in 14 years, and the increase in Sweden appears to have been slightly higher. In the Netherlands, output per man-hour doubled, and in Germany, Italy, and Japan, it rose well over 100 percent between 1950 and 1964.

The three countries with the greatest increase in indexes of output per man-hour were those countries that suffered the heaviest damage to manufacturing plants and equipment during World War II. Their rapid increase can be explained in part by the abnormally low levels of output that prevailed as late as 1950, when these countries were still restoring their economies. Many of their industries were rebuilt with newer and more efficient equipment than that of other industrial countries.

Economically, there is a relationship between the rate of productivity gain and

[6] The U.S. data are based on published estimates of output originating in manufacturing. The estimates are currently being revised by the U.S. Department of Commerce's Office of Business Economics.

TABLE 3. INDEXES OF AVERAGE HOURLY LABOR COST OF WAGE AND SALARY EARNERS IN MANUFACTURING IN NINE COUNTRIES, 1950–64
[1957=100]

Country	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
All employees:															
United States	66	73	78	82	86	89	94	100	104	108	112	116	120	124	128
Canada	63	70	77	82	86	89	94	100	106	109	115	116	120	123	127
France	43	61	71	75	79	85	91	100	121	131	141	147	160	175	191
Germany (F.R.)	58	67	72	75	77	82	90	100	109	115	129	143	162	174	189
Japan	63	66	75	82	88	93	97	100	103	111	123	142	163	181	[1]
Netherlands	54	61	64	67	74	81	90	100	104	107	118	136	152	166	191
Sweden [2]	52	62	73	77	81	87	99	100	106	111	119	128	140	151	[1]
United Kingdom	61	66	73	77	81	87	94	100	106	111	119	127	133	139	149
Production workers:															
United States	67	75	79	84	86	89	94	100	103	106	111	113	117	121	125
Wage earners:															
Germany (F.R.)	58	67	71	74	77	82	90	100	109	115	129	144	162	176	192
Italy	67	73	79	82	85	90	97	100	105	107	112	120	138	160	180
Sweden [2]	51	61	73	77	81	86	95	100	106	110	117	126	137	148	[1]
United Kingdom	60	65	71	77	81	87	95	100	106	110	118	126	131	136	147

[1] Not available.
[2] Manufacturing and mining.

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TABLE 4. INDEXES OF OUTPUT PER MAN-HOUR IN MANUFACTURING IN NINE COUNTRIES, 1950–64
[1957=100]

Country	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
All employees:															
United States:															
Series B [1]	87	89	90	92	93	99	97	100	101	106	106	109	115	118	122
Canada	82	84	86	89	92	98	100	100	104	109	111	114	117	120	124
France	86	91	93	93	96	97	99	100	111	117	122	120	122	126	129
Germany (F.R.)	68	70	77	81	85	90	93	100	105	113	122	128	136	142	153
Japan	57	62	66	80	84	88	92	100	97	112	126	143	150	160	[2]
Netherlands	75	78	79	86	91	96	98	100	100	109	118	125	137	139	151
Sweden [3]	86	87	88	91	91	94	98	100	104	110	117	121	127	135	[2]
United Kingdom	89	90	88	91	96	99	98	100	102	107	113	112	114	120	128
Production workers:															
United States:															
Series B [1]	81	84	86	88	91	96	96	100	104	107	109	113	118	122	126
Wage earners:															
Germany (F.R.)	66	68	75	80	83	89	92	100	106	115	125	133	143	152	165
Italy	61	69	71	77	83	91	96	100	107	117	123	129	139	147	156
Sweden [3]	83	84	85	89	89	92	98	100	105	112	119	126	134	144	[2]
United Kingdom	86	87	86	90	94	97	97	100	103	108	115	116	118	125	133

[1] Based on estimates of gross national product originating in manufacturing, published by the U.S. Department of Commerce, Office of Business Economics.

[2] Not available.

[3] Manufacturing and mining.

changes in unit labor cost. In Japan, Germany, and Italy, sizable wage increases have been accompanied by sizable productivity gains, resulting in relatively stable labor costs. In the United Kingdom and Sweden, productivity gains have not kept pace with wage increases, and unit labor costs have risen appreciably.

But the experience of the United States and Canada stands out in contrast. Percentage increases in productivity and hourly wages have been low in the United States and Canada relative to the other countries; therefore, unit labor cost has remained comparatively stable. Other economic factors have clearly been important in North America; among them are the relatively high rate of unemployment and the already high level of industrial wages compared with other countries.

Further Research

Further study is needed to develop comparisons of unit labor cost in absolute terms to supplement the trend comparisons presented in this bulletin. Such comparisons must be made industry by industry, and problems of data comparability are great.

Two other research needs deserve mention. First, trend data for individual industries and industry groups need to be prepared, since technological change and the setting of wage patterns, through collective bargaining and other means, take place largely by industry. Research on the comparative performance of industries heavily involved in foreign trade and of industries not directly affected by trade would be particularly useful in appraising U.S. trade prospects and balance of payments performance, and it would also help in appraising the effect of foreign competition on domestic production.

Second, there are important analytical needs. Careful examination of labor cost and productivity trends in relation to foreign trade should be attempted, and the relationship to employment, prices, and growth might also yield useful results. The relationship to trade would be clearer if data on unit nonlabor (especially material) costs were available; but it must always be kept in mind that reasons other than cost frequently influence the flow of trade.[7] Furthermore, time series analysis for the decade of the 1950's must be done with discrimination because of drastic changes in nontariff trade barriers, abnormal market conditions (price controls and rationing) in many countries, and lack of currency convertibility.

Methods and Sources

Comparability of Data. The reliability of unit labor cost estimates depends, of course, on the comparability and reliability of the basic output and compensation data. The degree of comparability achieved in the present estimates is considered to be high, although not ideal.

[7] Shelton and Chandler, "The Role of Labor Cost in Foreign Trade," op. cit.

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In developing the present estimates, the Bureau of Labor Statistics has tried to achieve a uniform basis of measurement among the countries.[8] Data used by the Governments in preparing their national economic accounts have been applied, at least in part, to the unit labor cost estimates for each country. Aggregate labor expenditure data for manufacturing, used in preparing national accounts, have been obtained for France, Germany (Federal Republic), Italy, and the United Kingdom, as well as the United States. These calculations offer a more uniform approach to the measurement of unit labor cost than can be achieved through the use of measures such as productivity indexes and hourly labor expenditure indexes, since many of the countries have moved toward standard methodology in preparing their national accounts.

An examination of several algebraic identities may be useful in illustrating the interrelationships among the data used in the calculation of unit labor cost and to point out the assumption implicit when unit labor cost is used as an indicator of price changes.

Let us denote the following:

ULC = Unit labor cost in manufacturing

V = Value of output originating in manufacturing

Q = Real output originating in manufacturing

E = Labor compensation in manufacturing

R = Other factor returns in manufacturing. The sum of capital consumption allowances, indirect business taxes, and profit-type income

P = Implicit price deflator for manufacturing

Σpq = Sum of price times quantity for individual products

L = Hours of work of all employees in manufacturing

t = Current time period

o = Base time period

I = Input from other sectors

O = Outputs of manufacturing not adjusted for input changes

$$(1)\quad V_t = E_t + R_t = \Sigma o p_t q_t - \Sigma I p_t q_t$$

$$(2)\quad Q_t = \Sigma o p_o q_t - \Sigma I p_o q_t$$

$$(3)\quad P_t = \frac{V_t}{Q_t} = \frac{E_t + R_t}{Q_t} = \frac{\Sigma o p_t q_t - \Sigma I p_t q_t}{\Sigma o p_o q_t - \Sigma I p_o q_t}$$

$$(4)\quad ULC = \frac{E_t}{Q_t} = \frac{E_t/L_t}{Q_t/L_t} = \frac{E_t}{\Sigma o p_o q_t - \Sigma I p_o q_t}$$

The initial equation states the national accounting equality between the income and the product accounts, and separates the product account between manufacturing gross output and inputs or purchases from other sectors. The income side is not factorable into price and quantity elements. The second equation substitutes base period prices for current prices in the product account. This is calculated by deflating output and purchases separately, the difference being real output originating in manufacturing, in constant value. The third equation shows the calculation of the implicit price deflator, or the price change occurring within the manufacturing sector, using both the product and the income side of the accounts. The last equation presents unit labor cost as a ratio of labor compensation to output and shows the equality of this ratio to the ratio of compensation per man-hour to output per man-hour.

There remain some inadequacies or inconsistencies in the available data. To name a few, manufacturing is not defined in exactly the same way in each country; total labor expenditure may not apply to exactly the same types of labor payment in each country; benchmarks and weighting systems used in measuring production vary widely; the data collection systems that underlie the measures of production, hours, and compensation also vary widely; and the coverage of output and expenditure data may not always match.

Some of these possible differences are not considered significant. There is an internationally accepted definition of manufacturing,[9] and most countries have adapted their systems to this definition with only slight variation. For

[8] The rough estimates for 1965 must be excepted. These estimates are based on available current sources that may be entirely different from the sources for prior years.

[9] *International Standard Industrial Classification of All Economic Activities* (New York, United Nations, 1958), Statistical Papers, Series M, No. 4 Rev. 1.

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measurement of all manufacturing trends, the classification of borderline activities as either within or outside of manufacturing has no appreciable effect, provided that a consistent classification is followed.[10] Likewise, the inclusion or exclusion of certain minor fringe benefits from labor compensation is unlikely to affect cost trends.

Other differences may influence the trends more significantly, particularly the measurement of manufacturing production, which has always been a difficult task. Several countries, including the United States, have made substantial revisions in their production estimates and are expected to make more. Uniform methods of production measurement between countries have not been fully achieved. Also, differences in composition of manufacturing output (the product mix) are embodied in the production indexes. Any comparisons of production would be somewhat different if the product outputs of one country were combined using the value weights of the United States or any other country.

Descriptions of the series used for each country are contained in the following sections. The original source data and index derivations are presented in appendix tables for each country.

The measurement of labor compensation refers only to wage and salary earners, not to the implicit labor earnings of proprietors or unpaid family workers engaged in manufacturing production. In most countries, the number of proprietors engaged in manufacturing is very small in proportion to the paid work force, but in a few cases, notably Italy, Japan, and France, they constitute a significant proportion. Examination of the production data leads to the conclusion, however, that the contribution of proprietors to the measured output is largely excluded. For example, several countries exclude handicrafts from manufacturing production. Also, certain industries that are characterized by small entrepreneurs, such as clothing, printing and publishing, and miscellaneous manufactures, are not included in the production surveys. In addition, several countries survey only those establishments with at least a given number of employees. It is concluded that the omission of proprietors' compensation from the estimates of labor compensation does not significantly alter the trend estimates.

United States

Output. Two measures of manufacturing output are available for use in calculating unit labor cost in the United States. One series, designated as Series A, is the index of manufacturing production published by the Board of Governors of the Federal Reserve System (FRB). The other, Series B, is the measure of gross product originating in manufacturing, published by the U.S. Department of Commerce's Office of Business Economics (OBE).

Series B, based on the U.S. national accounts, is preferred for the calculation of unit labor cost, since it is entirely consistent with the compensation data used in the calculations. However, as some of the other countries do not publish data on real gross national product originating in manufacturing, it has been necessary to use quantity indexes or other output measures for them. For methodological comparability with these countries, U.S. data based on Series A have been included as an alternative.

Series B output is defined, from the income side of the national accounts, as the sum of employee compensation, indirect business taxes, capital consumption allowances, and profit-type income. Since these components are not factorable into quantity and unit price, estimates of constant-dollar value added are obtained by deflating output and purchases separately. Current-dollar value added is then divided by the constant-dollar value added to obtain a manufacturing price index. This price index is then used to deflate the current-dollar gross product estimates arrived at through the income method.

The Federal Reserve Board index of manufacturing production (Series A) is computed as a base-weighted arithmetic average. The basic data are indicators of output which are

[10] The indexes for Sweden cover manufacturing and mining combined.

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developed from quantities of major products shipped, quantities of major materials consumed in production, value of goods shipped with adjustment for price changes, or the number of production-worker man-hours adjusted for changes in productivity. The weights assigned to individual products within an industry are based upon the value of shipments of the products during 1957. The weights assigned to industries [11] in order to combine them into an index of all manufacturing are based upon 1957 value added at factor cost.

Compensation. All-employee compensation data are those reported in the national accounts. Compensation covers wages and salaries, which include executive compensation, commissions, tips, bonuses, and payments in kind; supplements to wages and salaries, which include employer contributions for social insurance, private pension, health, and welfare funds; compensation for injuries; directors' fees; pay for military reserve duty; and a few other items of minor importance. The compensation data for wage earners are based upon the same source. Wages have been separated from the total wage and salary bill, by the Office of Business Economics, for the 1947–61 period, and this resulting figure has been updated by the Bureau of Labor Statistics through 1964. A division of supplementary labor income between wage and salaried employees is not made in the national accounts data, and it has been necessary to estimate this break. It is estimated that the proportion of supplements to wages alone is the same as the proportion of supplements to total wages and salaries, or, supplementary income as a percent of earnings is the same for both wage and salary earners. It has been necessary to make this same assumption for the three other countries (Federal Republic of Germany, Sweden, the United Kingdom) for which both wage-earner and all-employee cost indexes are estimated.

Hours and Employment. The hours data are based on the monthly Bureau of Labor Statistics survey of manufacturing establishments, covering average weekly hours of production workers, plus an estimate of hours of nonproduction employees. The man-hours of production workers include, in addition to hours actually at work, those hours paid for holidays and vacations, and for sick leave when pay was received directly from the firm. The hours of nonproduction employees are based on trends derived from BLS fringe benefit studies and other data.

The employment figures are also obtained from the BLS establishment survey. The data report total employment and production-worker employment separately, excluding proprietors, the self-employed, and unpaid family workers.

Canada

Output. Information on industrial production in Canada is prepared by the Dominion Bureau of Statistics (DBS). The DBS publishes a quantity index of manufacturing production based on weights from the Canadian 1949 interindustry flow table.[12] The weights represent gross domestic product valuations for 31 major manufacturing categories and census value added for more detailed product classes. The indexes are constructed from data on net output, where possible; otherwise, they are compiled from data on gross output, deflated value, materials consumed, or man-hours.

Compensation. Labor income is reported in the Canadian national accounts, covering all compensation to Canadian wage earners and salaried employees. It excludes earnings of self-employed individuals or partners. Wages and salaries, including income in kind, are estimated on a gross basis, that is, before tax deductions, contributions to unemployment insurance, etc. Bonuses, commissions, and

[11] An industry, in this case, means a four-digit industry according to the Standard Industrial Classification Manual, prepared by the U.S. Bureau of the Budget.

[12] In June 1966, the DBS published the first of a series of revisions to the index of industrial production, covering the period 1949 through 1965. The new series for manufacturing shows significant differences from the previous series, owing mainly to the incorporation of more recent (1959) benchmark levels. The revised index, together with revised unit labor cost and output per man-hour indexes, is shown in appendix table 2C.

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retroactive wage increases are included for the year in which they are paid.

Supplementary labor income consists of other expenditures such as employers' contributions to social security, employee welfare funds, unemployment insurance, and workmen's compensation. They are estimated from a special survey of supplementary income.

Hours and Employment. Hours data for wage earners are based on a monthly survey of employment and payrolls for all establishments with 15 employees or more. The statistics represent hours paid for, including overtime hours actually worked. The estimated hours for salaried employees are based on an assumed 40-hour workweek during each year.

Employment data have been estimated on the basis of the monthly establishment survey and the annual census of manufactures. The establishment survey gives a consistent series of indexes of employment for the entire 1950–64 period, while the census of manufactures shows the actual number of employees for the postwar years. The census of manufactures data reflect revisions in the Standard Industrial Classification and implementation of a new definition for the reporting unit—the establishment.

The two series have been combined by setting the index of employment equal to the census employment in 1949 and deriving a consistent series of actual numbers of persons employed. The figures for the derived series closely parallel the results from the census data except for the 1960–64 period, where the major adjustments have occurred. The census data also contain a breakdown of employment between wage and salary earners. These figures have been extrapolated to form consistent separate wage and salary employment figures.

France

Output. French output data show constant-value gross domestic product in manufacturing at 1959 market prices. Conceptually, the data are similar to those in the United States and other countries employing a national accounts-based output series. A variety of sources are used to value production and intermediate consumption by industry, the main sources being industry data on the value of quantities produced and value of deliveries by branch of activity and purchaser; fiscal statistics, which provide estimates of the turnover of enterprises; information on prices and costs from public administrative agencies; and technical studies prepared by the Institut National de la Statistique et des Études Économiques (INSEE). The results are then reconciled with the estimates of final expenditure within the framework of an input-output table to obtain a consistent measure of constant-value gross product by industry.

Compensation. Labor compensation is estimated from administrative statistics arising from the 5-percent payroll tax which each French employer is required to pay annually to the Government. The INSEE annually calculates and publishes data based upon a structured sample of the tax declarations. Compensation comprises gross wages and salaries, including contributions to social insurance and pensions, and payments in kind to all employees who have worked in the enterprise during the year.

The data for 1953 are estimates, because the published data for that year excluded compensation of employees in the Paris area. A linear interpolation has been used for the estimate, since 1953 compensation in the areas outside Paris fell at about the midpoint between the 1952 and 1954 figures.

Hours and Employment. Average hours actually worked by wage-and-salary earners in manufacturing are reported by the INSEE and refer to the last full workweek in each quarter. The data are based on hours worked by employees in all establishments having 50 employees or more and about one-half of the establishments with 10 to 50 employees.

The employment series is developed from INSEE studies on compensation, based on data arising from the 5-percent payroll tax. Two series are presented, neither of which is adequate in itself: (1) actual yearend employment and (2) the number of employees who worked

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in the industry during any part of the year. A relationship between the two series, the "employment stability coefficient," shows the ratio of the yearend employment to the total employees who worked during the year. The average for manufacturing industry from 1951 to 1963 was about 65 percent. The series has been developed, therefore, by assuming that the annual average employment is 65 percent of the total number employed at any time during the year. The series based on a 65-percent employment stability coefficient coincides closely with other employment estimates, while remaining consistent with the aggregate data on output and compensation.

Federal Republic of Germany [13]

Output. German manufacturing production data show constant-value gross product at 1958 market prices. The definition is comparable to that of the United States and other countries using a national accounts output series. The gross output data are obtained from administrative statistics arising from turnover taxes, supplemented by data from investigations of cost structures. The turnover tax data are available each year, but cost structure information is obtained at intervals of several years only. A number of corrections are made in the estimates of gross output to arrive at figures on manufacturing gross product; these include a correction for changes in stocks, using corporate balance sheets and special surveys. In addition to the gross output data, inputs from outside the manufacturing sector and information on indirect business taxes and depreciation are needed. A detailed survey of inputs, depreciation, and indirect taxes was made in 1950, and the ratios obtained from this survey have been supplied to subsequent years. Additional data obtained for 1954 and 1958 have been used to check and revise these ratios.

Compensation. Data on wages and salaries in manufacturing are prepared and published annually by the Federal Statistical Office. All establishments with 10 employees or more are surveyed, covering about 98 percent of manufacturing industry. Provisions in the wage bill and the salary bill include, in addition to direct earnings, pay for time not worked and bonuses, but exclude employers' obligatory contributions for social insurance. Data on employers' contributions to social security for the entire economy, however, are published. The relationship of employer social insurance contributions to the total economy wage-and-salary bill has been calculated, and this proportion applied to manufacturing industry. There are two reasons why any error from this procedure should be small: First, the wage-and-salary bill in manufacturing is a substantial portion of the bill for the total economy; and second, the ratio of employers' social security contributions to wages and salaries over the 1950–64 period has shown an increase only from 10.7 percent in 1950 to 11.7 percent in 1964 (appendix table 4–A). The wage-earner total compensation bill has been calculated by using this same percentage and applying it to the wage bill.

Hours and Employment. The hours data for wage earners, including apprentices, are prepared by the Federal Statistical Office and refer to hours actually worked. The data are obtained from the same survey that provided the cost and employment information used here in the calculation of unit labor cost. Hours data for salaried employees have been estimated by assuming a straight 40-hour workweek during the entire period.

Employment information covers all wage and salary earners, including apprentices. The data exclude homeworkers, but the omission should be of minor significance since 98 percent of all employees in industry are covered by the survey. Employment statistics showing data separately for wage earners and all other employees are also published by the Federal Statistical Office.

Italy

Output. Data on Italian manufacturing output refer to constant-value gross domestic product at factor cost, taken from national accounts data published by the Istituto Centrale di Statis-

[13] Data for Germany include the Saar and West Berlin beginning in 1960. For prior years, these two areas are excluded.

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tica (ISTAT). The data are based mainly on a special survey of value added in large and medium-size enterprises; they also include estimates for smaller enterprises and handicraft activities. The output data are expressed in 1958 lire. Adjustments are made by the ISTAT to include subsidies and exclude banking, insurance, and government services. Annual output estimates at constant prices are obtained by relating base-year prices or value to quantity indexes for each industry and weighting them according to value added in the base period.

Compensation, Hours, and Employment. Compensation refers to total remuneration of *wage earners,* including overtime, cost-of-living allowances, bonuses, premiums for nightwork, payments for holidays and vacations, family allowances, and payments in kind. Employer contributions for social insurance are not reported. The data are obtained from payrolls of establishments included in a monthly survey conducted by the Ministry of Labor. Establishments are surveyed which employ 10 wage earners or more in 27 branches of manufacturing, and all establishments are surveyed in 13 branches. In 1962, approximately 2,051,000 workers were covered.

Information on hours and employment of wage earners, including apprentices, is obtained from the same establishments that submit payroll data. The hours data refer to hours actually worked, including overtime.

Japan

Output. Data on constant-value gross product in manufacturing are not yet available for Japan. Therefore, a quantity index, published by the Bureau of Statistics, Office of the Prime Minister, has been used as a measure of output in manufacturing. The index has been periodically revised to incorporate later benchmarks. The 1950–52 data are based on 1950 weights, the 1953–57 on 1955 weights, and the 1958–64 on 1960 weights. Industry data are weighted by either value added at factor cost or gross value of output during the benchmark year. Value added has been derived from the census of manufactures for privately owned establishments with four or more employees. Weights for publicly owned establishments and for establishments having fewer than four employees are estimated from gross value in the base year. Data on the quantity of output, prepared for 332 commodities, relate to about 62 percent of value added in 1960. These commodities are then combined in major industry groups and then into all manufacturing.

Compensation. Wages and salaries include bonuses, overtime allowances, and payments in kind, in addition to contract earnings. The Bureau of Statistics makes estimates of wages and salaries by multiplying the number of employees in each industry by the average wage or salary per employee. The number of employees is obtained from the latest census of population and is extrapolated for later years using the results of the monthly labor force survey conducted by the Ministry of Labor. The data on average wages or salaries per employee are obtained mainly from the Ministry of Labor's monthly wage survey, a sample survey in two parts, one covering workers in establishments with 30 employees or more, and the other covering those with 5 to 29. Other wage information is available from reports compiled by the Tax Administration Agency, the National Personnel Authority, and the Ministry of Home Affairs.

Other labor income, consisting of compensation for company directors, employers' contributions to social insurance, allowances for members of central and local legislative bodies, and tips, are excluded from the compensation figures. It appears, on the basis of a few Ministry of Labor estimates, that the proportion of social insurance expenditures to direct wage and salary expenditures has changed very little during 1950–64.

Hours and Employment. Employment data are published with the national accounts data on compensation of employees. They refer to wage and salary earners, exclusive of executive directors.

Hours data refer to actual hours worked by all wage and salary earners in establishments

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with 30 regular employees or more and are obtained from the monthly labor survey. Temporary employees who have worked less than 18 days in the last 2 months, or less than 60 days in the last 6 months, are omitted. Examination of limited data on establishments with 5 to 29 employees shows that the omission of this group does not significantly alter the trends shown.

Netherlands

Output. The data on output refer to a quantity index of production prepared by the Central Bureau of Statistics and based on value-added weights in 1949. Constant-value gross product is not available for the manufacturing sector separately. The output in manufacturing is the aggregate of 481 individual series which are based, in most cases, on the quantity of individual commodities produced. Where measures of this type are unavailable, the quantity of individual raw materials consumed or the number of man-hours worked are utilized.

Compensation. Compensation refers to gross compensation prior to deductions for wage taxes and social security. In addition to wages and salaries, compensation includes tips, commissions, and all supplementary monetary benefits paid to employees, the monetary value of payments in kind (such as free rent or free food), and employers' normal payments to social insurance institutions and pension funds. Extra contributions to pension funds paid by employers out of profits and Government contributions to social security premiums are excluded. Salaries of company officials are included, but not income from ownership of shares in enterprises. Imputed wages or salaries of self-employed persons are excluded, and household members working in an enterprise owned by the head of a household are not regarded as employees unless a labor contract is expressly concluded.

Hours and Employment. Dutch employment and hours data are prepared by the Central Bureau of Statistics. The employment data refer to man-years of work, and are consistent with the national accounts data on compensation. The term "man-year" refers to 300 man-days of work during the year, irrespective of the length of the workday. Two persons working 150 days each thus count as 1 man-year. No data are available from the source to distinguish between wage and salary earners.

Data on hours of work refer to wage earners and are obtained from a sample survey of major industrial establishments. The hours worked figures relate only to full-week workers and include overtime hours, paid "short absences" from work, and vacations. The data prior to 1964 included hours worked by apprentices and paid hours for traveltime between home and work. Under a revision of the hours worked concept introduced in 1964, apprentice hours and traveltime are no longer included.

The hours and employment data are prepared from data obtained in separate surveys, and thus may not be consistent with each other. Although data on salary earners' hours are not separately reported, it has been estimated that working hours are about the same for wage earners and salary earners in the Netherlands.

Sweden

Output. National accounts data on gross output in manufacturing are not published for Sweden. Instead, a base-weighted quantity index of combined mining and manufacturing output, prepared by the Central Bureau of Statistics, has been used as the measure of output. The indexes relate to all establishments with five or more employees (including working proprietors), and represent almost 100 percent of total mining and manufacturing output. The weights used are based on census value added in 1935. The final annual figures are computed from the results of annual industrial censuses. Indexes for postcensus years are averages of adjusted monthly indexes based on value-added weights in 1947.

Compensation. Most data on wages and salaries in Sweden refer to establishments with five or more employees. In addition to base

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pay, the data include pay for time not worked, overtime, family allowances, bonuses, and payments in kind.

Supplementary benefits, except those included in the wage-and-salary bill, are not available separately for the manufacturing sector. Contributions by all employers for social insurance amounted to about 7 percent of wages and salaries in 1964, a ratio that has gradually risen since the mid-1950's. If a corresponding rise in social insurance cost has occurred in mining/manufacturing, the trend in unit labor cost shown for Sweden is slightly understated.

Hours and Employment. Data on Swedish employment refer to wage and salary earners and unpaid family workers, and are obtained from the same source as the compensation data; i.e., direct returns from manufacturing establishments to the Swedish Central Bureau of Statistics.

Hours data for wage earners are also obtained from the manufacturing establishment returns and refer to paid hours. Since information for nonwage earners (salary earners and unpaid family workers) are not available, it has been necessary to assume that they work a constant 40-hour workweek.

United Kingdom

Output. The principal measure of manufacturing output in the United Kingdom is an index of physical production prepared by the Central Statistical Office. The weights used are proportionate to value added in 1958. About five-sixths of the individual product indicators are based on quantity data, and the remainder are based on raw materials consumed or labor data. The index is used in preparing estimates of the constant-value gross domestic product for the U.K. national accounts.

Compensation. The estimated wage-and-salary bill includes cash earnings before deductions for income tax or insurance contributions, plus income in kind and directors' fees, less expenses of employment recognized for tax allowances. These estimates are based on tax returns reported by the Inland Revenue Department, which provides separate data on total wages and salaries in the manufacturing sector. The distinction between wages and salaries is based on the 1958 Census of Production and Distribution, which also provides the data to estimate wages and salaries by industry. The estimates for 1959-64 are based upon changes in the number of employees and in wages and salaries, as reported in the Ministry of Labour's semiannual survey of wages and annual survey of salaries.

Employer contributions are the sum of payments to national insurance; the data are obtained from National Insurance and Industrial Injuries Funds and private welfare plans. The data on private welfare plans are obtained from the Inland Revenue Department and the annual report of the Life Offices Association.

Hours and Employment. Manufacturing employment data are published by the Central Statistical Office in the *National Income Blue Book* and are separately reported for wage earners and salary earners. The data are not entirely comparable with the compensation data, since the estimates of employment exclude directors paid by fee only, whereas the compensation data include directors' fees. The basic data for estimating the number of employees are obtained from the annual census of production.

Hours of work for wage earners refer to actual hours of work, including overtime, reported by the Ministry of Labour. The data exclude all time lost from any cause, but include those hours not worked for which a guaranteed wage is payable. The data refer only to male adults, however, including apprentices and working foremen. This group represented 3,155,000 employees in 1962, or about one-half of those employed in manufacturing. The data are obtained from payrolls of all establishments with 10 employees or more and some smaller establishments.

Hours for salary earners have been estimated by assuming a straight 40-hour workweek for such employees.

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Appendix Table 1A. UNITED STATES. Basic Data on Production, Labor Compensation, Employment, and Hours of Work in Manufacturing, 1950–64

Year	Index of manufacturing production, Series A (1957–59 =100)	Gross product originating in manufacturing, Series B		Implicit price deflator for manufacturing (1954 =100)	Aggregate wages and salaries (billions of dollars)	Aggregate supplements, all employees (billions of dollars)	Ratio of supplements to wages and salaries	Aggregate wages (billions of dollars)
		Current value (billions of dollars)	Constant value (billions of 1954 dollars)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950	75.8	81.9	92.6	88.4	49.393	3.142	6.36	36.783
1951	81.9	97.4	102.0	95.5	58.277	4.141	7.11	43.233
1952	85.2	101.5	105.0	96.7	62.960	4.431	7.04	45.952
1953	92.7	110.5	111.9	98.7	69.881	4.928	7.05	50.904
1954	86.3	103.8	103.8	100.0	66.077	5.012	7.59	46.458
1955	97.3	118.7	116.7	101.7	72.252	5.727	7.93	51.011
1956	100.2	123.3	116.4	105.9	77.706	6.379	8.21	53.972
1957	100.8	129.1	117.8	109.6	80.644	7.209	8.94	55.187
1958	93.2	120.9	109.7	110.2	76.701	7.025	9.16	51.046
1959	106.0	137.0	121.8	112.5	84.720	8.193	9.67	56.298
1960	108.9	139.7	122.0	114.5	87.411	8.892	10.17	57.444
1961	109.6	139.9	122.0	114.7	87.469	9.094	10.40	56.304
1962	118.7	153.5	134.1	114.5	94.174	10.211	10.84	60.884
1963	124.9	160.4	138.5	115.8	98.042	10.930	11.14	63.554
1964	133.1	[1]	[1]	[1]	102.999	11.8	11.46	67.050

Year	Aggregate supplements for production workers (billions of dollars)	Aggregate compensation		Employment		Average weekly hours of work, production workers	Aggregate annual hours of work	
		All employees (billions of dollars)	Production workers (billions of dollars)	All employees (thousands)	Production workers (thousands)		All employees (millions)	Production workers (millions)
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1950	2,339	52.535	39.122	15,241	12,523	40.5	32,069	26,373
1951	3,074	62.418	46.307	16,393	13,368	40.6	34,546	28,223
1952	3,235	67.391	49.187	16,632	13,359	40.7	35,115	28,273
1953	3,589	74.809	54.493	17,549	14,055	40.5	36,904	29,600
1954	3,526	71.089	49.984	16,314	12,817	39.6	33,685	26,393
1955	4,045	77.979	55.056	16,882	13,288	40.7	35,617	28,123
1956	4,431	84.085	58.403	17,243	13,436	40.4	36,165	28,226
1957	4,934	87.853	60.121	17,174	13,189	39.8	35,605	27,296
1958	4,676	83.726	55.722	15,945	11,997	39.2	32,687	24,455
1959	5,444	92.913	61.742	16,675	12,603	40.3	34,837	26,346
1960	5,842	96.303	63.286	16,796	12,586	39.7	34,717	25,983
1961	5,856	96.563	62.160	16,326	12,083	39.8	33,768	25,011
1962	6,600	104.385	67.484	16,853	12,488	40.4	35,178	26,235
1963	7,080	108.972	70.633	16,995	12,555	40.5	35,538	26,441
1964	7,684	114.8	74.734	17,259	12,769	40.7	36,223	27,024

[1] Not available.

NOTE: Because of rounding, sums of components may not equal totals.

Col. 1 — Board of Governors of the Federal Reserve System. Index of manufacturing production published monthly in the *Federal Reserve Bulletin*.

Cols. 2, 3, 4, — U.S. Department of Commerce, Office of Business Economics (OBE). National accounts data published in *Survey of Current Business*, October 1962 and September 1964. Data are currently under revision by the OBE.

Cols. 5, 6, — U.S. Department of Commerce (OBE). Unrevised national accounts data published annually in July issues of *Survey of Current Business*.

Col. 7 — Col. 6 ÷ col. 5.

Col. 8 — U.S. Department of Commerce (OBE), *Survey of Current Business*, May 1962. Data for 1960–64 have been revised and updated by the U.S. Department of Labor, Bureau of Labor Statistics (BLS).

Col. 9 — Col. 7 × col. 8.

Col. 10 — U.S. Department of Commerce (OBE). Unrevised national accounts data published annually in July issues of *Survey of Current Business*. Also, col. 5 + col. 6.

Col. 11 — Col. 8 + col. 9.

Cols. 12, 13, 14 — U.S. Department of Labor (BLS). Establishment data published monthly in *Employment and Earnings*. Historical data in *Employment and Earnings Statistics for the United States*, annual bulletins; latest, Bulletin 1312-3, issued December 1965.

Cols. 15, 16 — U.S. Department of Labor (BLS). Unpublished data in BLS files. Data based on cols. 12, 13, and 14; for nonproduction employees, the trend is derived from BLS fringe benefit studies and other data.

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APPENDIX TABLE 1B. UNITED STATES. INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, AND RELATED INDEXES, 1950–64

[1957=100]

Year	Index of manufacturing production, Series A	Index of constant-dollar gross product in manufacturing, Series B	Index of aggregate compensation		Index of aggregate annual hours of work		Index of unit labor cost for all employees	
			All employees	Production workers	All employees	Production workers	Series A	Series B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950	75.2	78.6	59.3	65.1	90.1	96.6	79.5	76.0
1951	81.2	86.6	71.0	77.0	97.0	103.4	87.4	82.0
1952	84.5	89.1	76.7	81.8	98.6	103.6	90.8	86.1
1953	92.0	95.0	85.2	90.6	103.6	103.4	92.6	89.7
1954	85.6	88.1	80.9	83.1	94.6	96.7	94.5	91.8
1955	96.5	99.1	88.8	91.6	100.0	103.0	92.0	89.6
1956	99.4	98.8	95.7	97.1	101.6	103.4	96.3	96.9
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1958	92.5	93.1	95.3	92.7	91.8	89.6	103.0	102.4
1959	105.2	103.4	105.8	102.7	97.8	96.5	100.6	102.3
1960	108.0	103.6	109.6	105.3	97.5	95.2	101.5	105.8
1961	108.8	103.6	109.9	103.4	94.8	91.6	101.0	106.1
1962	117.8	113.8	118.8	112.2	98.8	96.7	100.8	104.4
1963	123.9	117.8	124.0	117.5	99.8	96.9	100.1	105.3
1964	132.0	124.8	130.7	124.2	101.7	99.0	99.0	104.7

Year	Index of unit labor cost for production workers		Index of output per man-hour (Series B)		Average compensation of all employees per man-hour		Average compensation of production workers per man-hour	
	Series A	Series B	All employees	Production workers	In dollars	Index	In dollars	Index
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1950	86.6	82.7	87.3	81.5	1.64	66.4	1.48	67.3
1951	94.8	88.9	89.3	83.7	1.81	73.2	1.64	74.5
1952	96.8	91.8	90.4	86.1	1.92	77.8	1.74	78.9
1953	98.5	95.4	91.6	87.6	2.03	82.2	1.84	83.6
1954	97.1	94.3	93.1	91.2	2.11	85.5	1.89	86.0
1955	94.9	92.4	99.1	96.3	2.19	88.7	1.96	88.9
1956	97.7	98.3	97.3	95.6	2.33	94.2	2.07	93.9
1957	100.0	100.0	100.0	100.0	2.47	100.0	2.20	100.0
1958	100.2	99.6	101.4	103.9	2.56	103.8	2.28	103.4
1959	97.6	99.3	105.7	107.2	2.67	108.1	2.34	106.1
1960	97.5	101.6	106.2	108.8	2.77	112.3	2.44	110.6
1961	95.0	99.8	109.2	113.1	2.86	115.8	2.49	112.8
1962	95.2	98.6	115.3	118.4	2.97	120.2	2.57	116.7
1963	94.8	99.7	118.0	121.6	3.07	124.3	2.67	121.2
1964	94.1	99.5	122.4	125.7	3.17	128.3	2.76	125.1

Cols. 1, 2, 3, 4, 5, 6, ——Data are indexes of respective series in appendix table 1A.
Col. 7 ——Col. 3 ÷ col. 1.
Col. 8 ——Col. 3 ÷ col. 2.
Col. 9 ——Col. 4 ÷ col. 1.
Col. 10 ——Col. 4 ÷ col. 2.
Cols. 11, 12 ——U.S. Department of Labor, Bureau of Labor Statistics (BLS). Data prepared by Division of Productivity Measurement, based on unrevised national accounts. Also, col. 11 equals col. 2 ÷ col. 5, and col. 12 equals col. 2 ÷ col. 6.
Col. 13 ——Col. 10 (table 1A) ÷ col. 15 (table 1A).
Col. 14 ——Index of col. 13.
Col. 15 ——Col. 11 (table 1A) ÷ col. 16 (table 1A).
Col. 16 ——Index of col. 15.

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Appendix Table 2A. CANADA. Basic Data on Production, Labor Compensation, Employment, and Hours of Work in Manufacturing, 1950–64

Year	Index of production (1949 = 100)	Current-value gross product originating in manufacturing (millions of Canadian dollars)	Aggregate compensation of all employees (millions of Canadian dollars)	Index of employment (1949 = 100)	Employment		Estimated employment		Average weekly hours of work of production workers	Estimated aggregate annual hours of work (millions)	Exchange rate (Canadian dollars per U.S. dollar)
					All employees	Production workers	All employees (thousands)	Production workers (thousands)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1950	106.2	4,714	2,881	101.4	1,183,297	952,244	1,188	956	42.3	2,585	1.0889
1951	115.0	5,474	3,396	108.1	1,258,375	1,010,588	1,266	1,017	41.7	2,723	1.0530
1952	118.5	6,150	3,772	109.9	1,288,382	1,025,355	1,287	1,024	41.5	2,757	.9808
1953	126.4	6,453	4,100	113.0	1,327,451	1,053,226	1,323	1,050	41.3	2,824	.9849
1954	122.9	6,291	4,053	107.3	1,267,966	989,030	1,256	980	40.7	2,650	.9728
1955	134.7	6,779	4,299	109.8	1,298,461	1,010,992	1,286	1,001	41.0	2,727	.9865
1956	145.1	7,605	4,766	115.8	1,353,020	1,051,723	1,356	1,054	41.0	2,876	.9829
1957	142.9	7,904	5,034	115.8	1,359,061	1,045,177	1,356	1,043	40.4	2,842	.9595
1958	140.7	7,753	5,029	109.8	1,289,602	981,735	1,286	979	40.2	2,685	.9728
1959	149.8	8,286	5,302	111.1	1,303,956	997,907	1,301	996	40.7	2,743	.9610
1960	149.3	8,427	5,474	109.5	1,275,476	971,610	1,282	977	40.4	2,688	.9694
1961	153.0	8,501	5,533	108.9	1,264,946 1,368,225	969,276 951,335	1,275	977	40.6	2,683	1.0129
1962	164.9	9,320	5,935	113.3	1,404,566	985,369	1,327	1,025	40.7	2,797	1.0698
1963	173.9	9,866	6,286	116.4	[1]	[1]	1,363	1,050	40.8	2,879	1.0784
1964	188.9	10,857	6,829	121.9	[1]	[1]	1,428	1,099	41.0	3,027	1.0777

[1] Not available.

Col. 1 ---------- Dominion Bureau of Statistics (DBS) index of manufacturing production published monthly in the *Canadian Statistical Review.*

Cols. 2, 3 ---------- DBS: Annual publication, *National Accounts Income and Expenditure.*

Col. 4 ---------- DBS: Published monthly in *Canadian Statistical Review.*

Cols. 5, 6 ---------- DBS: Data from annual census of manufactures published in *Canada Yearbook;* 1950–59 data are consistent, 1960–61 (first entry) are consistent, and 1961 (second entry)–1962 are consistent, but because of changes in Standard Industrial Classification definition and other definitions, there is not a consistent series for the entire period.

Col. 7 ---------- Estimated, using 1949 data from the annual census of manufactures as the base and using col. 4 to show the trend.

Col. 8 ---------- Estimated product of (col. 6 ÷ col. 5) × col. 7.

Col. 9 ---------- DBS: Published monthly in *Canadian Statistical Review.*

Col. 10 ---------- 52 [(col. 8 × col. 9) + 40 (col. 7 — col. 8)]

Col. 11 ---------- Organization for Economic Co-operation and Development (OECD) *General Statistics.* Domestic mean exchange rate.

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APPENDIX TABLE 2B. CANADA. INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, 1950–64

[1957=100]

Year	Index of manufacturing production	Index of aggregate compensation	Index of aggregate annual hours of work	Index of exchange rate (Canadian dollars per U.S. dollar)	Index of unit labor cost		Index of output per man-hour	Average compensation of all employees per man-hour	
					Canadian dollar basis	U.S. dollar basis		In Canadian dollars	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1950	74.3	57.2	90.9	113.5	77.0	67.8	81.7	1.11	63.0
1951	80.5	67.5	95.8	109.7	83.9	76.4	84.0	1.25	70.4
1952	82.9	74.9	97.0	102.2	90.3	88.4	85.5	1.37	77.2
1953	88.5	81.4	99.3	102.6	92.0	89.6	89.1	1.45	82.0
1954	86.0	80.5	93.2	101.4	93.6	92.3	92.3	1.53	86.4
1955	94.3	85.4	95.9	102.8	90.6	88.1	98.3	1.58	89.0
1956	101.5	94.7	101.2	102.4	93.3	91.1	100.3	1.66	93.6
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1.77	100.0
1958	98.5	99.9	94.5	101.4	101.4	100.0	104.3	1.87	105.8
1959	104.8	105.3	96.5	100.2	100.5	100.3	108.6	1.93	109.1
1960	104.5	108.7	94.6	101.0	104.0	103.0	110.5	2.04	115.0
1961	107.1	109.9	94.4	105.6	102.6	97.2	113.5	2.06	116.4
1962	115.4	117.8	98.4	111.5	102.1	91.6	117.3	2.12	119.8
1963	121.7	124.9	101.3	112.4	102.6	91.3	120.2	2.18	123.3
1964	132.2	135.7	106.5	112.3	102.7	91.4	124.2	2.26	127.4

Cols. 1, 2, 3, 4 ——— Indexes of respective series appearing in appendix table 2A.
Col. 5 ——— Col. 2 ÷ col. 1.
Col. 6 ——— Col. 5 ÷ col. 4.
Col. 7 ——— Col. 1 ÷ col. 3.
Col. 8 ——— Col. 3 (table 1A) ÷ col. 10 (table 1A).
Col. 9 ——— Index of col. 8.

APPENDIX TABLE 2C. CANADA. REVISED INDEXES OF PRODUCTION, UNIT LABOR COST, AND OUTPUT PER MAN-HOUR IN MANUFACTURING, 1950–64

Year	Index of manufacturing production		Index of unit labor cost		Index of output per man-hour (1957=100)
	1949=100	1957=100	Canadian dollar basis (1957=100)	United States dollar basis (1957=100)	
	(1)	(2)	(3)	(4)	(5)
1950	106.7	70.7	80.9	71.3	77.8
1951	115.9	76.8	87.9	80.1	80.2
1952	120.2	79.7	94.0	92.0	82.2
1953	128.9	85.4	95.3	92.9	86.0
1954	126.0	83.5	96.4	95.1	89.6
1955	138.3	91.7	93.1	90.6	95.6
1956	151.2	100.2	94.5	92.3	99.0
1957	150.9	100.0	100.0	100.0	100.0
1958	148.0	98.1	101.8	100.4	103.8
1959	159.0	105.4	99.9	99.7	109.2
1960	161.2	106.8	101.8	100.8	112.9
1961	166.9	110.6	99.4	94.1	117.2
1962	181.2	120.1	98.1	88.0	122.1
1963	193.9	128.5	97.2	86.5	126.9
1964	211.9	140.4	96.7	86.1	131.8

Col. 1 ——— Dominion Bureau of Statistics revised index of production, published in the *Canadian Statistical Review*, June 1966, pp. i–ix.
Col. 2 ——— Index of col. 1.
Col. 3 ——— Col. 2 (table 2B) ÷ col. 2.
Col. 4 ——— Col. 3 ÷ col. 4 (table 2B).
Col. 5 ——— Col. 2 ÷ col. 3 (table 2B).

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APPENDIX TABLE 3A. FRANCE. BASIC DATA ON PRODUCTION, LABOR COMPENSATION, EMPLOYMENT, AND HOURS OF WORK IN MANUFACTURING, 1950–64

Year	Gross product originating in manufacturing		Implicit price deflator for manufacturing (1958 =100)	Aggregate compensation of all employees (millions of new francs)	All employees (thousands)			Average weekly hours of work	Aggregate annual hours of work (millions)	Exchange rate (new francs per U.S. dollar)
	Current value (billions of new francs)	Constant value (billions of 1958 new francs)			Engaged during any part of year	As of December 31	Adjusted			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1950	38.61	59.05	65.4	10,559.71	[1]	[1]	[2] 4,787.7	44.5	11,078.7	350
1951	49.43	64.63	76.5	15,378.81	7,603.4	5,015.1	4,942.2	44.8	11,510.4	350
1952	55.22	65.74	84.0	17,937.00	7,684.7	4,959.0	4,995.1	44.2	11,480.7	350
1953	56.67	67.58	83.9	19,336.64	[1]	[1]	[2] 5,123.9	44.0	11,723.4	350
1954	58.93	70.67	83.3	20,736.27	7,937.9	5,187.2	5,159.6	44.6	11,966.1	350
1955	62.26	74.66	83.4	23,317.16	8,245.1	5,318.7	5,359.3	44.7	12,457.2	350
1956	70.88	81.98	86.5	27,040.91	8,778.7	5,591.9	5,706.2	45.4	13,471.2	350
1957	79.08	86.76	91.1	31,026.49	9,120.4	5,845.9	5,916.6	45.7	14,060.2	377
1958	92.21	92.21	100.0	36,149.65	8,847.2	5,790.9	5,750.7	45.1	13,486.5	457
1959	99.71	94.24	105.8	37,640.72	8,588.8	6,015.5	5,582.7	44.9	13,034.5	490
1960	110.95	102.20	108.6	42,051.00	8,817.3	5,906.8	5,731.2	45.5	13,560.0	490
1961	119.66	107.47	111.3	47,109.03	9,506.4	6,082.4	6,099.1	45.7	14,493.9	490
1962	131.205	114.46	114.6	53,700.80	9,842.5	6,500.1	6,397.6	45.8	15,236.5	490
1963	144.365	121.10	119.2	60,393.20	10,059.4	6,664.7	6,538.6	45.9	15,606.3	490
1964	157.040	128.16	122.5	67,767.40	10,422.6	6,864.5	6,774.7	45.7	16,099.4	490

[1] Not available.
[2] Estimate.

Cols. 1, 2 — Organization for Economic Co-operation and Development (OCED) *National Accounts Statistics*. Country submittal based on the International Standard Industrial Classification.
Col. 3 — Col. 1 ÷ col. 2.
Cols. 4, 5, 6 — Institute National de la Statistique et des Études Économiques (INSEE) annual study based on 5-percent earnings tax, formerly published in *Études Statistiques* and now published in *Études et Conjoncture*.
Col. 7 — Estimate based on 65 percent of col. 5.
Col. 8 — INSEE data published monthly in the *Bulletin Mensuel de Statistique*.
Col. 9 — Col. 7 × col. 8 × 52.
Col. 10 — Official exchange rates, except for 1957 and 1958, where the average monthly domestic mean exchange rate has been used due to changes in the official value during the year.

APPENDIX TABLE 3B. FRANCE. INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, 1950–64

[1957=100]

Year	Index of constant-value gross product in manufacturing	Index of aggregate compensation of all employees	Index of aggregate annual hours of work	Index of exchange rate (new francs per U.S. dollar)	Index of unit labor cost		Index of output per man-hour	Average compensation of all employees per man-hour	
					Franc basis	U.S. dollar basis		In new francs	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1950	68.1	34.0	78.8	92.8	49.9	53.8	86.4	.953	43.2
1951	74.5	50.0	81.9	92.8	67.1	72.3	91.0	1.336	60.5
1952	75.8	57.8	81.7	92.8	76.3	82.2	92.8	1.562	70.8
1953	77.9	62.3	83.4	92.8	80.0	86.2	93.4	1.649	74.7
1954	81.5	66.6	85.1	92.8	81.7	87.8	95.8	1.733	78.5
1955	86.1	75.2	88.6	92.8	87.3	94.1	97.2	1.872	84.8
1956	94.5	87.2	95.8	92.8	92.3	99.5	98.6	2.007	90.9
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2.207	100.0
1958	106.3	116.5	95.9	121.2	109.6	90.4	110.8	2.680	121.4
1959	108.6	121.3	92.7	130.0	111.7	85.9	117.1	2.888	130.9
1960	117.8	135.5	96.4	130.0	115.0	88.5	122.1	3.101	140.5
1961	123.9	151.8	103.1	130.0	122.5	94.2	120.2	3.250	147.3
1962	131.9	173.1	108.4	130.0	131.2	100.9	121.7	3.524	159.7
1963	139.6	194.7	111.0	130.0	139.5	107.3	125.8	3.870	175.4
1964	147.7	218.4	114.5	130.0	147.9	113.8	129.0	4.209	190.7

Cols. 1, 2, 3, 4 — Indexes of respective series appearing in appendix table 3A.
Col. 5 — Col. 2 ÷ col. 1.
Col. 6 — Col. 5 ÷ col. 4.
Col. 7 — Col. 1 ÷ col. 3.
Col. 8 — Col. 4 (table 3A) ÷ col. 9 (table 3A).
Col. 9 — Index of col. 8.

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APPENDIX TABLE 4A. GERMANY (F.R.). BASIC DATA ON PRODUCTION, LABOR COMPENSATION, EMPLOYMENT, AND HOURS OF WORK IN MANUFACTURING, 1950–64

Year	Gross product originating in manufacturing		Implicit price deflator for manufacturing (1958 =100)	Aggregate wages and salaries (millions of DM)	Ratio of employer contributions to total wages and salaries (total economy)	Aggregate supplements for all employees (millions of DM)	Aggregate wages (millions of DM)	Aggregate supplements for wage earners (millions of DM)
	Current value (billions of DM)	Constant value (billions of 1958 DM)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950	38.02	41.86	90.8	12,990	10.70	1,390	9,915	1,061
1951	48.38	48.17	100.4	16,691	10.46	1,746	12,782	1,337
1952	54.31	54.25	100.1	18,498	10.56	1,953	14,011	1,480
1953	58.46	60.20	97.1	20,172	10.82	2,183	15,155	1,640
1954	63.64	67.01	95.0	22,269	10.64	2,369	16,723	1,779
1955	73.85	77.98	94.7	25,949	10.82	2,808	19,511	2,111
1956	80.60	83.64	96.4	29,858	10.79	3,222	22,314	2,408
1957	87.13	89.08	97.8	32,189	12.02	3,869	23,844	2,866
1958	92.72	92.72	100.0	34,602	12.65	4,377	25,306	3,201
1959	101.01	100.83	100.2	37,158	12.47	4,634	26,943	3,360
1960	122.18	120.80	101.1	45,709	12.50	5,714	33,057	4,132
1961	135.55	128.99	105.1	51,902	12.18	6,322	37,177	4,528
1962	146.82	134.98	108.8	57,933	12.05	6,981	41,091	4,951
1963	152.83	138.44	110.1	61,559	12.08	7,436	43,086	5,205
1964	168.51	152.72	110.4	68,032	11.69	7,953	47,530	5,556

Year	Aggregate compensation		Employment		Aggregate annual hours of work		Exchange rate (DM per U.S. dollar)
	All employees (millions of DM)	Wage earners (millions of DM)	All employees (thousands)	Wage earners (thousands)	All employees (millions)	Wage earners (millions)	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1950	14,380	10,976	4,225.5	3,526.6	9,542	8,088	4.200
1951	18,437	14,119	4,739.2	3,960.9	10,633	9,014	4.200
1952	20,452	15,491	4,903.4	4,065.7	11,013	9,271	4.200
1953	22,353	16,793	5,107.9	4,222.4	11,514	9,627	4.200
1954	24,638	18,502	5,419.9	4,482.1	12,249	10,298	4.200
1955	28,757	21,622	5,932.4	4,910.4	12,487	11,271	4.200
1956	33,080	24,722	6,338.1	5,226.0	14,047	11,734	4.200
1957	36,058	26,710	6,553.2	5,378.2	13,880	11,436	4.200
1958	38,979	28,507	6,616.2	5,385.3	13,802	11,242	4.200
1959	41,792	30,303	6,802.4	5,496.6	13,935	11,217	4.200
1960	51,423	37,189	7,439.5	5,978.2	15,408	12,368	4.200
1961	58,224	41,705	7,703.8	6,136.9	15,662	12,403	4.050
1962	64,914	46,042	7,789.8	6,141.3	15,448	12,109	4.000
1963	68,995	48,291	7,746.7	6,048.9	15,277	11,746	4.000
1964	75,985	53,086	7,804.5	6,059.1	15,444	11,814	4.000

Cols. 1, 2 — Federal Statistical Office data published annually (usually in the January issue) in *Wirtschaft und Statistik*. Also, OECD in *National Accounts Statistics*.

Col. 3 — Col. 1 ÷ col. 2.

Col. 4 — Federal Statistical Office. *Statistisches Jahrbuch* and *Wirtschaft und Statistik*.

Col. 5 — Basic data used in calculating these rates, but not presented here, can be found in the *Statistisches Jahrbuch*, *Wirtschaft und Statistik*, or the OECD *National Accounts Statistics*.

Col. 6 — Col. 4 × col. 5.

Col. 7 — Federal Statistical Office. *Statistisches Jahrbuch* and *Wirtschaft und Statistik*.

Col. 8 — Col. 7 × col. 5.

Col. 9 — Col. 4 + col. 6.

Col. 10 — Col. 7 + col. 8.

Cols. 11, 12 — Federal Statistical Office. *Statistisches Jahrbuch* and *Wirtschaft und Statistik*. Data in cols. 11 and 12 refer to earnings of the employees in cols. 4 and 7.

Col. 13 — Col. 14 plus the difference between col. 11 and col. 12 times 40 hours a week times 52 weeks a year.

Col. 14 — Federal Statistical Office. *Statistisches Jahrbuch* and *Wirtschaft und Statistik*.

Col. 15 — Official exchange rate, except for 1961 which represents a weighted average of the official value before and after its change in March.

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APPENDIX TABLE 4B. GERMANY (F.R.). INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, 1950–64

[1957=100]

Year	Index of constant-value gross product in manufacturing	Index of aggregate compensation		Index of aggregate hours of work		Index of exchange rate (DM per U.S. dollar)	Index of unit labor cost	
							DM basis	
		All employees	Wage earners	All employees	Wage earners		All employees	Wage earners
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950	46.6	39.9	41.1	68.7	70.7	100.0	85.6	88.2
1951	53.4	51.1	52.9	76.6	78.8	100.0	95.7	99.1
1952	60.7	56.7	58.0	79.3	81.1	100.0	93.4	95.6
1953	67.5	62.0	62.9	88.0	84.2	100.0	91.9	93.2
1954	75.0	68.3	69.3	88.2	90.0	100.0	91.1	92.4
1955	87.4	79.8	81.0	97.2	98.6	100.0	91.3	92.7
1956	93.9	91.7	92.6	101.2	102.6	100.0	97.6	98.6
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1958	104.1	108.1	106.7	99.4	98.3	100.0	103.8	102.5
1959	113.2	115.9	113.5	100.4	98.1	100.0	102.4	100.3
1960	135.6	142.6	139.2	111.0	108.1	100.0	105.2	102.7
1961	144.8	161.5	156.1	112.8	108.5	96.4	111.5	107.8
1962	151.4	180.0	168.2	111.3	105.9	95.2	118.9	111.1
1963	155.4	191.3	180.8	110.1	102.7	95.2	123.1	116.3
1964	171.4	210.7	198.7	111.3	103.3	95.2	122.9	115.9

Year	Index of unit labor cost—Con.		Index of output per man-hour		Average compensation per man-hour			
	U.S. dollar basis				All employees		Wage earners	
	All employees	Wage earners	All employees	Wage earners	In DM	Index	In DM	Index
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1950	85.6	88.2	67.8	65.9	1.51	58.1	1.36	58.1
1951	95.7	99.1	69.7	67.8	1.73	66.5	1.57	67.1
1952	93.4	95.6	76.5	74.8	1.86	71.5	1.67	71.4
1953	91.9	93.2	81.3	80.2	1.94	74.6	1.74	74.4
1954	91.1	92.4	85.0	83.3	2.01	77.3	1.80	76.9
1955	91.3	92.7	89.9	88.6	2.13	81.9	1.92	82.0
1956	97.6	98.6	92.8	91.5	2.35	90.4	2.11	90.2
1957	100.0	100.0	100.0	100.0	2.60	100.0	2.34	100.0
1958	103.8	102.5	104.7	105.9	2.82	108.5	2.54	108.5
1959	102.4	100.3	112.7	115.4	3.00	115.4	2.70	115.4
1960	105.2	102.7	122.1	125.4	3.34	128.5	3.01	128.6
1961	115.7	111.8	128.4	133.5	3.72	143.1	3.36	143.6
1962	124.9	116.7	136.0	143.0	4.20	161.5	3.80	162.4
1963	129.3	122.2	141.1	151.3	4.52	173.8	4.11	175.6
1964	129.1	121.7	153.1	165.0	4.92	189.2	4.49	191.9

Cols. 1, 2, 3, 4, 5, 6 ——— Data are indexes of respective series appearing in appendix table 4A.
Col. 7 ——— Col. 2 ÷ col. 1.
Col. 8 ——— Col. 3 ÷ col. 1.
Col. 9 ——— Col. 7 ÷ col. 6.
Col. 10 ——— Col. 8 ÷ col. 6.
Col. 11 ——— Col. 1 ÷ col. 4.
Col. 12 ——— Col. 1 ÷ col. 5.
Col. 13 ——— Col. 9 (table 4A) ÷ col. 13 (table 4A).
Col. 14 ——— Index of col. 13.
Col. 15 ——— Col. 10 (table 4A) ÷ col. 14 (table 4A).
Col. 16 ——— Index of col. 15.

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APPENDIX TABLE 5A. ITALY. BASIC DATA ON PRODUCTION, LABOR COMPENSATION, AND HOURS OF WORK IN MANUFACTURING, 1950–64

Year	Gross domestic product originating in manufacturing		Implicit price deflator for manufacturing (1958 =100)	Aggregate compensation of wage earners (billions of lire)	Aggregate annual hours of work of wage earners (millions)
	Current value (billions of lire)	Constant value (billions of 1958 lire)			
	(1)	(2)	(3)	(4)	(5)
1950	2,428	2,503	97.0	593.657	3,236.5
1951	3,114	2,860	108.9	667.311	3,312.4
1952	3,113	2,932	106.2	709.242	3,281.8
1953	3,305	3,219	102.7	745.649	3,323.7
1954	3,503	3,576	98.0	793.758	3,411.7
1955	3,816	3,898	97.9	848.725	3,423.3
1956	4,064	4,148	98.0	913.667	3,451.1
1957	4,362	4,435	98.4	967.808	3,524.6
1958	4,602	4,602	100.0	984.636	3,416.8
1959	4,987	5,113	97.5	1,019.009	3,466.0
1960	5,668	5,824	97.3	1,150.616	3,753.3
1961	6,300	6,447	97.7	1,301.270	3,961.7
1962	7,043	7,092	99.3	1,533.933	4,042.9
1963	8,218	7,716	106.5	1,831.427	4,164.1
1964	8,792	7,785	112.9	1,934.728	3,927.4

Cols. 1, 2 ——— Organization for Economic Co-operation and Development, *National Accounts Statistics*. Country submittal based on International Standard Industrial Classification.
Col. 3 ——— Col. 1 ÷ col. 2.
Cols. 4, 5 ——— Istituto Centrale di Statistica. Data are published in *Statistiche del Lavoro* and, for more recent periods, in *Supplemento al Bollettino Statistiche del Lavoro*.

APPENDIX TABLE 5B. ITALY. INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, 1950–64

[1957=100]

Year	Index of constant-value gross domestic product in manufacturing	Index of aggregate compensation of wage earners	Index of aggregate hours of work of wage earners	Index of unit labor cost for wage earners	Index of output per man-hour of wage earners	Average compensation of wage earners per man-hour	
						In lire	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950	56.4	61.3	91.8	108.7	61.4	183.43	66.7
1951	64.5	69.0	93.9	107.0	68.7	201.46	73.3
1952	66.1	73.3	93.1	110.9	71.0	216.11	78.8
1953	72.6	77.0	94.3	106.1	77.0	224.34	81.8
1954	80.6	82.0	96.8	101.7	83.3	232.66	84.7
1955	87.9	87.7	97.1	99.8	90.5	247.93	90.4
1956	93.5	94.4	97.9	101.0	95.5	264.75	96.6
1957	100.0	100.0	100.0	100.0	100.0	274.59	100.0
1958	103.7	101.7	96.9	98.1	107.0	288.17	105.0
1959	115.3	105.3	98.3	91.3	117.3	294.00	107.1
1960	131.3	118.9	106.5	90.6	123.3	306.56	111.6
1961	145.4	134.4	112.4	92.4	129.4	328.46	119.8
1962	159.9	158.4	114.7	99.1	139.4	379.41	138.3
1963	174.0	189.2	118.1	108.7	147.4	439.81	160.3
1964	175.5	199.9	111.4	113.9	156.2	492.63	179.5

Cols. 1, 2, 3 ——— Indexes of respective series appearing in appendix table 5A.
Col. 4 ——— Col. 2 ÷ col. 1.
Col. 5 ——— Col. 1 ÷ col. 3.
Col. 6 ——— Col. 4 (table 5A) ÷ col. 5 (table 5A).
Col. 7 ——— Index of col. 6.

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Appendix Table 6A. JAPAN. Basic Data on Production, Labor Compensation, Employment, and Hours of Work in Manufacturing, 1950–64

Year	Current-value gross product originating in manufacturing (billions of yen)	Index of manufacturing production (1960 =100)	Aggregate compensation of all employees (billions of yen)	Employment (thousands)	Average monthly hours of work per employee	Aggregate annual hours of work (millions)
	(1)	(2)	(3)	(4)	(5)	(6)
1950	[1]	19.8	[2] 370.472	[2] 4,289	189.0	[2] 9,727
1951	1,111.2	27.8	507.037	4,575	192.8	10,585
1952	1,146.8	30.9	596.933	4,682	194.4	10,922
1953	1,361.5	38.5	669.443	4,773	196.7	11,266
1954	1,444.9	42.2	757.578	5,007	195.9	11,770
1955	1,494.2	45.7	828.716	5,132	198.0	12,194
1956	1,918.7	56.4	1,020.769	5,897	204.4	14,464
1957	2,236.1	66.9	1,145.269	6,455	202.9	15,717
1958	2,155.0	65.7	1,189.624	6,589	201.4	15,924
1959	2,666.2	79.6	1,359.149	6,828	204.7	16,772
1960	3,463.5	100.0	1,676.324	7,538	207.0	18,724
1961	4,251.9	119.9	2,047.012	8,082	203.4	19,727
1962	4,688.9	130.1	2,416.528	8,573	198.4	20,411
1963	5,420.6	143.7	2,785.505	8,951	196.9	21,149
1964	6,059.6	166.8	[1]	[1]	195.7	[1]

[1] Not available.
[2] Estimate.

Col. 1 ——— Economic Planning Agency. Data published annually (in Japanese) in *White Paper on National Income.*
Col. 2 ——— Japanese Ministry of International Trade and Industry, index of production, published by the Ministry of Labor in *Yearbook of Labor Statistics.*
Cols. 3, 4 ——— Economic Planning Agency, *White Paper on National Income.*
Col. 5 ——— Japanese Ministry of Labor, *Yearbook of Labor Statistics.* A monthly establishment survey showing the number of hours of work of all employees in establishments with 30 or more employees.
Col. 6 ——— Col. 4 × col. 5 × 12 months.

Appendix Table 6B. JAPAN. Indexes of Unit Labor Cost, Output per Man-hour, and Average Hourly Compensation in Manufacturing, 1950–64

[1957=100]

Year	Index of manufacturing production	Index of aggregate compensation of all employees	Index of aggregate hours of work	Index of unit labor cost	Index of output per man-hour	Average compensation of all employees per man-hour	
						In yen	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950	29.6	[1] 32.3	[1] 61.9	[1] 109.1	[1] 47.8	[1] 38.09	[1] 52.3
1951	41.6	44.3	67.3	106.5	61.8	47.90	65.7
1952	46.2	52.1	69.5	112.8	66.5	54.65	75.0
1953	57.5	58.5	71.7	101.7	80.2	59.42	81.5
1954	63.1	66.1	74.9	104.8	84.2	64.36	88.3
1955	68.3	72.4	77.6	106.0	88.0	67.96	93.3
1956	84.3	89.1	92.0	105.7	91.6	70.57	96.8
1957	100.0	100.0	100.0	100.0	100.0	72.87	100.0
1958	98.2	103.9	101.3	105.8	96.9	74.70	102.5
1959	119.0	118.7	106.7	99.7	111.5	81.04	111.2
1960	149.5	146.4	119.1	97.9	125.5	89.53	122.9
1961	179.2	178.7	125.5	99.7	142.8	103.77	142.4
1962	194.5	211.0	129.9	108.5	149.7	118.40	162.5
1963	214.8	243.2	134.6	113.2	159.6	131.71	180.7
1964	249.3	276.5	[2]	110.8	[2]	[2]	[2]

[1] Estimate.
[2] Not available.

Cols. 1, 2, 3 ——— Indexes of respective series appearing in appendix table 6A.
Col. 4 ——— Col. 2 ÷ col. 1.
Col. 5 ——— Col. 1 ÷ col. 3.
Col. 6 ——— Col. 3 (table 6A) ÷ col. 6 (table 6A).
Col. 7 ——— Index of col. 6.

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APPENDIX TABLE 7A. NETHERLANDS. BASIC DATA ON PRODUCTION, LABOR COMPENSATION, EMPLOYMENT, AND HOURS OF WORK IN MANUFACTURING, 1950–64

Year	Current-value gross product originating in manufacturing (millions of guilders)	Index of manufacturing production (1953=100)	Aggregate compensation of all employees (millions of guilders)	Employment (thousands of man-years[1])	Average weekly hours of work	Aggregate annual hours of work of all employees (millions)	Exchange rate (guilders per U.S. dollar)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950	4,993	88	2,765	1,151	48.8	2,920.8	3.800
1951	5,638	91	3,088	1,162	48.5	2,930.8	3.800
1952	5,674	91	3,200	1,133	48.6	2,863.3	3.800
1953	6,332	100	3,376	1,148	48.8	2,913.2	3.800
1954	7,319	111	3,906	1,201	48.8	3,047.7	3.800
1955	8,193	120	4,413	1,229	49.0	3,131.5	3.800
1956	8,880	125	4,986	1,252	48.8	3,177.1	3.800
1957	9,735	128	5,565	1,263	48.6	3,191.9	3.800
1958	9,569	127	5,680	1,237	48.6	3,126.1	3.800
1959	10,554	139	5,945	1,257	48.8	3,189.8	3.800
1960	12,216	155	6,772	1,295	48.8	3,286.2	3.800
1961	12,796	161	7,586	1,327	46.5	3,208.7	3.640
1962	13,575	170	8,228	1,285	46.5	3,107.1	3.600
1963	[2]	177	9,171	1,309	46.6	3,172.0	3.600
1964	[2]	194	10,645	1,331	46.1	3,190.7	3.600

[1] A man-year is 300 working days regardless of the number of hours worked.
[2] Not available.

Col. 1 ---- Central Bureau of Statistics, *Nationale rekeningen*. Constant-value gross product figures are not published separately for the manufacturing sector.
Col. 2 ---- Central Bureau of Statistics, *Maadschrift*.
Cols. 3, 4 ---- Central Bureau of Statistics, *Nationale rekeningen*.
Col. 5 ---- Central Bureau of Statistics, *Sociale maandstatistiek*.
Col. 6 ---- Col. 4 × col. 5 × 52 weeks.
Col. 7 ---- Official exchange rate, except for 1961 which represents a weighted average of the official value before and after its change in March.

APPENDIX TABLE 7B. NETHERLANDS. INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, 1950–64

[1957=100]

Year	Index of manufacturing production	Index of aggregate compensation of all employees	Index of aggregate hours of work of all employees	Index of exchange rate (guilders per U.S. dollar)	Index of unit labor cost		Index of output per man-hour	Average hourly compensation of all employees	
					Guilder basis	U.S. dollar basis		In guilders	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1950	68.8	49.7	91.5	100.0	72.2	72.2	75.2	.947	54.3
1951	71.1	55.5	91.8	100.0	78.0	78.0	77.5	1.054	60.5
1952	71.1	57.5	89.7	100.0	80.9	80.9	79.3	1.118	64.1
1953	78.1	60.7	91.3	100.0	77.7	77.7	85.5	1.159	66.5
1954	86.7	70.2	95.5	100.0	81.0	81.0	90.8	1.282	73.6
1955	93.8	79.3	98.1	100.0	84.5	84.5	95.6	1.409	80.8
1956	97.7	89.6	99.5	100.0	91.7	91.7	98.2	1.569	90.0
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1.743	100.0
1958	99.2	102.1	97.9	100.0	102.9	102.9	100.0	1.817	104.2
1959	108.6	106.8	99.0	100.0	98.3	98.3	108.7	1.864	106.9
1960	121.1	121.7	103.0	100.0	100.5	100.5	117.6	2.061	118.2
1961	125.8	136.3	100.5	95.8	108.3	113.4	125.2	2.364	135.6
1962	132.8	147.9	97.3	94.7	111.4	117.6	136.5	2.648	151.9
1963	138.3	164.8	99.4	94.7	119.2	125.9	139.1	2.891	165.9
1964	151.4	191.3	100.0	94.7	126.4	133.5	151.4	3.336	191.4

Cols. 1, 2, 3, 4 ---- Indexes of respective series appearing in appendix table 7A.
Col. 5 ---- Col. 2 ÷ col. 1.
Col. 6 ---- Col. 5 ÷ col. 4
Col. 7 ---- Col. 1 ÷ col. 3.
Col. 8 ---- Col. 3 (table 7A) ÷ col. 6 (table 7A).
Col. 9 ---- Index of col. 8.

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Appendix Table 8A. SWEDEN. Basic Data on Production, Labor Compensation, Employment, and Hours of Work in Manufacturing and Mining, 1950–64

Year	Value added in manufacturing and mining (thousands of kronor)	Index of production in manufacturing and mining		Aggregate wages (thousands of kronor)	Aggregate salaries (thousands of kronor)	Aggregate wages to homeworkers (thousands of kronor)	Aggregate compensation (thousands of kronor)		Employment		Aggregate annual hours of work		Total hours of all employees (thousands)
		1935 =100	1959 =100				All employees	Wage earners	Wage earners	Salary earners	Wage earners (thousands)	Salary earners (thousands)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1950	[1]	197	[1]	[1]	[1]	[1]	[2] 4,744,099	[2] 3,515,346	649,469	143,100	1,384,018	297,648	1,681,666
1951	[1]	206	79	[1]	[1]	[1]	[2] 5,762,146	[2] 4,295,781	663,135	149,306	1,427,730	310,556	1,738,286
1952	12,248,173	202	78	4,983,808	1,780,001	23,172	6,786,981	5,006,980	648,173	151,335	1,384,715	314,777	1,699,492
1953	12,490,372	204	79	5,076,084	1,847,393	32,497	6,955,974	5,108,581	631,878	151,974	1,334,053	316,106	1,650,159
1954	13,777,764	213	82	5,544,343	2,000,833	34,488	7,579,664	5,578,831	656,628	159,729	1,391,818	332,236	1,724,054
1955	15,019,988	226	87	6,106,169	2,243,945	33,314	8,383,428	6,139,483	676,350	166,608	1,430,873	346,545	1,777,418
1956	16,265,527	234	90	6,557,858	2,482,611	34,448	9,074,917	6,592,306	676,539	172,515	1,409,168	358,831	1,767,999
1957	17,646,468	240	93	6,911,426	2,686,681	34,505	9,632,612	6,945,931	671,397	177,235	1,399,137	368,649	1,767,786
1958	18,088,632	245	94	7,080,354	2,896,870	31,950	10,009,174	7,112,304	661,208	180,035	1,357,618	374,467	1,732,085
1959	19,296,266	259	100	7,319,163	3,091,594	32,816	10,443,573	7,351,979	665,143	185,107	1,345,641	385,022	1,730,663
1960	21,508,265	286	110	8,082,609	3,621,186	38,022	11,741,817	8,120,631	698,680	196,907	1,399,140	409,567	1,808,707
1961	23,938,949	305	119	8,882,601	4,102,901	40,876	13,026,378	8,923,477	719,166	211,222	1,427,659	439,342	1,867,001
1962	25,393,199	309	126	9,594,237	4,746,050	43,213	14,383,500	9,637,450	718,260	221,665	1,419,199	461,063	1,880,262
1963	27,089,665	316	133	10,151,904	5,147,199	48,069	15,347,172	10,199,973	711,077	227,766	1,393,183	473,753	1,866,936
1964	[1]	337	146	[1]	[1]	[1]	[2] 16,695,950	[2] 10,969,276	[1]	[1]	[1]	[1]	[1]

[1] Not available.
[2] Estimate.

Col. 1 — Central Bureau of Statistics, *Industri* (annual). Data from the annual census of production.
Cols. 2, 3 — Central Bureau of Statistics, *Allman Manads Statistik* (monthly).
Cols. 4, 5, 6 — Central Bureau of Statistics, *Industri* (annual).
Col. 7 — Cols. 4 + 5 + 6.
Col. 8 — Col. 4 + col. 6.
Cols. 9, 10, 11 — Central Bureau of Statistics, *Industri* (annual).
Col. 12 — Col. 10 × 40 hours × 52 weeks.
Col. 13 — Col. 11 + col. 12.

Appendix Table 8B. SWEDEN. Indexes of Unit Labor Cost, Output per Man-hour, and Average Hourly Compensation in Manufacturing and Mining, 1950–64

[1957=100]

Year	Index of production in manufacturing and mining	Index of aggregate compensation		Index of aggregate hours of work		Index of unit labor cost		Index of output per man-hour		Average compensation of all employees per man-hour		Average compensation of wage-earners per man-hour	
		All employees	Wage earners	All employees	Wage earners	All employees	Wage earners	All employees	Wage earners	In kronor	Index	In kronor	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1950	82.1	49.3	50.6	95.1	98.9	60.0	61.6	86.3	83.0	2.82	51.7	2.54	51.2
1951	85.8	59.8	61.8	98.3	102.0	69.7	72.0	87.3	84.1	3.31	60.7	3.01	60.7
1952	84.2	70.5	72.1	96.1	99.0	83.7	85.6	87.6	85.1	3.99	73.4	3.62	72.8
1953	85.0	72.2	73.5	93.3	95.3	84.9	86.4	91.1	89.2	4.22	77.4	3.83	77.1
1954	88.7	78.7	80.3	97.5	99.5	88.7	90.5	91.0	89.1	4.40	80.7	4.01	80.7
1955	94.2	87.0	88.4	100.5	102.3	92.4	93.8	93.7	92.1	4.72	86.6	4.29	86.4
1956	97.5	94.2	94.9	100.0	100.0	96.6	97.3	97.5	97.5	5.13	99.2	4.68	94.9
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	5.45	100.0	4.96	100.0
1958	102.1	103.9	102.4	98.0	97.0	101.8	100.3	104.2	105.3	5.78	106.0	5.24	105.6
1959	107.9	108.4	105.8	97.9	96.2	100.5	98.1	110.2	112.2	6.03	110.7	5.46	110.0
1960	119.2	121.9	116.9	102.3	100.0	102.3	98.1	116.5	119.2	6.49	119.2	5.80	116.9
1961	128.0	135.2	128.5	105.6	102.0	105.6	100.4	121.2	125.5	6.98	128.0	6.25	126.0
1962	135.5	149.3	138.7	106.4	101.4	110.2	102.4	127.3	133.6	7.65	140.3	6.79	136.8
1963	143.0	159.3	146.8	105.6	99.6	111.3	102.7	135.4	143.6	8.22	150.8	7.32	147.6
1964	157.0	[1] 173.8	[1] 157.8	[2]	[2]	[1] 110.4	[1] 100.5	[2]	[2]	[2]	[2]	[2]	[2]

[1] Estimate.
[2] Not available.

Cols. 1, 2, 3, 4, 5 — Indexes of respective series appearing in appendix table 8A.
Col. 6 — Col. 2 ÷ col. 1.
Col. 7 — Col. 3 ÷ col. 1.
Col. 8 — Col. 1 ÷ col. 4.
Col. 9 — Col. 1 ÷ col. 5.
Col. 10 — Col. 7 (table 8A) ÷ col. 13 (table 8A).
Col. 11 — Index of col. 10.
Col. 12 — Col. 8 (table 8A) ÷ col. 11 (table 8A).
Col. 13 — Index of col. 12.

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APPENDIX TABLE 9A. UNITED KINGDOM. BASIC DATA ON PRODUCTION, LABOR COMPENSATION, EMPLOYMENT, AND HOURS OF WORK IN MANUFACTURING, 1950–64

Year	Gross product originating in manufacturing		Implicit price deflator for manufacturing (1958 = 100)	Aggregate wages and salaries (millions of pounds)	Aggregate supplements, all employees (millions of pounds)	Ratio of supplements to wages and salaries (percent)	Aggregate wages (millions of pounds)
	Current value (millions of pounds)	Constant value (millions of 1958 pounds)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1950	4,161	5,742	72.5	2,460	118	4.80	1,812
1951	4,725	6,023	78.4	2,743	138	5.03	2,016
1952	4,738	5,812	81.5	2,976	151	5.07	2,166
1953	5,116	6,163	83.0	3,194	167	5.23	2,357
1954	5,618	6,583	85.3	3,450	177	5.13	2,549
1955	6,169	7,003	88.1	3,806	198	5.20	2,812
1956	6,505	6,933	93.8	4,119	219	5.32	3,016
1957	6,890	7,073	97.4	4,371	232	5.31	3,164
1958	7,003	7,003	100.0	4,502	269	5.98	3,200
1959	7,484	7,423	100.8	4,745	279	5.88	3,357
1960	8,257	8,053	102.5	5,221	294	5.63	3,691
1961	8,556	8,053	106.2	5,599	337	6.02	3,903
1962	8,711	8,053	108.2	5,765	368	6.38	3,960
1963	9,098	8,404	108.3	5,940	393	6.61	4,054
1964	10,114	9,104	111.1	6,495	431	6.64	4,437

Year	Aggregate supplements for wage earners (millions of pounds)	Aggregate compensation		Employment (thousands)		Average weekly hours of work	Aggregate annual hours of work	
		All employees (millions of pounds)	Wage earners (millions of pounds)	Salaried employees	Wage earners	Wage earners	All employees (millions)	Wage earners (millions)
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1950	90	2,578	1,902	1,230	6,060	45.9	17,022	14,464
1951	101	2,881	2,117	1,290	6,180	46.3	17,562	14,879
1952	103	3,127	2,269	1,360	6,090	45.9	17,365	14,536
1953	123	3,361	2,480	1,390	6,160	46.3	17,722	14,831
1954	131	3,627	2,680	1,420	6,230	46.7	18,083	15,129
1955	146	4,004	2,958	1,500	6,340	47.0	18,615	15,495
1956	160	4,338	3,176	1,570	6,320	46.8	18,646	15,380
1957	168	4,603	3,332	1,600	6,290	46.6	18,570	15,242
1958	191	4,771	3,391	1,650	6,110	46.2	18,111	14,679
1959	197	5,024	3,554	1,660	6,100	46.6	18,235	14,782
1960	208	5,515	3,899	1,735	6,305	46.2	18,756	15,147
1961	242	5,936	4,145	1,825	6,325	45.7	18,827	15,031
1962	253	6,133	4,213	1,855	6,235	45.3	18,539	14,687
1963	268	6,333	4,322	1,850	6,150	45.4	18,367	14,519
1964	295	6,926	4,732	1,890	6,200	45.8	18,697	14,766

Cols. 1, 2 ——— Central Statistical Office, *National Income and Expenditure* (annual).
Col. 3 ——— Col. 1 ÷ col. 2.
Cols. 4, 5 ——— Central Statistical Office, *National Income and Expenditure.*
Col. 6 ——— Col. 5 ÷ col. 4.
Col. 7 ——— Central Statistical Office, *National Income and Expenditure.*
Col. 8 ——— Col. 6 × col. 7.
Col. 9 ——— Central Statistical Office, *National Income and Expenditure.* Also, col. 4 + col. 5.
Col. 10 ——— Col. 7 + col. 8.
Cols. 11, 12 ——— Central Statistical Office, *National Income and Expenditure.*
Col. 13 ——— Ministry of Labour, *Ministry of Labour Gazette.*
Col. 14 ——— Col. 11 × 40 hours × 52 weeks + col. 15.
Col. 15 ——— Col. 12 × col. 13 × 52 weeks.

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APPENDIX TABLE 9B. UNITED KINGDOM. INDEXES OF UNIT LABOR COST, OUTPUT PER MAN-HOUR, AND AVERAGE HOURLY COMPENSATION IN MANUFACTURING, 1950–64

[1957=100]

Year	Index of constant-value gross product in manufacturing	Index of aggregate compensation		Index of aggregate hours of work		Index of unit labor cost		Index of output per man-hour		Average compensation of all employees per man-hour		Average compensation of wage earners per man-hour	
		All employees	Wage earners	All employees	Wage earners	All employees	Wage earners	All employees	Wage earners	In pounds	Index	In pounds	Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1950	81.2	56.0	57.1	91.7	94.9	69.0	70.3	88.5	85.6	0.1515	61.1	0.1313	60.2
1951	85.1	62.6	63.4	94.6	97.6	73.6	74.5	90.0	87.2	.1640	66.2	.1423	65.0
1952	82.2	68.0	68.1	93.5	95.4	82.7	82.8	87.9	86.2	.1801	72.7	.1566	71.4
1953	87.1	73.1	74.4	95.4	97.3	83.9	85.4	91.3	89.5	.1897	76.5	.1672	76.5
1954	93.1	78.8	80.4	97.4	99.3	84.6	86.4	95.6	93.8	.2006	80.9	.1771	81.0
1955	99.0	87.0	88.8	100.2	101.7	87.9	89.7	98.8	97.3	.2151	86.8	.1909	87.3
1956	98.0	94.3	95.3	100.4	100.9	96.2	97.2	97.6	97.1	.2327	93.9	.2065	94.5
1957	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.2479	100.0	.2186	100.0
1958	99.0	103.7	101.8	97.5	96.3	104.7	102.8	101.5	102.8	.2634	106.3	.2310	105.7
1959	105.0	109.2	106.7	98.2	97.0	104.0	101.6	106.9	108.2	.2755	111.1	.2404	110.0
1960	113.9	119.8	117.0	101.0	99.4	105.2	103.4	112.8	114.6	.2940	118.6	.2574	117.7
1961	113.9	128.9	124.4	101.4	98.6	113.2	109.2	112.3	115.5	.3153	127.2	.2758	126.2
1962	113.9	133.2	126.4	99.8	96.3	116.9	111.0	114.1	118.3	.3308	133.4	.2869	131.2
1963	118.8	137.6	129.7	98.9	95.3	115.8	109.2	120.1	124.7	.3458	139.1	.2977	136.2
1964	128.7	150.5	142.0	100.7	96.9	116.9	110.3	127.8	132.8	.3704	149.4	.3205	146.6

Cols. 1, 2, 3, 4, 5 ——— Indexes of respective series appearing in appendix table 9A.
Col. 6 ——— Col. 2 ÷ col. 1.
Col. 7 ——— Col. 3 ÷ col. 1.
Col. 8 ——— Col. 1 ÷ col. 4.
Col. 9 ——— Col. 1 ÷ col. 5.
Col. 10 ——— Col. 9 (table 9A) ÷ col. 14 (table 9A).
Col. 11 ——— Index of col. 10.
Col. 12 ——— Col. 10 (table 9A) ÷ col. 15 (table 9A).
Col. 13 ——— Index of col. 12.

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