

economic review

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FEDERAL RESERVE BANK OF CLEVELAND

A LOOK AHEAD AT MANPOWER UTILIZATION

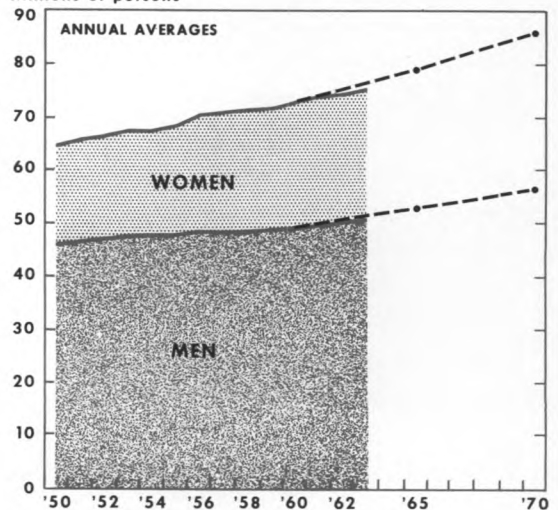
Many economic analysts spend much of their time keeping track of month-to-month changes in key areas. There is a risk, however, in being overly concerned with only current changes in the economy. It is instructive to consider from time to time some of the broader and more far-reaching patterns and implications of various aspects of economic activity. This seems particularly true in the case of unemployment where the monthly returns are watched with an impatience matching the concern about a level of unemployment that is slowly receding.

In the study of unemployment there is a fundamental long-run consideration that warrants serious attention, namely, whether the economy in the years ahead will be able to utilize consistently more than 95 percent of the labor supply, something that has not been done since 1957.

Thus, a closer look at the labor supply in terms of both present and anticipated future size and composition seems in order. Chart 1 shows the total U. S. labor force from 1950 through 1963 in annual averages, and the

expected size in 1965 and 1970 as projected by the U. S. Bureau of Labor Statistics from a 1960 base. According to the projection, the total labor force—which by definition includes the armed forces—is expected to expand to over 85 million persons by the end of this decade. This represents a growth of

1.
U.S. TOTAL LABOR FORCE
1950-1963 (actual) and 1960-1970 (projected)
Millions of persons

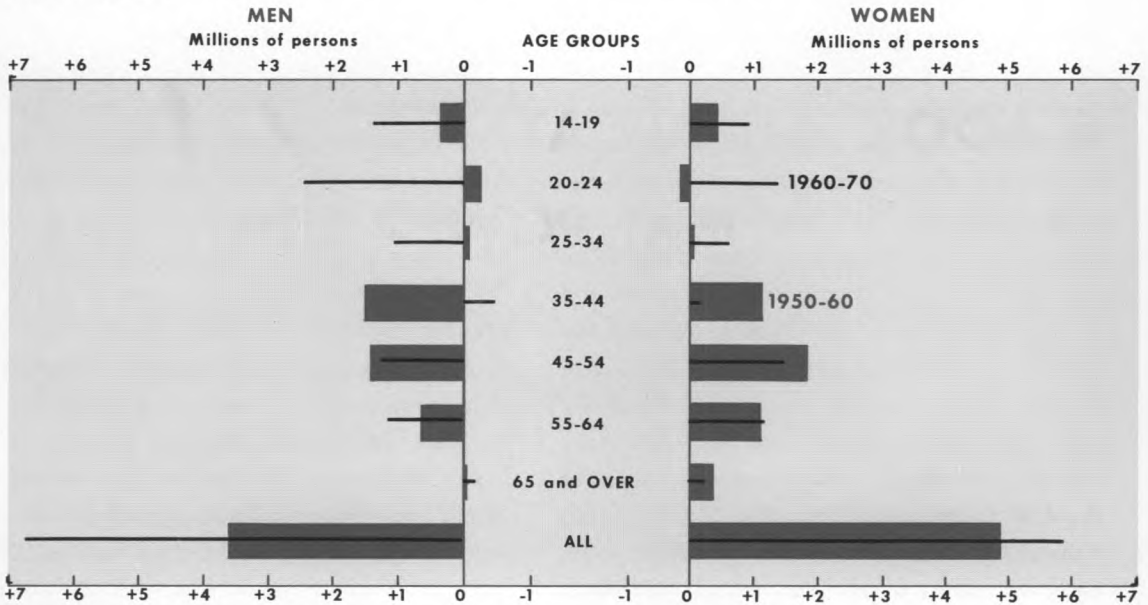


Source of data: U.S. Department of Labor

2.

NET CHANGE IN U.S. TOTAL LABOR FORCE, 1950-60 and 1960-70 (projected)

By Sex and Age Groups



Source of data: U.S. Department of Labor

more than 12½ million persons, or 17 per cent, between 1960 and 1970, a considerably larger gain than the labor force expansion by 8½ million persons, or 13 per cent, during the 1950-60 decade.

Changes in the size of the labor force depend primarily upon (1) changes in the number of the population of working age (14 years and older) and (2) shifts in the rate at which different age-sex groups participate in the work force. Participation rates in turn are subject both to long-term trends and to short-range fluctuations. The long-term trends largely reflect changes in social and economic patterns such as longer periods of formal education preceding employment or the turning away of women from domestic duties toward employment outside the home. The short-range fluctuations frequently coincide with changes in labor market conditions

that tend either to encourage or to discourage active labor force participation by persons not permanently committed to it.¹ Participation rates, of course, also vary seasonally.

The projected labor force figures for 1965 and 1970 shown in Chart 1 are derived by applying observed trends in participation rates to population data without making allowance for short-term fluctuations in rates because of unpredictable cyclical occurrences.

Projected growth will not occur at the same rate for all component groups of the labor force, as Chart 2 illustrates. A larger number

¹ The large volume of monthly movements into and out of the labor force is indicated by the fact that in 1963, for example, average monthly employment was 69 million while a total of about 85 million individual persons were employed—and thus attached to the labor force—at one time or another during the year. Turnover reflects retirements and deaths as well as individual in-and-out movements.

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of men than women is expected to come into the labor force during this decade, which will be a reversal from the 1950's when women contributed more than half the net gain in the labor force, as shown in Table I. However, the proportional gain of women is expected to exceed the increase for men between 1960 and 1970 (see Table II). A large portion of the increase in the number of women will again come from the older age groups as it did in the 1950's. Among the men two age groups are expected to decline in size, one group (65 years and older) because of earlier retirements from the work force and the other (35-44 years) because of the low birth rate in the 1930's. A highly significant change from the preceding decade will occur in the groups under 25 years of age that will enter the labor force in record

numbers — despite declining participation rates — as a result of the rising share of young people in the total population.

As a consequence of these changes, the labor force of 1970 will differ from that of 1960 in several respects. In addition to being much larger, the 1970 labor force will be "younger", with almost one-fourth of its members being men and women less than 25 years old, while barely one-fifth were in that age bracket in 1960, as Table III shows. Conversely, it will contain a smaller proportion of persons in their prime working years (25-54 years old) than did the labor force of 1960. It will still include almost two men for every woman but the proportion of men will be two percentage points lower than it was in 1960.

Some of the changes in the structure of the labor force, especially in conjunction with

TABLE I

U. S. Total Labor Force, by Age and Sex, 1950, 1960, 1970 (in thousands)

	1950	1960	1970	Change 1950-60		Change 1960-70	
	(actual)	(actual)	(projected)	amount	percent	amount	percent
Total Labor Force	64,599	73,081	85,703	+ 8,482	+ 13.1%	+ 12,622	+ 17.3%
Men 14 years and over	45,919	49,563	56,295	+ 3,644	+ 7.9	+ 6,732	+ 13.6
14-19	3,421	3,792	5,170	+ 371	+ 10.8	+ 1,378	+ 36.3
20-24	5,172	4,939	7,424	- 233	- 4.5	+ 2,485	+ 50.3
25-34	11,004	10,940	11,990	- 64	- 0.6	+ 1,050	+ 9.6
35-44	9,930	11,454	11,013	+ 1,524	+ 15.3	- 441	- 3.9
45-54	8,142	9,568	10,825	+ 1,426	+ 17.5	+ 1,257	+ 13.1
55-64	5,797	6,445	7,589	+ 648	+ 11.2	+ 1,144	+ 17.8
65 and over	2,453	2,425	2,284	- 28	- 1.1	- 141	- 5.8
Women 14 years and over	18,680	23,518	29,408	+ 4,838	+ 25.9	+ 5,890	+ 25.0
14-19	1,982	2,408	3,328	+ 426	+ 21.5	+ 920	+ 38.2
20-24	2,681	2,558	3,939	- 123	- 4.6	+ 1,381	+ 54.0
25-34	4,101	4,159	4,719	+ 58	+ 1.4	+ 560	+ 13.5
35-44	4,166	5,325	5,513	+ 1,159	+ 27.8	+ 188	+ 3.5
45-54	3,328	5,150	6,606	+ 1,822	+ 54.7	+ 1,456	+ 28.3
55-64	1,839	2,964	4,108	+ 1,125	+ 61.2	+ 1,144	+ 38.6
65 and over	584	954	1,195	+ 370	+ 63.4	+ 241	+ 25.3

Source: U. S. Department of Labor

Note: Figures may not be additive due to rounding.

TABLE II
U. S. Total Labor Force Participation Rates, by Age and Sex, 1950, 1960, 1970

	1950 (actual)	1960 (actual)	1970 (projected)
Total Labor Force	58.3%	57.4%	57.0%
Men 14 yrs. and over	84.4	79.7	77.1
14-19	53.2	46.3	44.5
20-24	89.0	88.9	86.1
25-34	96.2	96.4	96.2
35-44	97.6	96.4	96.7
45-54	95.8	94.3	94.8
55-64	87.0	85.2	85.2
65 and over	45.8	32.2	26.4
Women 14 yrs. and over	33.1	36.1	38.0
14-19	31.5	30.1	29.5
20-24	46.1	46.1	46.5
25-34	34.0	35.8	37.5
35-44	39.1	43.1	47.0
45-54	38.0	49.3	54.5
55-64	27.0	36.7	41.9
65 and over	9.7	10.5	10.5

Source: U. S. Department of Labor

TABLE III
Percent Distribution of the U. S. Total Labor Force, by Age and Sex, 1950, 1960, 1970

	1950 (actual)	1960 (actual)	1970 (projected)
Total Labor Force	100.0%	100.0%	100.0%
Men 14 yrs. and over	71.1	67.8	65.7
14-19	5.3	5.2	6.0
20-24	8.0	6.7	8.7
25-34	17.0	15.0	14.0
35-44	15.4	15.7	12.8
45-54	12.6	13.1	12.6
55-64	9.0	8.8	8.9
65 and over	3.8	3.3	2.7
Women 14 yrs. and over	28.9	32.2	34.3
14-19	3.1	3.3	3.9
20-24	4.2	3.5	4.6
25-34	6.3	5.7	5.5
35-44	6.4	7.3	6.4
45-54	5.2	7.0	7.7
55-64	2.8	4.1	4.8
65 and over	0.9	1.3	1.4

Source: U. S. Department of Labor

structural changes in employment, may adversely affect the utilization of the labor supply. Problems stemming from the fact that there will be a rising number of young job seekers without previous work experience and special skills competing for a shrinking supply of suitable "entry" jobs have already come to light. Another problem may arise if, as predicted, more men than women come into the labor force while most of the new jobs continue to develop in industries with predominantly female employment.

It is clear that growth in the total volume of the labor supply must be balanced by an expansion in employment if a rise in unemployment is to be avoided. A second dimension is being added as changes in the structure of the labor force make it necessary to accommodate not only a larger number but also a different mix of workers. What are the prospects of accomplishing this dual balance?

It is easier to predict the size of the labor force and the accompanying number of jobs required than it is to forecast how many people actually *will* be employed and what industries and occupations will supply additional employment. Projections of either employment or labor supply, of course, do not purport to be outright predictions of what is going to happen. They are, rather, "conditional" statements, i.e., statements of what is likely to happen *if* certain assumed conditions actively develop. Such assumptions are both more numerous and more variable for employment projections than for projections of the labor supply. Employment projections are generally based upon assumed rates of labor utilization, economic growth and productivity increases. Labor force projections,

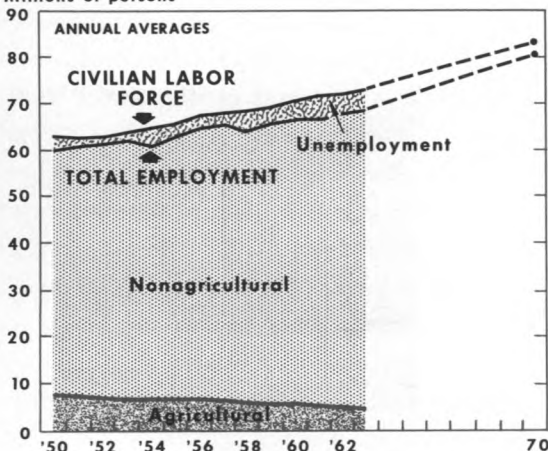
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on the other hand, primarily assume a continuation of past trends in labor force participation rates and a relatively high level of economic activity. Continuity of economic and social patterns and the absence of war or similar catastrophic events are assumed in either case. No assurance that assumed conditions will in fact be present is implied.

Employment projections for 1970 and later dates have been prepared by the U. S. Department of Labor as well as by several other organizations. The Labor Department's projections, which were published as part of the President's Manpower Report for 1963, are based upon the projected labor force as described earlier, and upon such specific assumptions as a three percent unemployment level and a 50 percent increase in GNP from 1960 to 1970. At 97 percent utilization of an assumed 83 million persons in the civilian labor force in 1970, as shown in Chart 3, civilian employment is expected to reach

3. U.S. CIVILIAN LABOR FORCE and EMPLOYMENT

1950-1963 (projected to 1970)
Millions of persons



Source of data: U.S. Department of Labor

80.5 million at the end of the decade. This involves an increase of 13.8 million jobs, or 21 percent, from 1960 to 1970, as compared with a gain of only 6.9 million, or 12 percent, over the preceding 10 years. To accomplish an increase of that size, a rate of growth much larger than the average rate from 1950 to 1963, and even larger than the considerable increase in 1963, will be necessary, as Chart 3 indicates.

Because the volume of agricultural employment is expected to shrink by 1.4 million jobs during the period, the gain in nonfarm employment must exceed the required net gain in total employment by that amount. With only a small portion of the latter gain expected to come from the self-employed group, the bulk of the growth in total employment will have to occur in nonfarm wage and salary jobs whose number, as depicted in Chart 4, is expected to expand by 13.4 million, or 25 percent, from 1960 to 1970 in order to meet the required total employment level. In line with the long-term shift away from the goods-producing industries, only one out of every six additional wage and salary jobs is expected to be in manufacturing and one out of every four new jobs in all the goods-producing industries combined. Trade, government and the service industries are counted upon to supply most of the new employment, as shown in Chart 5.

It is apparent, especially by comparison with the actual amount of employment increase in the 1950's, that a formidable task of providing over one million new jobs annually between 1960 and 1970 has been imposed upon the economy by the accelerated growth in the labor supply. The record shows

that at the pace established during the first three years of this decade, the necessary momentum has not as yet been developed to reach the employment goal for 1970. At the end of the three-year period — which included a recession — total employment was 1.8 million short of its projected level for 1963.² The shortfall reflects a less than expected increase in nonfarm wage and salary employment and a larger than anticipated shrinkage in farm employment together with a loss, instead of the expected moderate gain, in self-employment. It is worth noting that the net gain in total employment deviates from the anticipated pattern in that it includes more women than men, as apparently new employment opportunities continued to develop in larger numbers in industries favoring the employment of women.

The shortfall in employment growth over the past three years reappears, of course, as a similar if smaller gap between the actual and the projected size of the labor force at the end of 1963. Again it is the case that a larger number of women than men entered the labor force during the three years. This deviation from the expected growth pattern suggests that a less favorable labor market outlook for men than for women may have discouraged men from entering the labor force.

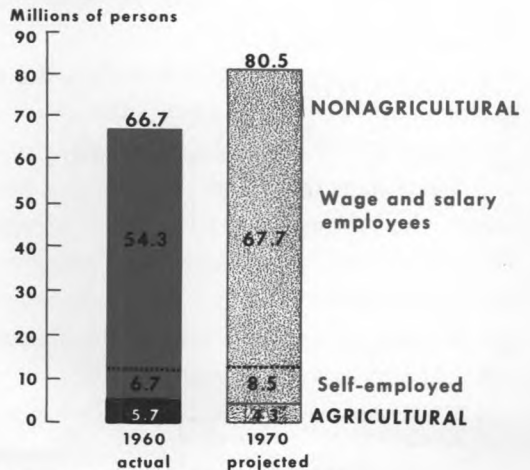
There is no reason to expect the projected growth in employment and the labor force to occur in uniform annual increments. Such was not the case between 1950 and 1960, for example, as Charts 1 and 3 show. The under-

² The annual amount of expected increase in employment was determined, by means of interpolation, to be about 1.2 million jobs at the beginning and about 1.4 million at the end of the 10-year period.

achievement thus far in the first three years of the 1960's may be offset by a larger volume of growth in some of the remaining seven years. As the amount of year-to-year expansion during the first six months of this year indicates, gains in employment and the labor force for 1964 will considerably exceed the projected annual amounts of growth. The pace may quicken further between now and 1970 if, for example, the rate of new family formations increases as expected and thereby sparks additional consumer demand.

Among the assumptions underlying projected employment levels the one concerning labor productivity appears most crucial because of the inverse relationship between productivity and manpower needs, whereby a gain in productivity causes a loss in employment unless offset by a rise in output. While there is no consensus as to the ultimate effect of technological advancement on manpower needs, it has been suggested by many

4.
TOTAL U.S. EMPLOYMENT
1960 and 1970



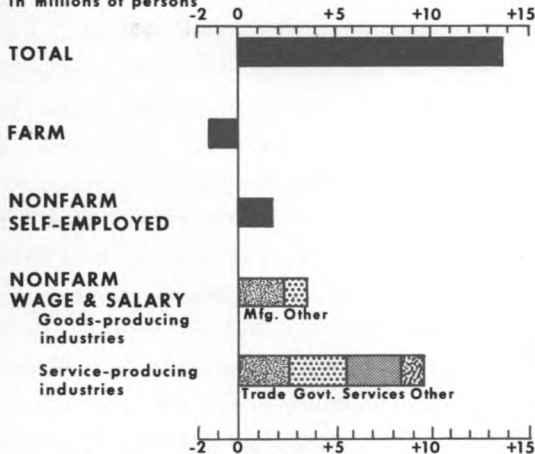
Source of data: U.S. Department of Labor

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5. CHANGE IN U.S. EMPLOYMENT 1960-1970 (projected)

By Industry Division

In millions of persons



Source of data: U.S. Department of Labor

observers that rising productivity is responsible for the displacement of 2 million workers annually for whom replacement jobs must be found in addition to the volume of new employment needed to absorb the growth in the labor force. Thus a rapid rise in productivity might alter the rate of worker displacement and aggravate the problem of developing enough new employment.

Observers of productivity trends in the Department of Labor do not anticipate any drastic changes in the rate of productivity growth for the near future. There are others, however, who believe the time is not far off when automation and electronic data processing will push productivity to a point where manpower displacement will exceed the ability of the hitherto expanding sectors of the economy to absorb the surplus. Thus, they assert, it would be misleading to base employment projections upon past productivity trends.

Manpower implications of automation and technological change were also the concern of a recent study undertaken by the Bureau of Labor Statistics for the President's Committee on Labor-Management Policy.³ The study covers 36 major industries from different sectors of the economy, particularly as to the effect that the introduction of new machinery, processes, and products is likely to have on each industry's unit labor requirements. For each industry it is determined whether anticipated employment losses due to rising productivity are more likely to outweigh, than to be outweighed by, expected additional manpower needs due to increasing volume of production. This determination serves as the basis for grouping the industries as to their probable employment changes by 1970. The group with potentially growing employment is the largest, in terms of present employment, and includes banking, insurance, construction and other nonmanufacturing industries but very few manufacturing activities. Most of the manufacturing industries are found in the group in which employment may decline, or in the middle group where it may change in either direction or not at all.

The study presents no quantitative conclusions and does not appear to modify the Labor Department's earlier employment projections other than by supplementing the projected aggregate totals with some industry detail.

Viewing the problem of manpower utilization during the next several years as merely a matter of bringing aggregate amounts of supply and demand into close balance or,

³ *Technological Trends in 36 Major American Industries*. U. S. Government Printing Office, Washington, D. C. (1964).

more correctly, of creating sufficient employment to keep abreast of the rapidly growing labor force, would be to overlook the qualitative and the geographical aspects of the problem.

"Labor supply" means people with varying amounts of training and skill and with different job preferences and expectations; "employment" stands for jobs that may require anything from highly specialized training to only minimum qualifications. The existence of several million jobless persons lacking the skills that would qualify them to apply for job openings that remain vacant for want of suitable applicants is a constant reminder of the qualitative side of manpower utilization. The skill gap is likely to persist as structural changes in the industrial and occupational distribution of employment continue.

In addition to total numbers and skills, location is another aspect to consider. Labor

supply and employment opportunities may not grow proportionately in all parts of the country. For example, projected state-by-state changes in the size of the labor force from 1960 to 1970 include gains of 50 percent or more anticipated in some of the fast growth states of the West and South along with an expected shrinkage of almost 10 percent in West Virginia's labor force.

Continued efforts to increase total demand for manpower, to provide adequate preparation of prospective workers along with retraining of the disemployed, and to facilitate relocation of workers or industries for better geographic balance are the major tenets of our current manpower policies. In the opinion of some observers, curtailment of the growing labor supply, through measures shortening the number of years spent in the labor force or the number of hours spent at work during each of those years, also merits serious consideration.

ELECTRIC POWER AS A REGIONAL ECONOMIC INDICATOR

Most observers of the economic scene are attentive to manufacturing activity because of its pervasive effects at both national and regional levels. The interdependence of manufacturing activity and employment and income is such that changes in the former tend to be diffused throughout the economy and tend to have varying degrees of impact on various economic regions.

For the nation as a whole, the most comprehensive monthly measure of physical output is the Federal Reserve Board's index of industrial production.¹ Unfortunately, there is no regional counterpart of the national index because it is difficult to collect physical output data for a region when physical activity is not basically homogeneous. Even if the current dollar value of a region's output were available, it would be difficult to adjust the data appropriately for price and quality differences. Similarly, if data on total production worker man-hours were available, there is a problem of determining appropriate adjustments for changes in regional labor productivity. As an illustration, manufacturing

industries in Cleveland produce a large number of products, and it would be virtually impossible to combine these products in a physical index of output. Consequently, alternative methods of estimating manufacturing output must be employed.

For some time, consideration has been given to the use of electric power data as an indicator of changes in manufacturing ac-

Value Added by Manufacture and Electric Power Consumption by Manufacturers, Cleveland Area

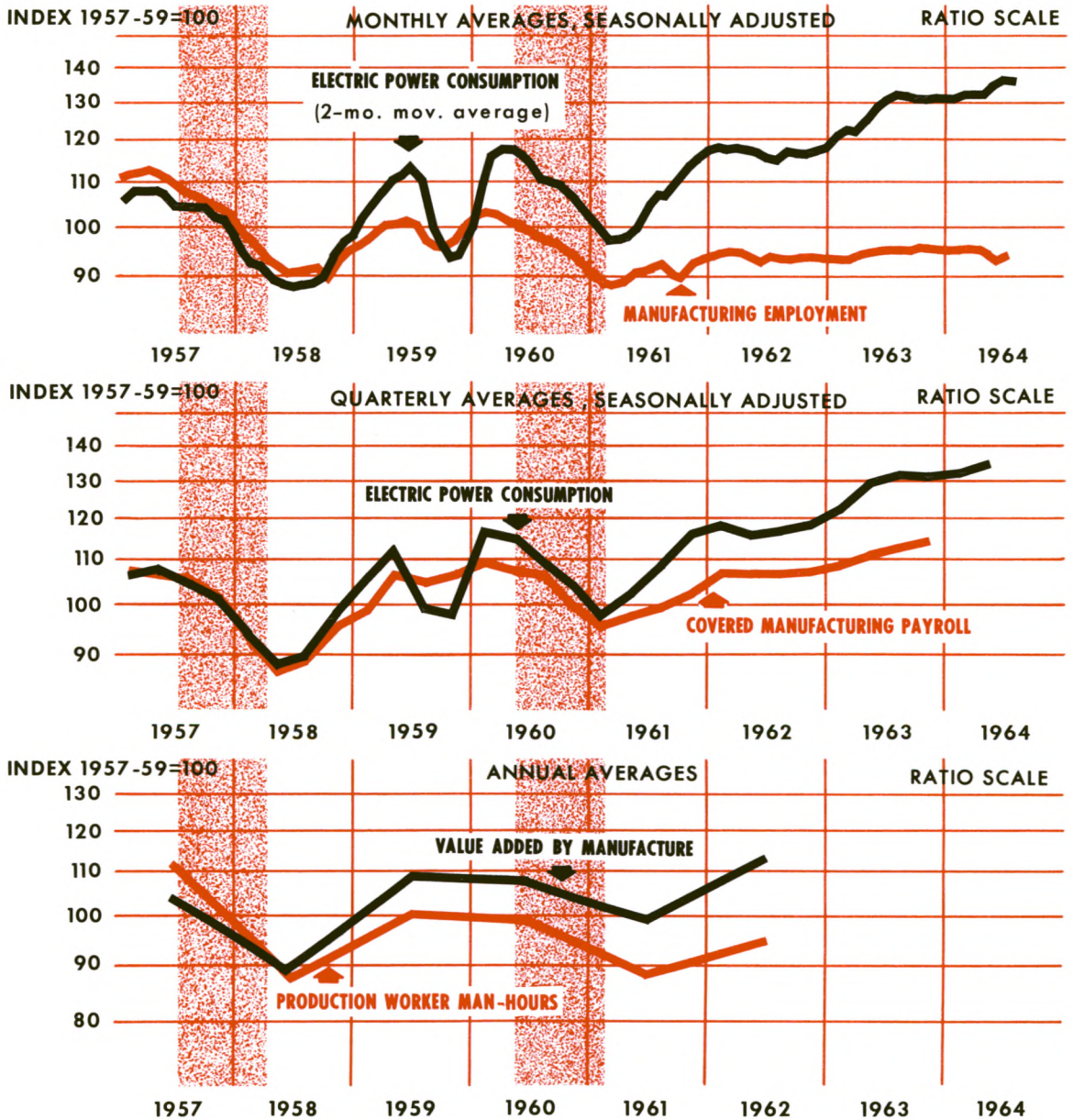
Rank	Major Industry Group	Percent of total value added by manufacture	Percent of total elec. power consumption by manufacturers
1	Transportation equipment . . .	19.2%	15.3%
2	Primary metals	14.8	43.5
3	Machinery, except electrical . .	14.3	5.2
4	Fabricated metal products . . .	10.8	5.7
5	Electrical machinery	9.4	4.5
6	Chemicals and allied products . .	6.6	15.3
7	Printing and publishing	5.5	0.7
8	Food and kindred products . . .	5.5	2.1
	TOTAL, 8 LARGEST	86.1%	92.3%

Sources: 1958 Census of Manufactures;
Federal Reserve Bank of Cleveland

Note: The Cleveland area is the service area of the Cleveland Electric Illuminating Company (see appendix). The value added shares were derived from the 1958 Census of Manufactures, which provides more comprehensive data than the latest Annual Survey of Manufactures (1962). If 1962 value added weights had been used, the relative importance of each industry group would not be affected to any significant degree.

¹ Almost one-half of the F.R.B. monthly index of industrial production is based on production worker man-hours adjusted for changes in output per man-hour. These data are used to estimate the major part of physical output in important industries such as machinery, metal fabricating, and transportation equipment.

1. MEASURES of MANUFACTURING ACTIVITY in the CLEVELAND AREA



Sources of data: Federal Reserve Bank of Cleveland; Ohio Bureau of Unemployment Compensation; Annual Surveys of Manufactures; Census of Manufactures, 1958

NOTE: Shaded areas represent recession periods

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tivity on both national and regional levels. In this connection, the Federal Reserve System is currently developing monthly data on electric power consumption by manufacturing and mining industries. These data can be used on the national level to review components of the industrial production index that are based on man-hour data.

As a participant in the Federal Reserve's national electric power program, this Bank is developing data based on electric power consumed by manufacturing establishments in the Fourth District. This article is concerned with the use of electric power by manufacturing firms in the Cleveland area for the period from 1957 to mid-1964.

Electric power is either purchased from utilities or generated by manufacturing firms, and is used directly or indirectly in the manufacturing process. Although a precise relationship between changes in electric power input and changes in output is difficult to establish, electric power data do throw light on manufacturing activity and thus have a number of advantages as indicators, particularly on the regional level. These advantages include coverage of major manufacturing groupings, cyclical sensitivity, ready availability, and ease of collection. Hence, electric power data used in conjunction with other indicators help to gauge the direction and magnitude of changes in manufacturing activity.

Three industries—primary metals, transportation equipment, and chemicals—consume roughly three-fourths of total electric power used by Cleveland's manufacturing industries but only account for approximately 40 percent of manufacturing output.

Thus, an unweighted kilowatt hour series would not reflect overall changes in Cleveland's manufacturing output. The table highlights the disparity between each major industry's contribution to final output (value added by manufacture) and its importance as an electric power user.

To compensate for this situation, weights have to be applied to the electric power data. Value added by manufacture for each major industry constitutes the best available weighting factor in deriving a comprehensive and representative electric power index.²

Electric power consumption and other measures of manufacturing activity in Cleveland are illustrated in Chart 1. Electric power is plotted as a two-month moving average because cycle billing results in the inclusion of some power sales for the previous month and the exclusion of some sales for the month reported. Although no individual indicator in Chart 1 precisely measures the level of output, the series taken together provide a framework for analysis of the area's performance in manufacturing.

It should be noted that the electric power index has a long-run upward bias as an indicator of output because the manufacturing sector as a whole has been using greater quantities of electricity per unit of output for operating machinery and electronic equipment, heating and cooling processes, lighting, space heating, and air conditioning. Of major concern here, however, is the short-run change in manufacturing activity as reflected by electric power use.

Total manufacturing employment is less

² See appendix for a description of the construction of the electric power index.

responsive to changes in output than is electric power. In the long run, employment has declined relative to output because of increasing productivity, reflecting in part technological improvements and increased capital investment per worker. Employment data for Cleveland cannot be adjusted for number of hours worked each month or for changes in labor productivity.

The impact of manufacturing employment on the local economy is imparted through income. That is to say, changes in manufacturing activity and employment generate changes in payrolls, which in turn influence spending and borrowing of businessmen and consumers. To place this in perspective, the quarterly index of manufacturing payroll for the Cleveland area is shown in the center panel of Chart 1.³ It is evident that manufacturing payroll tends to move in concert with the electric power index, although recently the payroll series has lagged somewhat.

At the national level, the manufacturing payroll index varies closely with the index of

manufacturing activity that is part of the Federal Reserve's index of industrial production. Covered manufacturing payroll, however, is more sluggish than output because wages and salaries of nonproduction workers are relatively stable. The relationship of the annual index of covered manufacturing payroll for the U. S. to the index of manufacturing is exceptionally good for the years 1959 through 1962 (the latest year available).

A reasonable assumption then is that the annual level of manufacturing payroll for Cleveland is a crude approximation to the level of manufacturing output. A corollary of this proposition is that the increasing gap between the payroll and the electric power indexes provides some indication of the long-run upward bias in electric power.

The broad movements of manufacturing activity in Cleveland are indicated by the lower panel of Chart 1. Here, value added by manufacture and production worker man-hours confirm the cyclical swings evident in the various series plotted in the upper two panels. Unfortunately, in addition to lack of timeliness, neither value added by manufacture nor production worker man-hours can be adjusted to annual benchmarks of physical output.

APPENDIX

The kilowatt hour data for the Cleveland area were reported by the Cleveland Electric Illuminating Company and by large plants in the steel, chemicals, and textile industries that generate a substantial portion of their electric power requirements. The data were classified by 18 major industry groups, seasonally

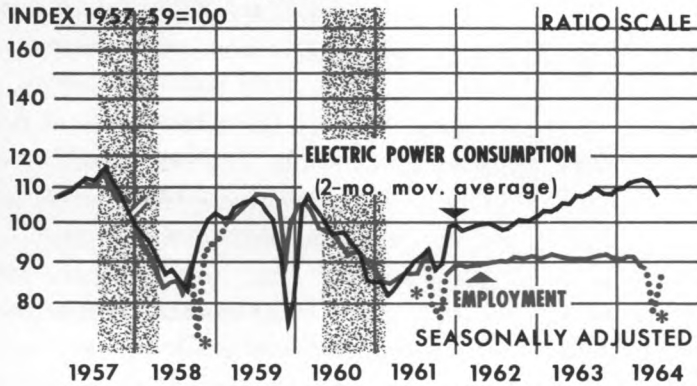
adjusted, and converted to percent relatives with the monthly average of 1957-59 taken as 100. The adjusted percent relatives for each industry group then were combined with value added weights to form the electric power index for all manufacturing. Approximately 2,000 firms, which use more than 95 percent of

³ Covered manufacturing payroll refers to payments to employees covered by Ohio unemployment compensation law—virtually all manufacturing employees in the Cleveland area.

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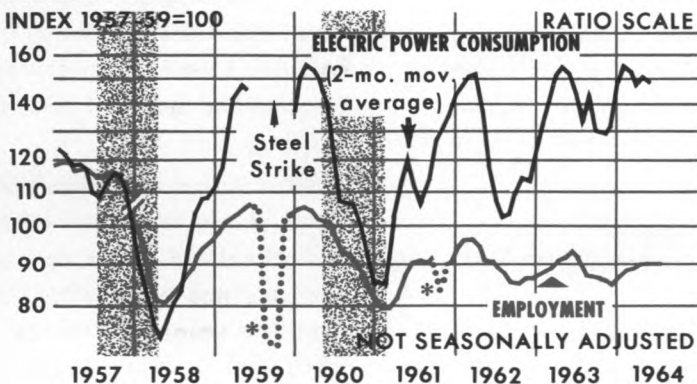
2.

TRANSPORTATION EQUIPMENT



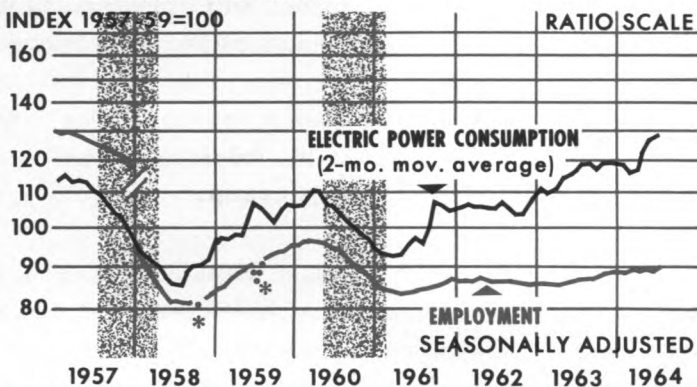
3.

PRIMARY METALS



4.

Nonelectrical Machinery



*Labor-management disputes

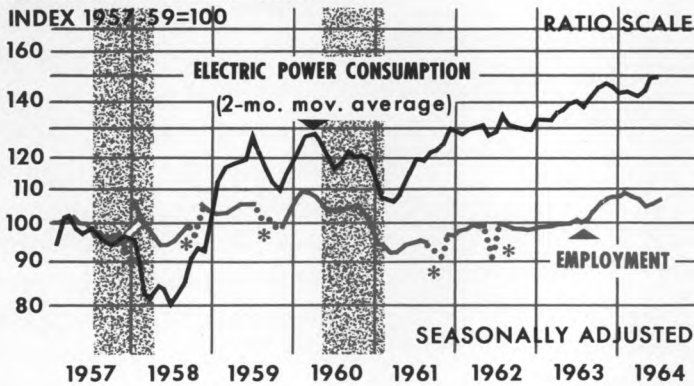
Sources of data: Federal Reserve Bank of Cleveland; Ohio Bureau of Unemployment Compensation

The most important industries in Cleveland are transportation equipment, primary metals, electrical and nonelectrical machinery, and fabricated metal products, accounting for two-thirds of the area's value added by manufacture. These industries are particularly sensitive to fluctuations in spending for both capital goods and consumer durable goods. In charts 2 through 6, the performance of each major industry is indicated by changes in employment and the use of electric power.

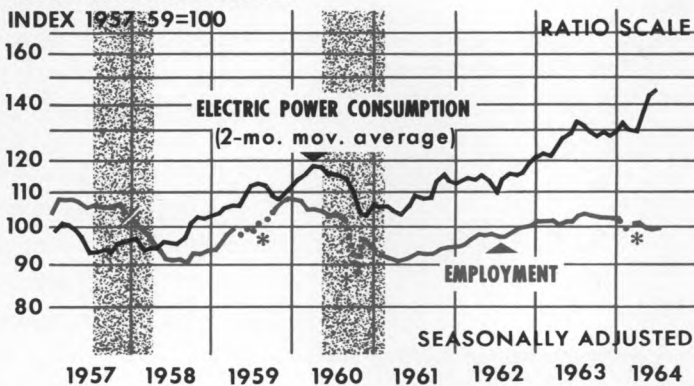
Transportation equipment manufacturing in Cleveland is concentrated in motor vehicles and parts production. Employment in that industry kept pace with the use of electric power until the latter half of 1962, when divergence occurred between the two series. This may reflect increased use of electric power as the industry turned to additional reliance on capital-oriented processes.

The *primary metals* industry in Cleveland has experienced wide swings in employment and in the use of electric power, and is the

5. FABRICATED METAL PRODUCTS



6. ELECTRICAL MACHINERY



*Labor-management disputes

Sources of data: Federal Reserve Bank of Cleveland; Ohio Bureau of Unemployment Compensation

NOTE: Major industry groups classified in accordance with Standard Industrial Classification Manual - 1957 Revision. (U. S. Bureau of Budget). 1957 employment data (based on 1945 Standard Industrial Classification) are not strictly comparable with data of subsequent years.

Appendix (continued)

the total electric power consumed by all manufacturing establishments in the Cleveland area, are included in the index.

The electric power index and the value added weights, which were derived from

the 1958 Census of Manufactures, cover the service area of the Cleveland Electric Illuminating Company, i.e., Cuyahoga and Lake Counties, most of Ashtabula and Geauga Counties, plus the north-eastern corner of Lorain County.

most volatile industry in the area, as reflected by the chart. The performance of the steel industry during recent years has made it difficult to develop reliable seasonal adjustments for the use of electric power.

The nonelectrical machinery industry in Cleveland experienced a brief recovery from the 1960 recession, but then leveled off. Expansion was renewed once again in the fall of 1962, continuing through the first half of 1964.

Production of fabricated metal products in Cleveland has remained on an upward course since early 1961, except for some hesitancy in 1962.

As measured by employment and electric power consumption, the electrical machinery industry has pursued a course similar to that of the fabricated metal products group.

**50 YEARS
FEDERAL RESERVE
SYSTEM**

