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Volume Author/Editor: Geoffrey H. Moore, ed.

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Chapter Authors: Geoffrey H. Moore

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## 1. Sources and Descriptions



## Cyclical Indicators

### 1.0 AVERAGE WORKWEEK, MANUFACTURING, BUREAU OF LABOR STATISTICS, MONTHLY, 1932-58. UNIT: HOURS PER WEEK.

*Source:* For 1932-38, U.S. Department of Labor, Bureau of Labor Statistics, mimeographed release LS 53-0902, "Production-Worker Employment, Payroll, Hours and Earnings in Manufacturing Industries, 1909, 1914-1938," September 1952; for 1939-50, LS 53-2884, February 1953; for 1951-57, unnumbered releases, June 1956 and July 1958; thereafter, *Employment and Earnings*, monthly issues. Current data are also obtainable from *Monthly Report on the Labor Force: Employment, Unemployment, Hours and Earnings*. Seasonal adjustment by NBER (using Census Method II since 1949).

The average workweek is derived by dividing total production worker man-hours paid for per week in manufacturing by the corresponding number of production workers.

The first tabulations of workweek information by the BLS appeared in the January 1933 issue of the *Monthly Labor Review*. The compilations were based on reports supplied by identical establishments in October and November 1932 in some 75 of the 89 manufacturing industries in 14 industry groups included in the BLS monthly employment survey. The sample data related to actual man-hours paid for rather than nominal man-hours (obtained by multiplying the total number of employees in the establishment by the plant operating time). Employment in the current month was used to weight industry averages to derive industrial group and total manufacturing estimates. Because many firms did not keep adequate records of hours, man-hour data were based on a smaller sample than employment figures. However, at no time was the coverage less than 50 per cent of establishments reporting in the employment sample, and published data were limited to industries where man-hour information covered at least 20 per cent of total employees in the industry. By 1940 the man-hour sample had nearly the same coverage as the employment sample. For a description of the BLS monthly employment survey and its evolution, see notes to series 13.0, Nonagricultural Employment, BLS, and 13.1, Factory Employment Index, BLS.

As currently compiled (1958), workweek data are based on reports supplied by some 47,000 establishments employing more than twelve million workers. The figures cover both full- and part-time production and related workers who received pay for any part of the pay period ending nearest the 15th of the month. The number of man-hours reported include hours paid for holidays, vacations, and sick leave. Wherever an establishment payroll is not reported weekly, the figures are reduced to a weekly basis.

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There have been no basic changes in the estimating procedure other than those stemming from the adoption of the U.S. Bureau of the Budget's Standard Industrial Classification System in 1947. For details of the statistical preparation of this series, see "Technical Notes on Revisions of Employment, Hours and Earnings" (available from BLS on request) and *Techniques of Preparing Major BLS Statistical Series*, BLS Bulletin 1168, December 1954.

The average workweek series reflects the effects of shifts in industrial composition (shifts from short-hour industries to long-hour industries and vice versa) as well as such factors as strikes, overtime and part-time work, labor turnover, and accidents. In recent years the figures have, to an increasing degree, exceeded the number of hours actually worked because of the increasing amount of paid sick-leave, holidays, and vacation. Since 1956 the BLS has compiled separate monthly data on overtime hours.

The BLS also compiles and publishes monthly data on the average workweek reported by establishments in various nonmanufacturing industries. The *Monthly Report on the Labor Force* provides a comprehensive series on average hours worked per week by all nonagricultural employees, and also distributions showing the number of persons at work by number of hours worked per week. These data, derived from a household survey rather than from reports by employers, represent hours actually worked and include hours worked by multiple-job holders. For a comparison of these series and an analysis of diffusion indexes of hours, see Volume I, Chapter 15. For related annual series on the work-week extending back to 1860, see *Historical Statistics of the United States, 1789-1945* (U.S. Department of Commerce, 1949).

For a comprehensive discussion of weekly hours and related economic activities, see Gerhard Bry, *The Average Workweek as an Economic Indicator*, Occasional Paper 69, New York, NBER, 1959.

### 1.1 AVERAGE WORKWEEK, 25 MANUFACTURING INDUSTRIES, NATIONAL INDUSTRIAL CONFERENCE BOARD, MONTHLY, 1920-48.

UNIT: HOURS PER WEEK.

*Source:* For 1920-33, National Industrial Conference Board, *Wages, Hours, and Employment in the U.S., 1914-1936*, New York, 1936, pp. 44-47; for 1934-40, *The Conference Board Economic Record*, March 28, 1940, pp. 115-116; for 1941-July 1948, *The Conference Board Management Record*, Dec. 11, 1941, p. 520, and following monthly issues. Seasonal adjustment by NBER.

Based on reports obtained by mail questionnaires from cooperating establishments representing 25 industries, the data relate to the hours worked and/or paid for per wage earner during the first full week of the month. (If a generally recognized holiday falls in the first week, figures relate to the succeeding week.) Before January 1945, the term

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wage earner refers to piece-rate and hourly paid workers. Thereafter the term embraces all production and related workers regardless of method of payment. (See *Management Record*, March 1945, pp. 80-82.)

Average weekly hours are computed for all wage earners and the following groups: males, common labor and unskilled; males, semiskilled and skilled; and females. The reports from plants in each industry are combined and averages are computed for the industry as a whole (and by groups within each industry) by dividing the man-hour totals by the appropriate total number of wage earners. The separately computed industry averages are in turn weighted according to the relative importance of the industry in employment, as shown by the Census of Manufactures, to derive average hours of work for the 25 industries combined.

The coverage of the NICB sample fluctuated around that for June 1936 when it embraced 1,532,000 workers in 1,886 plants, representing 35 per cent of the 25 manufacturing industries concerned and 20 per cent of the total workers in manufacturing. Because of variations in the number of reporting firms, the averages are not strictly comparable from month to month. Generally, estimates from identical samples of companies are published for at least two consecutive periods. The survey was discontinued with the figures for July 1948. For a comparison with the more comprehensive series (1.0) published by the Bureau of Labor Statistics since 1932, see Volume I, Chapter 15.

2.0 GROSS ACCESSION RATE, MANUFACTURING, BUREAU OF LABOR STATISTICS, MONTHLY, 1919-58. UNIT: NUMBER PER 100 EMPLOYEES.

3.0 LAYOFF RATE, MANUFACTURING, SAME.

*Source:* For 1919-29, U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, July 1929, February 1931 (data compiled by Metropolitan Life Insurance Company); for 1930-58, *ibid.*, May 1942 and subsequent monthly issues. Current figures are obtainable more promptly from U.S. Department of Labor monthly release, "Labor Turnover." Seasonal adjustment by NBER (using Census Method II since 1930).

These series are two of a number of turnover rates compiled to measure the flow of workers into and out of employment with individual establishments. The statistics since 1943 cover all employees on the payroll (of an establishment), i.e. including full- and part-time, permanent and temporary wage and salary workers. By "gross accessions" is meant all permanent and temporary additions to the work force during the calendar month, whether new or rehired workers. Returns to work after a layoff or after any unauthorized absence of at least seven calendar days are considered as accessions. "Layoffs" are unpaid job terminations during the calendar month lasting or expected to last for more than seven

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consecutive calendar days. The terminations are initiated by management without prejudice to the worker, for such reasons as the shortage of orders or materials, the conversion of a plant to a new product, or the introduction of labor-saving machinery or processes.

Gross accession and layoff rates are estimates of the ratios of the cumulated monthly amounts of the respective turnover items to the total number of employees on the payrolls of the reporting establishments during the week ending nearest the 15th of the reference month. Currently (since December 1956) the estimates are based on data obtained by mail survey from some 10,200 manufacturing establishments employing about six million workers. Excluded from the reporting sample are those industries with marked seasonality and/or small firms, such as printing and publishing, canning and preserving, fertilizer manufacture, and women's and misses' outerwear.

Industry gross accession and layoff rates are computed directly from the industry sample, unweighted. For each industry group and all manufacturing, the rates are obtained by weighting the rates for the component industries by employment in these industries.

Estimates beginning January 1930 are not comparable with those for earlier years. Figures for 1919-29 are unweighted medians of rates derived by the Metropolitan Life Insurance Company from reports of cooperating manufacturers. For each manufacturer the insurance company computed the ratios of accessions and layoffs to the average number on the payroll. The ratios were arrayed in order of magnitude and the medians selected. The rates were stated on an annual basis. The National Bureau converted the original estimates, 1919-29, into monthly rates by dividing by 11.77, 12.17, 12.62, and 13.04, respectively, depending on whether the number of days in a given month is 31, 30, 29, or 28. The series compiled by the BLS, beginning January 1930, consists of arithmetic averages instead of median rates. This shift raised the series substantially, as the overlapping data show.

Beginning January 1943, labor turnover data refer to all employees, whereas for previous years they relate only to production workers. Other changes in compiling turnover rates include the shift in October 1945 of the employment base from average employment on the last day of the current and preceding months to employment during the midweek, and the adoption of the SIC code structure in 1949.

The BLS prepares monthly rates for other aspects of labor turnover (new hires, quits, discharges). These series are available by industry for all employees and for men and women separately. For a full description of these and related series, see *Techniques of Preparing Major BLS Statistical Series*, BLS Bulletin 1168, December 1954, and the references cited therein. The cyclical behavior of labor turnover rates is discussed in Volume I, Chapters 15 and 16.

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### 3.1 NUMBER OF PERSONS ON TEMPORARY LAYOFF, BUREAU OF LABOR STATISTICS, MONTHLY, 1947-48. UNIT: 1,000 PERSONS 14 YEARS OLD AND OVER.

*Source:* For 1947-56, U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-50, Nos. 13, 19, 31, 40, 45, 59, 67, 72; for 1957-58, Series P-57, No. 176, and following issues. Seasonal adjustment by NBER (using Census Method II).

This series represents the number of persons temporarily suspended from their jobs by employers, for such reasons as lack of orders, model change-overs, termination of seasonal or temporary employment, inventory taking, or introduction of labor-saving devices. Each worker was given definite instructions to return to work within thirty days of the date of layoff. In accordance with Bureau of Census concepts adopted in 1940, persons on temporary layoff were classified as employed on the ground that they actually had jobs reserved for them and consequently did not want or could not accept jobs. Criticism of this classification led to the publication beginning in 1947 of separate statistics on such workers under the category: employed persons with a job but not at work because of temporary layoff. Beginning with data for January 1957, persons on temporary (less than 30-day) layoff were no longer included in the category "with a job but not at work," but were henceforth classified as unemployed. However, separate figures are provided for this group.

The estimates are derived from a sample survey of households as described for series 13.3 and 14.2. Because of changes in method of measurement from time to time, the data are not strictly continuous. For example, the change-over from the 68-area to the 230-area sample during the 1953-54 period raised the level of the series by 18 to 45 per cent. For a listing of these changes as well as a more complete discussion of the data see the note to series 13.3. For a related series on layoffs obtained from establishment reports, see series 3.0.

### 3.2 INITIAL CLAIMS, UNEMPLOYMENT INSURANCE, BUREAU OF EMPLOYMENT SECURITY, MONTHLY, 1946-58. UNIT: THOUSAND CLAIMS.

*Source:* For 1946-57, U.S. Department of Labor, Bureau of Employment Security, special tabulation furnished to NBER; for 1957-58, "Unemployment Insurance Claims," weekly release. Seasonally adjusted by NBER (using Census Method II).

This series measures the number of workers insured under state programs who during the week of the 12th of the month filed the first claim in a benefit year upon becoming newly unemployed or who filed the



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first claim at the beginning of a second or subsequent period of unemployment in the same benefit year. A benefit year is the twelve-month period within which a worker may receive his annual benefits, if eligible. Initial claims establish the starting date for any insured unemployment which may be determined. They may not result in benefit payments, for they may represent the claims of persons on strike, voluntary quits, and others who do not meet benefit eligibility requirements. The series is available on a weekly basis.

Data beginning July 1949 exclude transitional claims—claims filed by persons, already in a claimant status, for determination of benefit rights in a new benefit year. Continuity of the series is also affected by the expanding coverage of the various state programs for the partially employed, seasonal workers, and employees of small firms.

A series on initial claims for state unemployment insurance benefits representing the total for the month on a split week basis is available back to 1938. See *Business Statistics*, the biennial statistical supplement to the *Survey of Current Business*, and current issues of the *Survey*. For further discussion of initial claims and related series, see the sources cited in the notes to series 14.4, Insured Unemployment. For seasonally adjusted weekly data, see Volume I, Chapter 18.

### 4.0 NEW ORDERS, DURABLE GOODS MANUFACTURING INDUSTRIES, VALUE, CENSUS, OFFICE OF BUSINESS ECONOMICS, MONTHLY, 1939-58.

UNIT: MILLION DOLLARS.

*Source:* For 1939-47, U.S. Department of Commerce, Office of Business Economics, mimeographed release, "Manufacturers' New and Unfilled Orders," July 1952; for 1948-49, *Survey of Current Business*, November 1952; for 1950, *ibid.*, December 1953; for 1951-52, *Business Statistics*, 1955 edition; for 1953-55, OBE Industry Survey, "Manufacturers' Sales, Inventories, and Orders," August 1957; for 1956-58, *Business Statistics*, 1959 edition. Current figures are obtainable from OBE, *Business News Reports, Manufacturers' Sales, Orders, and Inventories*. Seasonally adjusted by NBER, 1939-47; by OBE, 1948-58.

This series represents the total current dollar volume of net new business—gross orders less cancellations—placed with durable goods manufacturers. New orders are defined as commitments to buy, received and accepted by a company, involving either the immediate or future delivery of goods. In the case of durable goods producers, a lag normally exists between the receipt of an order and the shipment of the goods, and this lag gives rise to order backlogs. Since the change in unfilled orders during the month is equivalent to new orders less sales and cancellations, net new orders are computed by adding net sales to the change in unfilled

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orders during the month. Derived in this way, new orders are arithmetically consistent with sales and unfilled orders. Occasionally cancellations exceed new orders, in which case net new orders are negative (cf. durable goods orders in August 1945).

Basic data for the estimates are the reports on sales and unfilled orders collected from individual firms by the Bureau of the Census. This information is used to extrapolate benchmark estimates based on latest available *Statistics of Income* data. The 1958 survey sample accounted for more than 50 per cent of unfilled orders for all manufacturing (in 1947, 25 per cent).

For a description of the methods used to compile the series and an interpretation of the data, see "An Approach to Order Analysis," by Walter W. Jacobs and Genevieve B. Wimsatt, *Survey of Current Business*, December 1949. For a cyclical analysis of these and other data on new orders, see Volume I, Chapter 14.

### 4.1 NEW ORDERS, DURABLE GOODS MANUFACTURING INDUSTRIES, VALUE, NATIONAL INDUSTRIAL CONFERENCE BOARD, MONTHLY, 1929-44. UNIT: 1935-39 = 100.

*Source:* National Industrial Conference Board. For 1929-39, furnished by NICB; for 1940-July 1944, *The Economic Almanac*, New York, 1942-45. Data are available only in seasonally adjusted form.

This series is designed to measure changes in the current dollar value of new orders for durable goods placed with manufacturers. The basic data are the direct reports of firms in the NICB cooperating sample that list new orders as a separate item. The coverage of the sample is limited, perhaps close to one-sixth of total orders for the represented industries.

The index is a weighted arithmetic average of the relatives for each industrial group. Chain indexes based on the percentage change in an identical sample of reporting companies from one month to the next were constructed for each of the industries, using 1936 as the starting year. These indexes were placed on a 1935-39 base and combined with weights derived from the total value of product for each industry as reported in the 1937 Census of Manufactures. The industries covered in the composite index are: automobile equipment (beginning January 1935), building equipment, electrical equipment, iron and steel, machinery, nonferrous metals, metal products, office equipment (beginning January 1935), railroad equipment, and house furnishings (beginning January 1934).

Indexes of inventories and shipments have been computed by the NICB for the same period, 1929-July 1944. For descriptions of these and related series, see "Inventories, Shipments, Orders, 1929-1940 Revised Indexes," supplement to the *Conference Board Economic Record*, Dec. 20, 1940. See also Volume I, Chapter 14.

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### 4.2 NEW ORDERS, DURABLE GOODS MANUFACTURING INDUSTRIES, PHYSICAL VOLUME, NBER, MONTHLY, 1920-33. UNIT: 1923-25 = 100.

*Source:* National Bureau of Economic Research. Based on data in *Survey of Current Business*, September 1928 (pp. 19-20) and subsequent issues through 1933. Seasonally adjusted by NBER.

This index, representing the physical volume of new orders for durable goods received by manufacturers, is a weighted aggregate of the durable goods components of a composite index of new orders compiled by the Department of Commerce, 1920-33. The constituent items and their respective weights (per cent) are as follows: iron and steel, 27.1; lumber, 61.9; clay and glass products, 2.5; and transportation (excluding automobiles), 8.5. These percentages are based on the original weights computed by Department of Commerce from Census estimates of value added in manufacturing for 1923 and 1925.

The source gives a description of the commodity data upon which this index is built. For an analysis of the index and related commodity data, see Volume I, Chapter 14.

### 5.0 HOUSING STARTS, NUMBER OF NEW PERMANENT NONFARM DWELLING UNITS, CENSUS, MONTHLY, 1939-58. UNIT: THOUSANDS, ANNUAL RATE.

*Source:* For 1939-45, U.S. Department of Labor, Bureau of Labor Statistics, *Construction during Five Decades, Historical Statistics, 1907-52* (BLS Bulletin 1146); for 1946-58, *Nonfarm Housing Starts 1889-1958* (BLS Bulletin 1260); currently in *Construction Review*. Preliminary estimates appear in the Bureau of Census monthly publication *Construction Reports, Housing Starts* (issued by the BLS prior to July 1959). Seasonally adjusted by compiling agency. Unadjusted monthly totals converted to annual rates by NBER to permit comparison with seasonally adjusted data.

This series measures the volume of privately owned new permanent nonfarm housekeeping units (dwelling places with cooking facilities) on which construction was started during the month. One-, two-, and multi-family structures are included. The data do not cover trailers, transient hotels and dormitories without housekeeping facilities, houseboats, sheds, and shacks. Also excluded are temporary units erected under federal defense and veterans' emergency housing programs, housing units incidental to nonresidential construction, and residences made by remodeling of existing residential structures or conversion of nonresidential building.

Beginning January 1954 and prior to May 1960, the estimates are based on information obtained (1) by mail questionnaires from some 7,000 local officers issuing building permits throughout the country and (2) by field surveys conducted in a sample of 53 areas where permits are

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not issued embracing 131 counties. For a description of methods used earlier, see "Estimating National Housing Volume," by Dorothy K. Newman, BLS Bulletin 993, Chapter III. According to the 1950 Census, the permit-issuing segment of the sample covers about 80 per cent of nonfarm population and 85 per cent of nonfarm housing. The reports from building-permit places are classified by type of structure (i.e. one-, two-, multi-family), by state and geographic division, by size of place, and by metropolitan or nonmetropolitan location. Within each class, the figures are adjusted to compensate for places not reporting and then summed to give the total number of dwelling units authorized. These estimates are then adjusted to reflect the number of housing units started, by deducting estimates of abandoned permits and units to be started in later months and adding units authorized earlier but not started until the reference month. Currently lapsed permits are about 1 to 2 per cent of the total. Some 65 per cent of dwelling units are started in the month of permit issuance and 95 per cent by the end of the two following months. In areas where building permits are not issued, total starts are derived by relating the observed volume of new dwelling unit starts in the non-permit parts of each of the 53 sample areas to the estimated starts in the permit places of the same areas.

Preliminary estimates of housing starts are available as early as the 15th of the month following the reference month. The final figures, prepared in greater detail, lag behind at least three months. On the average, for the period 1949-56, the two estimates differed by only 3 per cent but ranged from an increase of 11.9 per cent in the final estimate over the preliminary to a decrease of 5.9 per cent. For details on new housing starts and related series, see *Techniques of Preparing Major BLS Statistical Series*, BLS Bulletin 1168, Chapter II, and *Nonfarm Housing Starts, 1889-1958*, BLS Bulletin 1260. A new series on housing starts effective with January 1959 data is described in *Construction Reports: Housing Starts*, C 20-11 (Supplement), May 1960.

For annual estimates of nonfarm housing starts back to 1889, see David M. Blank, *The Volume of Residential Construction, 1889-1950* (Technical Paper 9, New York, NBER, 1954); and BLS Bulletin 1260.

The BLS also issues monthly figures on the number of new dwelling units authorized in permit-issuing places without adjustment for canceled permits or the elapsed time between permit issuance and start of construction. This series extends back to 1921. See "Building Construction in Principal Cities of the United States, 1921-48" (BLS, June 1949); "Trends in Building Permit Activity," BLS Bulletin 1243, May 1959; and the Census *Construction Reports: Building Permits*, C-40 (formerly published by the BLS as "Building Construction" and "Building Operations in Principal Cities of the U.S."). For an annual index of number of

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residential buildings beginning 1856 and an index of number of dwelling units beginning 1871, both based on residential building permits issued in a varying number of cities, see Clarence D. Long, Jr., *Building Cycles and the Theory of Investment* (Princeton, 1940).

Other monthly series reflecting the early stages of housing construction are the FHA mortgage applications for new home construction, VA appraisal requests (see current issues of *Housing Statistics*), and residential mortgage investment commitments (new and outstanding) of life insurance companies. See James J. O'Leary, "Forward Investment Commitments of Life Insurance Companies," in *The Quality of Economic Significance of Anticipations Data*, Special Conference Series 10, Princeton for NBER, 1960.

5.1 RESIDENTIAL BUILDING CONTRACTS, FLOOR SPACE, F. W. DODGE CORPORATION, MONTHLY, 1919-58. UNIT: MILLION SQUARE FEET.

5.2 RESIDENTIAL BUILDING CONTRACTS, VALUE, F. W. DODGE CORPORATION, MONTHLY, 1915-58. UNIT: MILLION DOLLARS.

6.0 COMMERCIAL AND INDUSTRIAL BUILDING CONTRACTS, FLOOR SPACE, F. W. DODGE CORPORATION, MONTHLY, 1919-58. UNIT: MILLION SQUARE FEET.

*Source:* F. W. Dodge Corporation, *Dodge Construction Statistics*. Also, for 1925-58, U.S. Department of Commerce, Annual Supplement, 1932, and subsequent biennial supplements to the *Survey of Current Business*. Current data available in F. W. Dodge Corporation's monthly statistical bulletin, "Construction Contracts—U.S. Summary," and for series 5.2 in the *Survey of Current Business*. Seasonally adjusted by NBER.

These statistics represent construction contracts for work about to get under way except that, where it is impractical to adhere strictly to the "construction contract" criterion, the statistics are based on information at the nearest measurable equivalent of the contract stage (e.g. building permits or construction starts).

From 1919 through 1955 the statistics were compiled from information reported in the F. W. Dodge Corporation's daily construction news service known as "Dodge Reports." These cover projects located in small towns and rural districts in addition to large cities, a negligible volume of farm building, public and privately owned projects, new construction, additions and major alterations (the latter included in dollar figures only), but no maintenance or repair work. In general, force account work is included only when executed with materials earmarked for specific projects at the time materials are purchased. Minimum project valuations for privately owned work have varied over time, ranging generally from \$4,000 before 1930, \$500 during the early 1930's, and then upward progressively

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to \$4,000, \$6,000, and currently \$10,000. Publicly owned projects are included without minimum except for minor deviations.

At their inception in 1891, Dodge Reports were limited to the New England area. The coverage was substantially enlarged in 1910, 1915, and 1919, by which time statistics for 27 eastern states (east of the Rocky Mountains) were available. The inclusion of nine southern states, beginning with August 1920, increased the number to 36; Texas was added in May 1924, making a total of 37 states. Since January 1956, Dodge statistics have covered the 48 states. Data in these most recently added 11 western states are derived from the following sources: building permits, news releases, and sampling, in that order of importance. The series shown here cover 27 states through 1926 (except series 6.0, through 1925); 36 states 1923-28; 37 states 1925-56; 48 states since then.

Residential building contracts include one- and two-family dwellings, hotels, dormitories, apartment buildings, apartment hotels, motels, and other shelter. Variations in methods of compilation have occasionally affected the continuity of the data. For example, before January 1946, efforts were made to include houses in a large development at the time ground was broken for the separate houses of the project. Subsequently, a varying initial number of houses within a large development was included when construction was actually scheduled to start on any part of the project; other portions were added as progress reports were received. Since January 1956 the basic source of information for privately owned, permanent, nonfarm one- and two-family houses has been changed from contract awards to a combination of building permits issued in approximately 1,150 counties, accounting for an estimated 86 per cent of all one- and two-family houses built, and a sampling in the remaining area. (For a description of the new method, see Dodge news release, "1958 Improvement in Dodge Residential Building Data," August 7, 1958.)

Commercial and industrial building contracts encompass commercial buildings (e.g. banks, offices and lofts, stores, warehouses, garages and service stations), theatres, and manufacturing buildings (e.g. processing, mechanical). Since January 1956 nonindustrial warehouses have been included and theatres excluded.

Before January 1958 cancellations, additions and corrections were included in data for the months in which they were ascertained, rather than in data for the months of original entry. Since January 1958 downward adjustments of this sort are no longer made in the current monthly figures (they are made in published annual cumulative statistics), but upward adjustments continue to be made in statistics for the current month.

Construction contract statistics are provided monthly, by broad geographic areas and states and counties, for many classes of construction,

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by number of projects and dollar valuation, and floor space and dwelling units (where applicable). The percentage of total construction covered by Dodge statistics has been variously estimated. Some indication of coverage may be obtained by comparing them with the estimates of total value of all new construction put-in-place for the 48 states, as compiled by the U.S. Department of Commerce, despite differences in concept. For the entire period 1929-56, the Dodge 37 states data may have represented about half of the estimated 48 states total. This difference, to a substantial degree, was due to the omission of the 11 western states and the exclusion from the Dodge series of certain categories of construction already enumerated, but for which estimates are made for the construction put-in-place series. It is estimated that construction in the 11 western states, during the 1926-56 period, amounted to 20 per cent or more of the national total. In recent years the coverage of the 48 states figures may be roughly assessed by the following:

	<i>Monthly Average, 1956-58</i>	
	Value of construc- tion put-in-place, Depts. of Commerce and Labor (million dollars)	Value of construction contract awards, 48 states, Dodge*
Total residential construction	1,511	1,128
Total new residential	1,193	1,110
Total residential additions and alterations	318	18
Industrial and commercial construction	550	432
Farm construction	128	...
All other private construction	653	275
Public construction, excl. residential	1,121	912
Total construction	3,963	2,747

\* Includes revisions not distributed by month; excludes architectural and engineering fees.

For alternative series on residential construction, see series 5.0. Monthly statistics on permits for commercial and industrial buildings have been published by the U.S. Department of Commerce since 1938 (number) and 1942 (value). Since 1913, weekly data on contract awards for industrial and commercial construction have been published by *Engineering News-Record*. The latter relate primarily to large contracts. The minimum cost of industrial buildings reported ranged from \$28,500

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in 1932 to \$93,000 beginning January 1955; for other buildings, \$105,000 in 1932 to \$344,000 beginning January 1955.

For further descriptions of construction activity and contracts award data, see *Construction Activity in the United States, 1915-37* (Domestic Commerce Series 99), by Lowell J. Chawner; "Construction Volume and Costs, 1915-56" and "Value of New Construction, 1945-1958," statistical supplements to *Construction Review*, U.S. Departments of Commerce and Labor.

6.1 NEW ORDERS FOR PRODUCERS' DURABLE EQUIPMENT, VALUE, CENSUS, OFFICE OF BUSINESS ECONOMICS, MONTHLY, 1949-58. UNIT: MILLION DOLLARS.

*Source:* Compiled by the Bureau of the Census from data provided by the Office of Business Economics. Seasonal adjustment by compiler.

This series measures in current dollars the volume of new orders received by the following industries producing machinery and business equipment: electrical generating and transmission equipment; other electrical machinery and equipment (excl. radio and TV mfg.); transportation equipment other than motor vehicles, parts and aircraft; metal working machinery; special industrial machinery; general industrial machinery; engines and turbines; construction machinery; office and store machines; other nonelectrical machinery; other fabricated metal products. Excluded are the following ten durable goods manufacturing industries: iron and steel; primary nonferrous metals; other primary metals; radio and TV equipment; motor vehicles; motor vehicle parts; aircraft; stone, clay and glass; agricultural implements; household appliances. Orders received by these industries do not, for the most part, represent business purchases of equipment, although exclusion of these industries does mean omitting some important items such as trucks and commercial aircraft. For further description of the new orders data, see series 4.8. See also Volume I, Chapter 14, Section VI.

6.2 NEW ORDERS AND CONTRACTS FOR PLANT AND EQUIPMENT, VALUE, CENSUS, OFFICE OF BUSINESS ECONOMICS, AND DODGE, MONTHLY, 1949-58.

UNIT: MILLION DOLLARS.

*Source:* Compiled by the Bureau of the Census from seasonally adjusted OBE and F. W. Dodge Corporation data (see sources to series 6.0 and 6.1).

Obtained as the sum of selected new orders and contract-awards data, this series measures approximately, in current dollars, the volume of new private investment commitments. The new plant commitments component is the seasonally adjusted F. W. Dodge Corporation series on value of construction contracts for commercial and industrial buildings



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and privately owned public works and utilities. The equipment orders component is series 6.1.

For comparison of this series with OBE-SEC data on plant and equipment expenditures (series 22.0) and NICB data on new capital appropriations (series 6.3), see Volume I, Chapter 14.

### 6.3 NEW CAPITAL APPROPRIATIONS, MANUFACTURING COMPANIES, NATIONAL INDUSTRIAL CONFERENCE BOARD, QUARTERLY, 1953-58. UNIT: MILLION DOLLARS.

*Source:* Furnished in seasonally adjusted form by the National Industrial Conference Board. For unadjusted data, 1955-58, see The Conference Board *Business Record*, September 1958 and June 1959. Data are released for initial publication in *Newsweek*.

This series measures newly approved appropriations for future spending on plant and equipment, as reported by manufacturers. As used here, "approved capital appropriation" constitutes authority to incur obligations for new plant and equipment, according to plans sanctioned by the appropriate management level (boards of directors or other top officials). Appropriations for capital expenditure cover new plants and buildings, additions to or improvements of plants or buildings, new machinery, office machines, storage equipment, and motor vehicles for business use. Excluded are funds earmarked for land purchase, maintenance and repair, the acquisition of existing companies, used equipment and buildings, and construction and repair outside the United States. The data for 1955-58 cover 500 identical companies. The estimates have been extended back to 1953 by linking to a subsample of 353 companies, with the figures for 1953-54 raised by the 1955 ratio between the two series.

In addition to statistics of newly approved capital appropriations, the NICB compiles data on volume of appropriations outstanding; amounts committed, spent, and canceled; and the percentage of companies reporting increases in appropriations (series D 6.3). All these measures are based on a continuing quarterly survey among the nation's largest manufacturing companies. For a description of the statistical procedures used, the survey coverage, and limitations of the data, see *Business Record*, October 1956, and Morris Cohen, "The National Industrial Conference Board Survey of Capital Appropriations" in *The Quality and Economic Significance of Anticipations Data*, Special Conference Series 10, Princeton for NBER, 1960. For a comparison of the capital appropriations series with the OBE-SEC data on anticipated plant and equipment expenditures (series 22.0), and with new orders and contracts for plant and equipment (series 6.1), see Volume I, Chapter 14.

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### 7.0 NET CHANGE IN NUMBER OF OPERATING BUSINESSES, OFFICE OF BUSINESS ECONOMICS, QUARTERLY, 1945-58. UNIT: THOUSAND FIRMS.

*Source:* U.S. Department of Commerce, Office of Business Economics, *Survey of Current Business*, May 1959, and ff. issues. Seasonal adjustment by OBE.

This series measures the quarterly change in the total population of nonfarm business concerns, computed from seasonally adjusted end-of-quarter estimates of the actual number of firms in operation. The series is equivalent to the difference between the number of new businesses started during the quarter and the number of businesses discontinued during the quarter. Business transfers, which reflect only a change in ownership or legal form of organization, have no effect on the figures.

The basic data relate to the entire private economy of the United States (except Hawaii and Alaska), excluding agricultural activities and professional services. Units counted are "firms" rather than "establishments," and are defined as any business organization, regardless of size, under one management with either an established place of business or at least one paid employee. A concern carrying on a variety of activities is counted only once and is classified by industry according to the major activity of the firm as a whole.

The level of estimates of the business population is based on benchmark figures derived from the latest available Internal Revenue Service data adjusted for coverage. Quarterly movements are estimated on the basis of BOASI tabulations and from information on the number of business telephones installed and disconnected. The definitions and methods used in preparing the estimates are described in the *Survey of Current Business*, January 1954 and May 1959.

Annual estimates of the business population are available by major industry division beginning 1929 and by detailed industry from 1944 (see *ibid.*, and *Business Statistics*, 1959 edition). Available on request from the OBE are quarterly statistics on the number of firms in operation beginning 1939, and the number of new, discontinued, and transferred businesses since 1944. For further discussion of these data and related series, see special articles in the *Survey of Current Business* for June 1949, May 1954, April 1955, and December 1955. For an analysis of cyclical movements in number of operating concerns and in new incorporations (series 7.1-7.3), see Volume I, Chapter 13.

### 7.1 NUMBER OF NEW INCORPORATIONS, 48 STATES, DUN AND BRADSTREET, MONTHLY, 1945-58. UNIT: ONE INCORPORATION.

*Source:* For 1946-57, Dun and Bradstreet, Inc., *Dun's Statistical Review*; thereafter, *Business Trends News: Monthly New Incorporations*. Beginning January 1958, Hawaii is included.

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7.2 SAME, 4 STATES, CORPORATION TRUST CO., MONTHLY, 1936-48. UNIT:  
ONE INCORPORATION

*Source:* Corporation Trust Co., Washington, D.C., published in *Survey of Current Business*, Supplement, 1940, 1942, 1947, and 1949.

7.3 SAME, 4-11 STATES, EVANS, MONTHLY, 1860-1939. UNIT:  
ONE INCORPORATION.

*Source:* George H. Evans, Jr., *Business Incorporations in the United States, 1800-1943*, New York, NBER, 1948, pp. 178-179.

All series are seasonally adjusted by NBER (for series 7.1, using Census Method II, since 1946). Since July 1945, the seasonal factors take account of change in the number of Saturdays and Sundays in the month.

These series represent the number of stock corporations issued charters under the general business corporation laws of the various states. The statistics include completely new businesses which are incorporated, as well as existing businesses that have changed from the noncorporate to the corporate form, existing corporations which have been given certificates of authority to operate also in another state, and transfers of existing corporations to a new state. Included are cases in which the promotion of a projected corporation was not completed and the charter, though issued, was never exercised.

The four-state series (7.2), covering New York, Illinois, Delaware, and Maine, is available on a comparable monthly basis from 1925 to July 1949.

Evans compiled incorporations in groups of states for fourteen overlapping periods. In the series shown here (7.3), Evans' data have been combined into twelve segments spliced in such a way that each segment covers at least one full business cycle. For the states included in each segment, see the actual data in Part 2 below. Evans gives (pp. 80-81) a continuous index covering the periods 1860-1925 and 1924-41, as well as series on the aggregate capital stock of new incorporations, and classifications by industry and size of firm.

For a comparison of new incorporations with data on new business firms, see Volume I, Chapter 13. For an analysis of annual data on new firms classified by type of legal organization, see "Business Population by Legal Form of Organization," by Betty C. Churchill, *Survey of Current Business*, April 1955.

8.0 BUSINESS FAILURES, LIABILITIES, INDUSTRIAL AND COMMERCIAL, DUN AND BRADSTREET, QUARTERLY FOR 1875-94, MONTHLY FOR 1894-1958.  
UNIT: MILLION DOLLARS.

*Source:* For 1875-February 1933, compiled by R. G. Dun and Co., the Mercantile Agency, *Dun's Review*; for March 1933-October 1957, Dun

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and Bradstreet, Inc., *Dun's Statistical Review*; thereafter, *Business Trends News: Monthly Failures*.

8.1 NUMBER OF "LARGE" BUSINESS FAILURES, INDUSTRIAL AND COMMERCIAL, DUN AND BRADSTREET, MONTHLY, 1948-58. UNIT: ONE FAILURE (WEEKLY AVERAGE).

*Source:* Dun and Bradstreet, Inc., Business Economics Department. *Business Trends News: Weekly Failures*.

8.2 NUMBER OF "LARGE" BUSINESS FAILURES, MANUFACTURING, DUN AND BRADSTREET, MONTHLY, 1894-1958. UNIT: ONE FAILURE (MONTHLY TOTAL).

*Source:* Same as series 8.0, except that data for June 1934-August 1937 are obtained directly from Dun and Bradstreet, Inc.

All series are seasonally adjusted by NBER.

Business failures include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court. Current liabilities, as used herein, include all accounts or notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account. Statistics on failures and liabilities of failures relate to legal definitions. Omitted from the estimates are those firms which were liquidated, merged, or sold to avoid loss, firms which in a broad economic sense could be considered as having failed.

Data for all years exclude railroad failures and, after 1892, bank failures. Hence the quarterly figures on liabilities are substantially raised, before 1893, relative to the monthly figures, which begin in 1894. Beginning 1933, the data are confined more strictly to industrial and commercial enterprises; they exclude, besides railroads and banks, such concerns as financial companies, holding companies, real estate and insurance brokers, amusement enterprises, shipping agents, tourist companies, and transportation terminals. These revisions, incorporated in the 1933 data, lowered the total number of failures for 1933 by 2 per cent and total liabilities by 9 per cent. The comparability of the data is also affected by more complete coverage, beginning in 1939, of voluntary discontinuances with loss to creditors and of small concerns forced out of business by such actions as foreclosure and attachments, with insufficient assets to cover all claims. Inclusion of the additional cases in 1939 raised the number of

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failures for the year by 29 per cent and current liabilities by 9 per cent. Beginning June 1934, certain corporate reorganization cases are included.

In series 8.1 and 8.2 a "large" failure is defined as one with current liabilities of \$100,000 or more. The number of large failures has a cyclical timing similar to that of total liabilities, and accounts for the tendency for total liabilities to lead at business cycle turns (see Volume I, Chapter 12). Data are reported weekly whereas total liabilities are only monthly. Series 8.2 represents monthly totals; the data for 8.1 are weekly averages, covering four or five weeks in the month, with weeks ending on the 1st, 2nd, and 3rd included with the preceding month. During the years 1950-58 large business failures ranged from 4 to 10 per cent of the number and accounted for 41-59 per cent of liabilities of all industrial and commercial failures. Among failures of manufacturing firms large failures formed 10-19 per cent of the number and 57-77 per cent of the liabilities.

Additional data classified by size of concern (liabilities), age, industry, and geographic location are provided by the source. Also available since 1929 is a failure index, which presents a refinement of the failure record by including corrections for the varying number of working days in the month and also for changes in the total number of concerns in business. The index is expressed as the number of failures (annual rate) per 10,000 concerns in business.

The Office of Business Economics, U.S. Department of Commerce, within the framework of its regular series on the business population (see series 7.0), publishes statistics of discontinued businesses annually beginning in 1940 and quarterly since 1944. Discontinuances refer not to failures alone but to all firms that go out of business, regardless of reason. For a discussion of these series and related data, see *Dun's Review* for March 1940, and "Business Turnover and Causes of Failure" by Melville J. Ulmer and Alice Nielson in *Survey of Current Business*, April 1947. The relations between failure statistics and profits are treated in Volume I, Chapter 12.

### 9.0 CORPORATE PROFITS AFTER TAXES, OFFICE OF BUSINESS ECONOMICS, QUARTERLY, 1939-58. UNIT: BILLION DOLLARS, ANNUAL RATE.

*Source:* U.S. Department of Commerce, Office of Business Economics. For 1939-45, *National Income*, 1954 ed.; for 1946-57, *U.S. Income and Output*, November 1958; thereafter, *Survey of Current Business*, February 1959 and following issues. Current data are available in *Business News Reports*, *National Income and Corporate Profits*. Seasonal adjustment by NBER (1939-45) and OBE.

This series measures the volume of earnings net of corporate tax liability (federal and state corporate income and excess profits taxes) originating in U.S. corporations organized for profit. Profits include

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depletion and exclude domestic dividends received and capital gains and losses, conforming thereby to the "national income" concept.

The annual estimates for periods more than two years prior to the current year are Internal Revenue Service data adjusted to national income concepts and corrected for coverage by the allowance of additional profits disclosed by the IRS audit of income tax returns. Profits of mutual insurance companies are removed and adjustments are made for international flows which affect profits. Current annual and quarterly figures are obtained by extrapolating the latest benchmark estimates based upon the IRS tabulations. The extrapolators used include the *Quarterly Financial Report for Manufacturing Corporations* of the Federal Trade Commission and Securities and Exchange Commission, reports to other federal regulatory agencies, and surveys by nongovernmental organizations. Annual and quarterly estimates are subsequently revised to conform to IRS tabulations. For a complete statement of the methods and sources of data used in preparing profit estimates, see *National Income*, supplement to the *Survey of Current Business*, 1954 edition, pp. 92-97, and *U.S. Income and Output*, 1958, pp. 93-94.

Quarterly estimates of corporate tax liability, dividends, and retained earnings are also compiled by the OBE, and estimates of profits before taxes are available *excluding* inventory profit or loss (inventory valuation adjustment). The FTC and SEC publish quarterly profit statistics for all manufacturing corporations, by industry and size-of-firm groups. The FRB issues quarterly profit statistics for 200 large manufacturing corporations (*Federal Reserve Bulletin*). Quarterly figures for approximately 800 nonfinancial corporations are compiled by the First National City Bank and published in the Bank's monthly letter, "Business and Economic Conditions."

For discussion of the role of profits and related economic variables in business cycles, see Volume I, Chapters 2, 11, and 12.

### 9.1 CORPORATE PROFITS AFTER TAXES, BARGER, QUARTERLY, 1920-38. UNIT: MILLION DOLLARS.

*Source:* Harold Barger, *Outlay and Income in the United States, 1921-1938*, New York, NBER, 1942, Series "X", Table 28, Appendix B. Seasonal adjustment by prior correction of component series.

This series measures the aggregate dollar volume of profits earned by U.S. corporations after interest payments and corporate income taxes. The basic material for the estimates are the quarterly income statements of 400 to 800 corporations as published in the *Commercial and Financial Chronicle* and *Moody's Investors' Service*. The sample, representing less than 1 per cent of all U.S. corporations but embracing at least 10 per cent of all corporate earnings, is used as an interpolator of *Statistics of Income*

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totals for selected industrial groups to derive compiled net profits after taxes. The final figures are not "global" estimates of corporate profits since corporate earnings in the areas of distribution and finance are not included.

A full account of the interpolating sample and the procedures adopted in deriving the estimates is presented in the source, Appendix B.

### 9.2 PERCENTAGE OF COMPANIES WITH PROFITS, FIRST NATIONAL CITY BANK, QUARTERLY, 1920-38, 1946-58. UNIT: PER CENT.

*Source:* Compiled by the NBER from data made available by the First National City Bank of New York. No seasonal adjustment necessary.

This series is based on published statements of net income by corporations in the First National City Bank's quarterly tabulation of corporate earnings. Net income as reported is after depreciation, interest, taxes, and other charges and reserves, but before dividends and, in some cases, depletion. Beginning in 1946, the sample has covered all industrial areas except the finance groups and utilities. Since 1954, utilities have been included. The group of companies currently included (1958) account for at least 55 per cent of aggregate corporate profits after taxes. Coverage is small (9-25 per cent) in mining, wholesale and retail trade, and services; and high (50-80 per cent) in manufacturing, railroads and electric and gas utilities. Large manufacturing firms account for about 80 per cent of the aggregate profits reported.

From quarter to quarter the group of reporting corporations varies both in composition and number, the latter by as much as 15 per cent. Since 1946 the sample has grown from 270 firms, accounting for 15 per cent of total corporate profits after taxes, to over 800 firms, accounting for 55 per cent in 1958. Data for the interwar period are based on a more limited sample covering only manufacturing and mining corporations but expanding in number from 25 in 1920 to 224 in 1930 and 260 in 1938.

The series is computed by classifying all the corporations in each quarter into two groups, those reporting profits and those reporting losses, and taking the number reporting profits as a percentage of the total number. For a comparison of these data with other profits statistics, see Volume I, Chapter 12.

### 9.3 PROFITS (BEFORE TAXES) PER DOLLAR OF SALES, MANUFACTURING, FEDERAL TRADE COMMISSION AND SECURITIES AND EXCHANGE COMMISSION, QUARTERLY, 1947-58. UNIT: PER CENT.

*Source:* Federal Trade Commission and Securities and Exchange Commission. *Quarterly Financial Report for Manufacturing Corporations*, 1st Quarter 1948 and following issues. Seasonally adjusted by NBER (using Census Method II since 1952).

This series represents the percentage ratio of aggregate profits before

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federal income taxes to aggregate sales of all American manufacturing corporations, except newspapers, which are required to file U.S. corporation income tax form 1120. Currently, since the second quarter of 1956, the estimates are derived from the quarterly consolidated financial statements of (1) all manufacturing corporations registered with and required to file reports to the SEC (approximately 1,400 in 1958) and (2) a group (approximately 8,100 in 1958) of small, medium-sized, and large nonregistered corporations selected by the FTC in a probability sample survey drawn from federal income tax returns. This group is supplemented by a quarterly sample of corporate births drawn from records of the Bureau of Old Age and Survivors Insurance.

The sample accounts for approximately 7 per cent of the number and 85 per cent of the assets of all organized businesses classified as manufacturers. (Corporations account for roughly 95 per cent of total receipts from all manufacturing in the U.S.; manufacturing corporations account for approximately 60 per cent of all corporate profits.) Account is taken of all corporate changes such as births, deaths, mergers, and acquisitions by changing the composition of the sample quarterly. One-eighth of the FTC segment of the sample is replaced each quarter.

To maintain current representation more effectively, the population of manufacturing corporations on which the sample is based was changed in 1951 from those filing federal income tax returns in 1943 to those filing returns in 1949; in 1956 it was changed to those filing returns in 1954. The NBER has adjusted data prior to the first quarter of 1951 by lowering the estimates by one percentage point (1.0), which is the difference between the old and new series in 1951. No such adjustment was required in 1956 since the overlapping figures (first and second quarters of 1956) were virtually identical for the old and new samples of corporations.

For a description of the FTC-SEC data, their derivation, and related series, see the source, 1st Q 1947, 2nd Q 1952, 2nd Q 1956, and 1st Q 1959. Data classified by industry and by asset size of corporation are given in the source. For a discussion of the cyclical behavior of the ratio of profits to sales, see Volume I, Chapter 12, and a forthcoming NBER report by Thor Hultgren.

10.0 COMMON STOCK PRICE INDEX: INDUSTRIALS, RAILS, AND UTILITIES, STANDARD AND POOR'S, MONTHLY, 1871-1958. UNIT: FOR 1871-1956, 1935-39 AVERAGE = 100; FOR 1945-58, 1941-43 AVERAGE = 100.

*Source:* Compiled by Standard and Poor's Corporation and the Cowles Commission. For 1871-1956, see Standard and Poor's Corporation, *Security Price Index Record*, 1955 edition, and *Current Statistics*, January 1957; for 1945-58, *Security Price Index Record*, 1960 edition. No seasonal adjustment considered necessary.



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Prior to 1918, the index is that of the Cowles Commission converted from the original base (1926) to the 1935-39 base by Standard and Poor's Corporation. This index includes, 1871-1917, virtually all industrial, public utility, and railroad common stocks actively traded on the New York Stock Exchange. The railroad stock price component is the index compiled by Frederick R. Macaulay in *Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the United States since 1856* (New York NBER, 1938). During most of this period, this component dominates the total, since relatively few industrial and public utility stocks were traded, especially before 1900. The prices used in the Cowles Commission index, in general, are arithmetic averages of the highest and lowest prices of the month weighted by the number of shares outstanding at the end of the month. For a detailed description of the index, see *Common Stock Indexes, 1871-1937*, by Alfred Cowles 3rd and Associates (Bloomington, 1938).

From January 1918 through February 1957, the monthly common stock price index, 1935-39:100, is an average of Standard and Poor's weekly composite stock price index, a base weighted aggregative expressed in relatives. The weekly data are based upon Wednesday's closing prices or the last preceding sale price, the midweek observation being considered most representative. The coverage of the index increased from 198 stocks in 1918 to 480 in 1957.

In 1957 a new monthly index based on 500 stocks was introduced. The index formula remained the same, the price of each component stock being weighted by the number of shares outstanding. The aggregate current market value is divided by the average of weekly values for the period 1941-43, and the quotient multiplied by 10. Use of this new base, 1941-43 = 10, permits the level of the current index to closely approximate the average price level of all stocks listed on the New York Stock Exchange. The index formula is modified to offset arbitrary price changes caused by the issuance of rights, stock dividends, split ups, and mergers. Starting in March 1957, data of the 1945-58 segment, shown herein on a 1941-43 = 100 basis, are monthly averages of the new daily "500 composite" index. Before that date, they are averages of Standard and Poor's former daily price index based on 90 stocks, converted to the 1941-43 base.

For further details on the construction of the index and an extension back to 1871 on the 1941-43 base, see the source. For comparative figures on the cyclical timing of this index and the Dow-Jones industrials (series 10.1), see Appendix B. See also Robert W. Storer, "A Critical Evaluation of Stock Market Indexes," *Proceedings of the Business and Economic Statistics Section*, American Statistical Association, 1959.

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### 10.1 INDEX OF INDUSTRIAL STOCK PRICES, DOW-JONES, MONTHLY, 1897-1958.

UNIT: DOLLARS PER SHARE.

*Source:* Compiled by Dow Jones and Company, Inc., from quotations in *The Wall Street Journal*. For 1897-June 1952, see *The Dow-Jones Averages*, 13th edition, 1948, and *Supplementary Averages*, Barron's Publishing Company, Inc.; thereafter *Barron's National Business and Financial Weekly*. No seasonal adjustment considered necessary.

This series is based on daily closing prices on the N.Y. Stock Exchange of a changing list of active industrial common stocks. From January 1897 through December 1948, the figures shown here are averages of the highest and lowest daily closing indexes for the month. Beginning in January 1949, the figures are averages of all daily closing indexes for the month. For the segment 1897-September 1916, twelve industrial stocks are used. Twenty are used in the segment beginning December 1914 until October 1, 1928, when the number of stocks was increased to the current 30 without changing the average price per share reported.

The average price per share is obtained as an unweighted arithmetic mean of actual prices. Thus the influence of each issue is proportional to the magnitude of its price per share. To preserve the current representativeness of the index, the composition of the list of stocks used is changed when conditions necessitate. To maintain the historical continuity of the series, adjustment has been made for stock splits and stock dividends. Prior to 1928, corrections were limited to split-ups and stock dividends of 100 per cent or more and made by multiplying the new price of a stock by an appropriate factor or by substituting another stock. Since September 1928, arbitrary changes in a stock's market price resulting from corporate action is adjusted for by dividing the aggregate of prices by a number which gives the same average for the transition date as the old method. The industrial common stock price index is the principal component of a composite index, which includes 20 railroads and 15 public utility stocks. For a more detailed description of the methods used in constructing these indexes, see the source.

### 11.0 CHANGE IN BUSINESS INVENTORIES, OFFICE OF BUSINESS ECONOMICS, QUARTERLY, 1939-58. UNIT: BILLION DOLLARS, ANNUAL RATE.

*Source:* U.S. Department of Commerce, Office of Business Economics. For 1939-45, *National Income*, 1954 edition, supplement to the *Survey of Current Business*; for 1946-55, *U.S. Income and Output*, 1958; for 1956-58, *Survey of Current Business*, July 1959. Current data are published in *Business News Reports*, *National Income and Product* and in *Economic Indicators*. Seasonally adjusted by OBE.

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This series measures the change in physical volume of inventories, valued at average prices of the period for which estimates are made. Inventories comprise purchased materials, goods in process, and finished goods. All stocks owned by a company are covered including not only those located in factories but also goods in transit, in warehouses, and in manufacturers' sales branches.

In deriving changes in aggregate business inventories estimates are obtained separately for the farm and nonfarm sectors of the economy. The quarterly nonfarm inventory component is the sum of the change in book values and the inventory valuation adjustment. Quarterly changes in nonfarm inventories—manufacturing, wholesale, retail inventories—are based respectively on the OBE-Census Bureau Industry Survey, the Census Bureau's sample of merchant wholesalers, and the Census sample of retail establishments and the Federal Reserve Board's data on department store stocks. Supplementary data used are from *Statistics of Income* (Internal Revenue Service), *Working Capital of United States Corporations* (Securities and Exchange Commission), and the Census Bureau's Annual Retail Trade Survey. The use of reported accounting data in making estimates of inventory change and the diversity of methods employed by firms in evaluating their inventories necessitated adjustments of the sample data to arrive at estimates consistent with the basic concept. The principal adjustment is the removal of the price-change element in the reported figures and revaluing inventory change in current dollars.

The farm component of the series is measured by the Agricultural Marketing Service as the difference between physical quantities of crops and livestock on farms at the beginning and end of the period multiplied by average prices for the period. It is derived as the sum of separate state estimates for individual crop and livestock items. No inventory valuation adjustment is required since the farm inventory changes are computed directly from data on physical stocks and current prices. Estimates of quarterly changes in farm inventories are derived by fitting a smooth curve through the annual data.

For details of available statistical information, including annual data back to 1929, and the methodology used in compiling the estimates, see the sources cited. A quarterly series on change in business inventories back to 1921 is given in Barger, *Outlay and Income in the United States, 1921-1938*, Table 11, but the statistical basis for the estimates is slender. The cyclical behavior of inventories and inventory change is treated in Moses Abramovitz, *Inventories and Business Cycles* (New York, NBER, 1950) and in the forthcoming NBER report by Thomas Stanback, Jr. on postwar cycles in manufacturers' inventories.

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12.0 INDUSTRIAL RAW MATERIALS SPOT MARKET PRICE INDEX, BUREAU OF LABOR STATISTICS, MONTHLY, 1935-58. UNIT: for 1935-49, AUGUST 1939 = 100; FOR 1946-58, AVERAGE 1947-49 = 100.

*Source:* U.S. Department of Labor, Bureau of Labor Statistics. First segment, 1935-49 (based on 16 commodities): 1935-47, mimeographed releases LS 44-2297 and LS 47-2297, "Index Numbers of 28 Commodities—Spot Primary Market Prices"; thereafter, the weekly release "Daily Index Numbers and Spot Primary Market Prices for 28 Commodities." Second segment, 1946-58 (based on 13 commodities): July 1946-August 1952, "Revised Daily Index Numbers of Spot Market Prices (1947-49 = 100)," October 1952, Vols. I and II; thereafter BLS weekly publication, "Daily Index Numbers and Spot Primary Market Prices." Figures issued daily by BLS and published in the *New York Times* and other daily newspapers. Seasonal adjustment not considered necessary.

This index is the industrial materials component of the BLS daily index of commodities traded on spot markets and organized exchanges (see series 12.2 and 12.3). The 1935-49 segment is based on monthly averages of daily spot market prices for each of 16 raw industrial commodities. The 1946-58 segment is based on the prices of 13 raw industrial materials. From July 1946 through 1951 the figures shown here are for the Tuesday nearest the 15th of the month; thereafter for the 15th of the month or the nearest (non-holiday) weekday. The midmonth figures are somewhat more erratic than daily averages for the month but are, of course, available more promptly.

The 13 commodities currently included (1958) are: steel scrap (Chicago), copper scrap, lead scrap, zinc, tin, cotton, wool tops, print cloth, burlap, rubber, hides, rosin, and tallow. The index components are periodically reviewed. Those whose prices tend to become stable, to be no longer traded in sufficiently large volume to reflect daily prices accurately, or to respond to special rather than general economic conditions are excluded, replaced, or modified. For example, flaxseed, shellac, and steel scrap (Philadelphia) were dropped when the revised, 13-commodity index was constructed.

The index is an unweighted geometric mean of the individual commodity price relatives, i.e. ratio of the current price to the base period price. Equal percentage changes in the prices of each commodity have the same effect on the index. Specification changes are made so that only the actual price movement is reflected by the index. For further discussion of this index, see notes to series 12.1, 12.2 and the references cited therein.

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12.1 INDUSTRIAL RAW MATERIALS SPOT MARKET PRICE INDEX, MACK, MONTHLY, 1919-57. UNIT: AVERAGE 1947-49 = 100.

*Source:* Computed by Ruth P. Mack, NBER, from Bureau of Labor Statistics price data. Seasonal adjustment not considered necessary.

This index is based on wholesale prices of fifteen industrial materials (excluding foodstuffs) at or close to the initial stage of production. Seven durables and eight nondurables are included: the *durables* are steel scrap, pig iron, copper, lead scrap, zinc, tin, and ponderosa pine boards; the *nondurables* are cotton, wool tops, jute, rubber, hides, linseed oil, tallow, and woodpulp. The selection conforms, with few exceptions, to items included in the BLS industrial raw materials spot market index (series 12.0). The price data are wholesale prices compiled and published by the BLS.

The index is an unweighted geometric mean of the individual commodity price relatives, i.e. of the ratios of current prices to average prices in the base period, 1947-49. This method is also used in series 12.0. A companion index based on the prices of 15 matching processed goods has been computed. Available back to 1919, the index of processed goods measures price changes of important products made from the constituent commodities of the crude materials index. For further discussion of these and related series, see "The Destabilizing Influence of Raw Materials Prices," Compendium on *The Relationship of Prices to Economic Stability and Growth*, Joint Economic Committee, 85th Congress, March 1958, and "Inflation and Quasi-Selective Changes in Costs," *Review of Economics and Statistics*, August 1959, both papers by Ruth P. Mack.

12.2 WHOLESALE PRICE INDEX, BASIC COMMODITIES, BLS, MONTHLY, 1946-58.  
UNIT: AVERAGE 1947-49 = 100.

12.3 SAME, 1935-50. UNIT: AUGUST 1939 = 100.

*Source:* Same as series 12.0. Seasonal adjustment not considered necessary.

This index is based on the wholesale prices of 22 raw materials or simply processed commodities (28 in series 12.3, 1935-50) which are traded in large volume in primary markets. The commodities were chosen because of their sensitivity to factors affecting spot markets and the trade's estimate of current and future economic forces. Many of the commodities are important in international trade.

The daily index is an unweighted geometric average of ratios of each commodity's current price to its base period price; hence equal relative price changes in the components get equal weight in the index. For series 12.2 through 1951, the figures are for the Tuesday closest to the 15th of the month. Beginning January 1952, the figure for the 15th of the month

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or the nearest weekday was selected. Series 12.3 is based on monthly averages of daily figures.

Calculated and published by the BLS are several subindexes based on classifications of the component commodities. The two major groups which cover all the commodities are: industrial raw materials and food-stuffs. Other groupings that overlap the major groups are: livestock and products, metals, textiles and fibers, and fats and oils. For further description of the industrial raw materials index, see series 12.0. See also *Daily Indexes and Spot Market Prices*, BLS Report No. 131 (January 1958), and *Techniques of Preparing Major BLS Statistical Series*, BLS Bulletin 1168 (December 1954).

### 12.4 WHOLESALE PRICE INDEX, BRADSTREET'S, QUARTERLY FOR 1892-1900, MONTHLY FOR 1899-1937. UNIT: CENTS.

*Source*: Compiled by Dun and Bradstreet, Inc. (formerly Bradstreet's). *Bradstreet's*, January 15, 1910; January 15, 1916; May 5, 1923; June 4, 1927, and ff. issues through February 1933; *Dun and Bradstreet's Monthly Review*, January 1937; thereafter *Dun's Review*. No seasonal adjustment is necessary.

This index is an unweighted aggregate of the wholesale price per pound of 96 selected staple commodities. The price quotations are those prevailing on the first day of the month (or quarter) in the principal primary markets of the country. The figures presented here are centered two-month moving averages of the original data (two-quarter averages for the 1892-1900 segment).

The commodities included in the index are spread over thirteen major groups as follows: breadstuffs, 6; livestock, 4; provisions and groceries, 24; fresh and dried fruits, 3; hides and leather, 4; mineral and vegetable oils, 6; naval stores, 3; building materials, 7; raw and manufactured textiles, 10; metals, 11; coal and coke, 4; chemicals and drugs, 9; and miscellaneous, 5. For a detailed description of the construction of this index, see Wesley C. Mitchell, "The Making and Using of Index Numbers," BLS Bulletin 656, 1938.

### 13.0 EMPLOYMENT IN NONAGRICULTURAL ESTABLISHMENTS, BUREAU OF LABOR STATISTICS, MONTHLY, 1929-58. UNIT: MILLION PERSONS.

*Source*: For 1929-36, *Survey of Current Business*, March 1941, Table 11, p. 17; for 1937-39, *ibid.*, August 1941, Table 22, p. 20 (for seasonally adjusted data see *Federal Reserve Bulletin*, June 1941, pp. 534-535); for 1939-58, BLS tables (mimeographed) on employees in nonagricultural establishments by industry division, revised issues, May 1955; *Employment and Earnings*, June 1956, July 1958, and successive monthly issues. Current data are also obtainable in *Monthly Report on the Labor Force: Employment*,

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*Unemployment, Hours and Earnings*. Seasonally adjusted by FRB through August 1954; thereafter, by BLS.

The total number of employees in nonagricultural establishments is a payroll count of workers, representing the total number of persons employed during a specified payroll period. Data are compiled by the BLS from the monthly reports of some 180,000 cooperating nonfarm establishments and cover all full- and part-time employees who worked during, *and/or received pay for*, any part of the pay period ending nearest the 15th of the month. Proprietors, self-employed persons, domestic servants, unpaid family workers, and military personnel are excluded. Persons working in more than one establishment are counted each time reported.

The percentage of total industry employment covered (in 1954) by the reporting establishments varied from 19 per cent for wholesale and retail trade to 96 per cent for railroad transportation. Sixty-eight per cent of manufacturing employment was covered. Total employment for a given industry classification is obtained by applying to the last monthly employment estimate the change for identical establishments reporting in that and the following month.

Appropriate revisions, based on new benchmarks, are introduced into the employment series as required to correct for classification changes and for deviations resulting from the incomplete coverage of the reporting sample. The data for 1929-36 were adjusted to conform to the figures shown by the 1930 Census of Occupations for the number of nonagricultural gainful workers less the number shown to have been unemployed for one week or more at the time of the Census. The 1937-39 data conform to the 1939 Census. Since 1939, the basic sources of benchmark information for "all employees" are tabulations prepared under the state unemployment insurance programs, the U.S. Bureau of Old Age and Survivors Insurance plan, and special establishment censuses. The latest benchmark period is the first quarter of 1957. The BLS omitted the regular benchmark revision in 1959 and, in 1961, expects to revise this and component series (back to January 1958), where necessary, to incorporate classification changes relating to the adoption of the 1957 Standard Industrial Classification Manual.

The BLS prepares and publishes in *Employment and Earnings* monthly estimates of total employment in each industry and production-worker employment for mining and manufacturing industries (see series 13.1). For a more complete account of these data as well as the BLS survey methods and estimating procedures, see *Techniques of Preparing Major BLS Statistical Series*, BLS Bulletin 1168, the *Guide to Employment Statistics* of BLS, and annual issues of *Employment and Earnings*. For a related series on nonagricultural employment, obtained by household survey, see series 13.3.

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13.1 FACTORY EMPLOYMENT INDEX, BUREAU OF LABOR STATISTICS, MONTHLY, 1914-58. UNIT: FOR 1914-20, 1923 = 100; FOR 1919-58, 1947-49 = 100.

*Source*: U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, December 1925, p. 121; "Employment, Payroll, Hours and Earnings" releases L.S. 53-0902, September 1952; L.S. 53-0884, February 1953; unnumbered, June 1956, July 1958; monthly issues of *Employment and Earnings*. For seasonally adjusted data, 1919-46, see FRB releases on indexes of production worker employment, March 1952 and August 1954; thereafter same as unadjusted. Current figures appear in the BLS *Monthly Report on the Labor Force: Employment, Unemployment, Hours, and Earnings*. Seasonal adjustment by NBER for 1914-1920; FRB, 1919-August 1954; thereafter BLS.

This index is computed from estimates of full-time and part-time production workers (before 1945, wage earners) in private manufacturing industries, who worked during, or received pay for, the pay period ending nearest the 15th of the month. Government manufacturing operations, such as arsenals and navy yards, are excluded. "Production and related workers" include working foremen and all nonsupervisory workers (including leadmen and trainees) engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, packing, warehousing, shipping, maintenance, repair, janitor and watchman services, product development, auxiliary production for plant's use, record-keeping, and other services closely associated with the above production operations.

Basic data for the estimates are employment schedules obtained currently (1958) by mail from approximately 44,000 cooperating manufacturing establishments. In general, the methods and sources employed in preparing the estimates are the same as those used by the BLS in deriving nonagricultural employment data (see series 13.0). The component employment series have been adjusted in 1958 to first quarter 1957 benchmark levels indicated by data from government social insurance programs and are comparable with the series for prior years adjusted to earlier benchmarks.

The following data on production worker employment and earnings are also compiled by the BLS: average workweek (series 1.0), man-hours, average hourly and weekly earnings, and total payrolls. Monthly data for nonproduction factory workers, beginning in 1929, may be derived by subtracting estimates of production workers (on which this index is based) from the corresponding monthly figures of all employees in manufacturing. For further description of these and related series, see the notes to series 13.0 and the references cited therein.



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### 13.2 INDEX OF FACTORY EMPLOYMENT, JEROME, MONTHLY, 1889-1923. UNIT: 1914 = 100.

*Source*: Harry Jerome, *Migration and Business Cycles*, New York, NBER, 1926, p. 248. Seasonal adjustment is by NBER. A trend-adjusted version, with slightly different seasonal adjustment, is also given by Jerome (p. 249).

For 1889-94 the index is based on Massachusetts data; for 1895-1903, Massachusetts and New Jersey; for 1904-19, Massachusetts, New Jersey and New York; and for 1920-23, Massachusetts and New York. To weld the state series into a single continuous index, Census of Manufactures statistics of wage earners employed in each of the three states in 1899, 1904, 1909, 1914, 1919, and 1921 were first adjusted for variations in coverage; these adjustments were aimed principally at excluding workers in the hand and neighborhood industries from the 1899 census since in subsequent censuses only factory workers were counted. Next, monthly estimates of the number employed in factories in each of the three states were made by using directly the monthly Census of Manufactures' data for the given state in census years and interpolating between these years by means of indexes constructed from the available employment and unemployment (inverted) data for the given state.

The separate state estimates were then added together and converted to an index on a 1914 base, allowance being made for changes in the number of states covered by splicing on the basis of overlapping standings in January of the years in which states were added to or dropped from the index. Further details on the method of deriving the state estimates are given in the source.

The representativeness of Jerome's index can be tested at quinquennial dates for 1899-1919 and biennially for 1919-23 by comparison with Fabricant's annual index of wage earners employed in manufacturing, which in census years is based on adjusted Census of Manufactures' data for the United States (see Solomon Fabricant, *Employment in Manufacturing, 1899-1939*, New York, NBER, 1942, p. 331). The ratio of Jerome's index to Fabricant's (both on a 1914 base) is 0.974 in 1899, 1.004 in 1904, 0.987 in 1909, 1.000 in 1914, 0.933 in 1919, 0.993 in 1921, and 0.896 in 1923. These ratios suggest that the trends in Jerome's index and in the country-wide totals are roughly the same, and further, since 1904, 1914, and 1921 were years of low employment while the remaining census years were years of average or high employment, that the relative amplitude of fluctuation indicated by Jerome's index is somewhat smaller than that for the country as a whole.

Essentially similar results emerge from comparisons with Fabricant's index for intercensal years and with Edwin Frickey's quarterly index of

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manufacturing employment (1889–1914), both of which are based only in part on the data used by Jerome Frickey's index is charted in his *Economic Fluctuations in the United States* (Cambridge, Mass., 1942), p. 215.

13.3 NONAGRICULTURAL EMPLOYMENT, LABOR FORCE SURVEY, BUREAU OF LABOR STATISTICS, MONTHLY, 1940–58. UNIT: MILLION PERSONS.

14.0 UNEMPLOYMENT RATE, SAME. UNIT: PER CENT.

14.2 TOTAL UNEMPLOYMENT, SAME. UNIT: THOUSAND PERSONS.

*Source:* U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-50, Nos. 2, 13, 19, 31, 40, 45, 59, 67, 72, 85, 89. Current data are also available in BLS *Monthly Report on the Labor Force: Employment, Unemployment, Hours, and Earnings*. Seasonal adjustment by the Bureau of the Census since 1947, using Census Method II; prior years by NBER.

These series are based on data obtained monthly since March 1940 in the Current Population Survey of the Bureau of the Census. Since July 1955, survey figures relate to the calendar week which contains the 12th of the month. Earlier data relate to the calendar week containing the 8th of the month. Beginning with May 1956, the estimates are derived from a sample design embracing 330 areas comprising 638 counties and independent cities, within each of the 48 states and the District of Columbia. Some 35,000 households are interviewed to obtain information on the work status of the whole population. Since 1953 the sample results have been adjusted to population levels of the 1950 Census. In earlier years, the 1940 Census formed the population base.

Nonagricultural employment (13.3) covers employed workers in all industry groups except agriculture, as well as the small number of persons for whom no industry was reported. Employed workers comprise all persons 14 years of age or older who, during the survey week, (1) did *any* work for pay or profit, or (2) who worked fifteen hours or more as unpaid workers in a family-operated enterprise or (3) who held a job but were temporarily absent because of vacation, sickness, industrial dispute, or other reason for not working. Before January 1957, persons on temporary (less than 30-day) layoff or waiting to start new jobs or businesses within 30 days were classified as employed; since then they have been classed as unemployed. Data shown here for 1947–58 are compiled on this basis. Multi-job holders are counted once and classified in the job at which they worked the greatest number of hours.

Total unemployment (14.2) includes persons who did not work at all during the survey week and who were looking for work, and the “inactive unemployed”—individuals who would have been looking for work except that (a) they were temporarily ill, (b) they expected to return to a job

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from which they had been laid off for an indefinite period, or (c) they believed no work was available in their line in the community. During the period covered by these data ending June 1943, persons employed on federal emergency and work projects are classed as unemployed.

The unemployment rate (14.0) is obtained by dividing total unemployment by the civilian labor force, which is the sum of the employed and unemployed.

The estimates have been revised back to 1940 to take account of an improved sample design introduced in November 1943 and new techniques of interviewing started in July 1945. In January 1954, effective with data beginning January 1953, the sample was expanded from 68 to 230 areas. See *Business Statistics*, 1959 edition, p. 228, for adjustment factors which are used in comparing monthly estimates prior to January 1953 with subsequent data.

The Census figures for nonagricultural employment differ from the Bureau of Labor Statistics estimates (series 13.0), chiefly because the latter count more than once persons holding two or more jobs concurrently and persons changing jobs during the survey week, include workers less than 14 years of age, and exclude domestic servants, unpaid family workers and the self-employed. The BLS figures, being based on employer reports covering a much larger number of persons than the Census sample, are less subject to erratic month-to-month fluctuations. The Bureau of Census' estimates of unemployment differ from the Bureau of Employment Security insured unemployment statistics (series 14.4) principally because of differences in coverage and in the definition of unemployment. See Bureau of Employment Security, *Handbook on Estimating Unemployment* (BES No. R-185), March 1960.

The Current Population Survey provides series on number of persons at work, employment status by major industry and occupation groups, duration of unemployment, marital status, sex, color, and age. As of July 1, 1959, the BLS assumed responsibility for analysis and publication of statistics on employment and unemployment from the Current Population Survey. For a description of these and related series, see the source cited and "Concepts and Methods Used in the Current Employment and Unemployment Statistics," Series P-23, No. 5.

The BLS has constructed annual estimates for total employment, unemployment, and the labor force for the period 1929-39, providing series comparable to estimates issued by the Bureau of the Census beginning 1940. See "Labor Force, Employment, and Unemployment, 1929-39: Estimating Methods," *Monthly Labor Review*, July 1948; also Gertrude Bancroft, "Current Unemployment Statistics of the Census Bureau and Some Alternatives" in *The Measurement and Behavior of Unemployment*, Special Conference Series 8, Princeton for NBER, 1957.

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For annual data comparable to series 14.0 and 14.2, see Stanley Lebergott, "Annual Estimates of Unemployment in the United States, 1900-1954," *ibid.*

14.1 UNEMPLOYMENT RATE, NATIONAL INDUSTRIAL CONFERENCE BOARD, MONTHLY, 1929-42. UNIT: PER CENT.

14.3 TOTAL UNEMPLOYMENT, SAME, 1929-44. UNIT: THOUSAND PERSONS.

*Source:* For 1929, National Industrial Conference Board, *Conference Board Economic Record*, March 20, 1940; for 1930-44, *Economic Almanac*, 1945-46. Seasonal adjustment by NBER.

The estimates of unemployment are derived by subtracting the number of persons employed from the number in the labor force, both obtained by monthly interpolations between Census benchmarks. Labor force data, as used herein, are based on the *gainful* worker concept and include workers 10 years old and over, new and seasonal workers, military personnel, and, at times, retired and disabled persons and inmates of institutions. Persons at work on or assigned to public emergency work projects conducted by federal, state, and local relief agencies are classed as unemployed. Members of the NYA student work program were termed "in school" and not in the labor force. During 1929 and 1942-44, negative unemployment figures appeared when the estimated number at work exceeded the estimated number in the labor force.

For a fuller discussion of the methodology employed in deriving these data, see the source. The methods are also discussed by Lebergott in the report cited above.

14.4 INSURED UNEMPLOYMENT, ALL PROGRAMS, MONTHLY, 1946-58. UNIT: THOUSAND PERSONS, WEEKLY AVERAGE.

*Source:* Federal Security Agency; U.S. Department of Labor, Bureau of Employment Security; U.S. Railroad Retirement Board. Up to June 1946, *Employment Security Activities*, June 1946; for 1946-September 1957, unpublished BES tables; thereafter, BES weekly publication, "Unemployment Insurance Claims." Seasonal adjustment by NBER.

This series represents an unduplicated count of the number of covered workers who have reported the completion of at least one week of unemployment under state, Veterans', Federal Civilian Employees', or Railroad Retirement Board unemployment compensation programs. Since August 1950, the (monthly) figures are averages of the weekly volume of insured unemployment adjusted by prorating data for weeks that overlap adjacent months. Before that date, they are averages of the four or five weeks ending in a month. Through 1957 the data pertain to the continental U.S.; thereafter Alaska and Hawaii are included. For

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the period June 1958 to June 1959 the estimates are the regular insured unemployment totals, seasonally corrected, plus the unadjusted monthly insured unemployment originating under the Temporary Unemployment Compensation Program. For a seasonally adjusted weekly series on state insured unemployment, see Volume I, Chapter 18.

Basic data for the series are the number of "weeks of unemployment" claimed by workers filing continued claims as reported to the Bureau of Employment Security. Continued claims represent requests for benefit payments for one or more weeks of unemployment after completion of a one-week noncompensable waiting period. Insured unemployment figures are derived from continued claims by adjusting them to cover the week during which unemployment actually occurred.

Continuity of the series is affected by the general extension of the unemployment insurance programs through liberalization of state benefit provisions, amendments to the Railroad Retirement Act, and the adoption of the Veterans' Readjustment Assistance Act of 1952, the Unemployment Compensation for Federal Civilian Employees Program of 1955, the programs of Unemployment Compensation for Ex-Servicemen of 1958, and the Temporary Unemployment Compensation legislation, June 1958-June 1959. For a discussion of these, see references cited below. In addition, for the 41 states operating on an individual benefit year basis, the unadjusted monthly figures show "an administrative rise" at the beginning of each quarter; for programs on a uniform benefit year this "rise" occurs at the beginning of the benefit year. This occurs because additional workers, including some who have exhausted their rights, become eligible for benefits when the earnings of a new calendar quarter become part of their base period. Other fluctuations result from the rescheduling of claimants to a week other than their normal reporting week when a claimant's reporting day falls on a holiday or when the state agency shifts from weekly to biweekly claimant reporting or vice versa. Since July 1959, state agencies are required to report an adjusted count of weeks claimed for any week affected by claimant rescheduling.

Insured unemployment does not comprehend all of the unemployed. For the period 1954-58, approximately 35 per cent of the civilian labor force was not covered by any public unemployment insurance program. Excluded are agricultural laborers, unpaid family workers, domestics in private homes, employees of nonprofit organizations and most state and local governments, the self-employed, and new entrants to the labor market. In many states, workers from very small firms (less than four employees) are not covered. Even covered workers who are unemployed may not be included, e.g. if they do not meet wage-credit or duration-of-employment eligibility requirements, or have exhausted their benefit rights.

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Related to insured unemployment are initial claims data (see series 3.2), which establish the starting date for any insured unemployment. Initial claims cannot be added to the insured unemployment count since they are generally simply notices of job separation and do not certify to the completion of a week of unemployment. Other operating statistics of the unemployment insurance programs, compiled and published monthly by the BES, include weeks of unemployment compensated, rate of insured unemployment, number of beneficiaries, and average benefits paid. Beginning January 1960, detailed analyses of insured unemployment, classified by industry, occupation, age, sex, duration of unemployment, and state (for 45 states), are published monthly in *The Insured Unemployed*, issued by the Department of Labor.

For further discussion of these data, see *The Labor Market and Employment Security*, April 1954 and March 1960; BES publication U-141, *Comparison of State Unemployment Insurance Laws*, January 1958; and annual reports of the Railroad Retirement Board. See also Herbert S. Parnes, "Unemployment Data from the Employment Security Program" in *The Measurement and Behavior of Unemployment*, Special Conference Series 8, Princeton for NBER, 1957.

14.5 HELP-WANTED ADVERTISING IN NEWSPAPERS, METROPOLITAN LIFE INSURANCE CO., MONTHLY, 1919-58. UNIT: 1947-1949 AVERAGE = 100.

*Source*: Directly from Metropolitan Life Insurance Company, Business Research Bureau. Published in *Ancam Exchanges*, Monthly Bulletin of the Association of Newspaper Classified Advertising Managers, Inc. Seasonal adjustment by NBER.

This series is based on the composite percentage change in number of employment ads as reported by the classified advertising managers of 60 newspapers, so distributed over 40 cities as to be representative of the national economy. On the average, the sample constitutes about 35 per cent of the circulation of all U.S. newspapers, including approximately 30 newspapers in 1927 and prior years, 100 in 1930, and 60 for the period 1955-58. 39 of the newspapers (representing 31 cities) reporting in 1930 appear in the 1958 sample. In recent years the index has included between 5 and 7 million help-wanted advertisements for industrial, clerical, and service jobs, of which the latter two types form much the largest proportion. But the industrial component is large enough to impart cyclical sensitivity to the total.

The composite index has been constructed by chaining the median month-to-month percentage change derived from the unweighted returns of the reporting newspapers. This series may be profitably compared with BLS data on voluntary quits and accession or hiring rates (see series 2.0). In addition to the composite national index of help-wanted advertising,

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ANCAM publishes Metropolitan's data on percentage changes from the preceding month and from the same month a year ago for help-wanted and situations-wanted ads classified by sex. For further discussion, see William A. Berridge, "Barometers of Employment Advertising Volume," *The Classified Journal*, February 1930, and "Help-wanted Ads: History and Review of M.L.I. Co.'s National Index," *Ancam Exchanges*, April 1960. A summary of papers on labor turnover and help-wanted advertising by Ewan Clague and William Berridge appears in the American Statistical Association, *Proceedings of the Business and Economic Statistics Section*, 1955.

A new national series and a diffusion index on help-wanted advertising are analyzed in "'Help-wanted' Advertising as a Business Indicator" by Nestor E. Terleckyj, *Business Record*, National Industrial Conference Board, July 1960. These are based on data compiled by B. K. Davis & Bro. Advertising Service of Philadelphia. A local index for Los Angeles is also maintained by the Security-First National Bank there.

### 15.0 TOTAL INDUSTRIAL PRODUCTION INDEX (INCLUDING UTILITIES), FEDERAL RESERVE BOARD, MONTHLY, 1919-58. UNIT: 1947-49 = 100.

*Source*: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, December 1959. Adjusted for variations in the number of working days per month and for seasonal variations by the FRB. Current data are in FRB release, *Business Indexes* (No. G. 12.3).

This index embraces mining and manufacturing production and electric and gas utility output, or roughly 35 per cent of GNP. Based on about 50 series in 1919-22, the coverage was substantially increased beginning in 1923 and again in 1939, 1953, and 1959. Currently the index includes about 200 series distributed among 20 manufacturing, 4 mining, and 2 utility industry groups. Some of the individual series are based on statistics of monthly output while others are based on consumption or shipments of materials, machinery-hours active, or man-hours worked, adjusted to reflect physical output. Where undercoverage or deficiencies exist in the basic data, the necessary adjustments are made, when possible. For example, series based on man-hours, which account for about 49 per cent of the total index weight, are modified to allow for changes in output per man-hour. Many of the other series are checked for inventory and price changes or otherwise adjusted to more accurate and detailed physical volume figures not available monthly. The series are further subjected to benchmark adjustments based on the Census of Manufactures. Between Census years, all series are periodically reviewed and adjusted to an independent set of annual indexes based on about 1400 series.

The index is of the aggregative type—a weighted average of relatives, with the weights based on value-added data for manufactures, minerals and utilities. Starting with 1953, the weights are based on 1957 valuations;

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for 1947-52, 1947 valuations; 1939-46, average valuations for 1939 and 1947; 1930-38, 1937 valuations; 1923-29, 1923 valuations. For 1919 through 1923, the series is a weighted average of two separate indexes, one constructed with 1919 weights and one with 1923 weights.

In December 1959, effective with data beginning in January 1947, the index was adjusted to levels shown by the comprehensive 1954 Census of Manufactures, annual Census surveys and other benchmark data. A number of new monthly series were introduced, new interpolation procedures adopted, and the 1957 version of the U.S. Bureau of the Budget's standard industry classification manual used. In general, the effect of these changes was to raise the average level of the index in the postwar period by 6 per cent, to show more growth for 1950-55, and to show wider cyclical movements since 1952.

Separate indexes for individual industries, and for groups of industries classified by durability of product, broad market categories, and major industry groupings, are published monthly on both the 1947-49 and 1957 comparison base periods. The figures shown here are on the 1947-49 base used for most indexes appearing in this volume; figures on this base, being numerically higher, are somewhat more sensitive to fluctuation than those on the 1957 base. For further details on the composition and construction of the index, see *Federal Reserve Bulletin*, December 1953 and *Industrial Production: 1959 Revision*, FRB, 1960. The latter reference includes a discussion of the value for business cycle analysis of the new market group indexes, covering the production of industrial materials, consumer goods, and business equipment.

15.1 INDEX OF PHYSICAL VOLUME OF BUSINESS ACTIVITY, BABSON, MONTHLY, 1889-1957. UNIT: FOR 1889-1938, 1923-27 = 100; FOR 1933-57, 1947-49 = 100.

*Source*: Babson's Reports Inc. (formerly Business Statistics Organization, Inc.). Furnished directly to NBER. Data available in seasonally adjusted form only.

This series measures the movements of the physical volume of commercial and industrial production including agricultural marketing and processing but excluding farm production proper. The index is a base-year weighted aggregate of seasonally adjusted physical volume or constant dollar magnitudes. The coverage ranges from eleven series in four major industry groups in 1889 to 33 series in seven industrial areas in February 1938 and 35 series thereafter. The main industry groups and their components (the components of 1889 are in italics), and the percentage weights of the groups in 1957, are as follows:

Manufactures (63.2): butter, cattle slaughter, hog slaughter, ice cream, malt liquors, flour, sugar meltings, cotton consumption (*cotton*



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*takings* and *raw silk* earlier), wool consumption, hosiery, rayon and acetate consumption, rubber consumption (*rubber imports* earlier), passenger automobiles and trucks, *coke*, gasoline, fuel oil and lubricants, aluminum (*tin and tin plate imports* earlier), *pig iron*, steel ingots, paper and paper-board, newsprint consumption, magazine and newspaper advertising, cement, shoes, glass containers, tobacco products.

Minerals (10.1): *bituminous and anthracite coal*, *crude petroleum*, natural gas and gasoline, iron ore, copper, lead, zinc.

Agricultural marketings (2.4): receipts of wheat, corn, oats, cotton, cattle, hogs, sheep and lambs, poultry, eggs; carlots of apples, oranges, and potatoes.

Building and construction contracts (10.4).

Railway freight revenue ton-miles (7.5).

Electric power production (4.7).

Foreign trade (1.7): *imports* and *exports*.

The weights are value-added data taken, where possible, from the Census of Manufactures; in other cases, they have been estimated by the Babson Organization. In the 1889–1938 segment, the sum of the weights, \$29.1 billion per year in 1923–27 including direct and indirect representation, is about 40 per cent of national income, excluding income originating in agriculture. From 1938 on, the weights are averages of 1939 and 1947, aggregating \$53.7 billion per year in terms of value-added.

To allow for changes over the years in the relative importance of the components, different weight bases are used for different periods, as follows: 1909 data for 1904–11, 1914 for 1912–16, 1919 for 1917–20, 1923–27 average for 1921–38, 1939 and 1947 average from 1938 on. Where shifts occur, the index numbers actually used are averages of overlapping data.

The Babson index is based on a broader concept of production than the Federal Reserve index of industrial production (series 15.0), which is limited to mining, manufacturing, and utilities. Nevertheless, its movements match those of the Federal Reserve index closely, and it is perhaps the most nearly comparable monthly index available before 1919. In September 1957 computation of the Babson index was discontinued because it so closely approximated the Federal Reserve index. An extension of the index (on the 1947–49 base) back to 1871 is available. For more extensive description of earlier index, see U.S. Bureau of the Census, *Historical Statistics of the United States, 1789–1945*, Washington, 1949.

### 15.2 FREIGHT CARLOADINGS, ASSOCIATION OF AMERICAN RAILROADS, MONTHLY, 1918–58. UNIT: THOUSAND CARS PER WEEK.

Source: For 1918–22, Association of American Railroads, Car Service Division, *Annual Bulletin*, 1923, 1924, 1925; thereafter, *Revenue Freight*

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*Loaded and Received from Connections* (January 6, 1959 issue contains 1939–58 summary). Seasonally adjusted by NBER (using Census Method II).

This series represents the number of cars of revenue freight loaded by reporting Class I railroads. For statistical purposes a *carload* is a shipment of not less than 10,000 pounds of one commodity from one consignor to one consignee; *revenue freight* means shipments from which earnings accrue to the carrier on the basis of tariff rates; a Class I railroad is one whose annual revenue exceeds \$1,000,000 (beginning 1956, \$3,000,000—carloadings were revised accordingly back to 1955). The figures cover all cars of revenue freight originated for *initial* road haul on reporting roads.

Monthly statistics have been derived as averages of four or five weekly figures for the month, with weeks ending on the 1st, 2nd, or 3rd included in the preceding month. Weekly carloadings data are usually revised one year after they are first published. The revised data are presented here.

The percentage of all freight cars loaded or of total U.S. revenue freight represented by the series is not known. Class I railroads operate about 95 per cent of total U.S. mileage and haul 99 per cent of total rail traffic. No attempt has been made to adjust these figures for secular trend due to the increase in size of freight cars (29 per cent from 1916 to 1951) or the loss of freight traffic by the railroads to other carriers. Truck tonnage transported more than doubled between 1947 and 1959.

Carloadings data are available for the following commodity groups: grain and grain products, livestock, coal, coke, forest products, ore, less-than-carload merchandise, and miscellaneous. Starting in 1918, the Board of Governors of the Federal Reserve System has computed seasonally adjusted monthly indexes from the weekly data described above. For a detailed description of these indexes, see the *Federal Reserve Bulletin*, June 1937 and June 1941. Current figures appear in the FRB release, *Business Indexes*, G 12.3 and in the *Survey of Current Business*.

For a description of these and other revenue freight statistics, see *Historical Statistics of the U.S.*, pp. 189, 323; the report of the Association of American Railroads relating to cars of revenue freight loaded (issued January 8, 1957); *Railroad Transportation, A Statistical Record: 1911–1951*, Association of American Railroads, Bureau of Railway Economics, March 1953.

Forecasts of carloadings by railroad shippers are available quarterly since 1927, classified by commodity group and geographic region. For diffusion indexes based on these data see series D 15.2. The quality of the forecasts are analyzed in Robert Ferber, *The Railroad Shippers' Forecasts*, Urbana, 1953; Thor Hultgren, "Forecasts of Railway Traffic," *Short-Term Economic Forecasting*, Studies in Income and Wealth, Vol. 17, Princeton for NBER, 1955; and in the papers by Ferber and by Albert G.

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Hart in *The Quality and Economic Significance of Anticipations Data*, Special Conference Series 10, Princeton for NBER, 1960.

Since carloadings do not take into account the varying weight of goods put into a car or the distance hauled, freight ton-miles are more representative of services rendered by railroads. For a monthly series on freight ton-miles beginning in 1866, see *Historical Statistics of the United States, 1789-1945*, Appendix I, Series 12. Ton-miles are published currently in *Revenue Traffic Statistics of Class I Railways in the U.S.* but with a longer publication lag (three months) than the weekly carloadings. Other freight traffic statistics useful as business indicators are the ICC quarterly compilations of tons of revenue freight originated (1920 ff.) and freight hauled by Class I intercity motor carriers (1938 ff.), and the American Trucking Association's weekly press releases on motor freight tonnage.

For an analysis of the behavior of freight traffic during business cycles, see Thor Hultgren, *American Transportation in Prosperity and Depression*, New York, NBER, 1948.

16.0 GROSS NATIONAL PRODUCT IN CURRENT DOLLARS, OFFICE OF BUSINESS ECONOMICS, QUARTERLY, 1939-58. UNIT: BILLION DOLLARS, ANNUAL RATE.

17.0 GROSS NATIONAL PRODUCT IN CONSTANT DOLLARS, SAME, 1947-58. UNIT: BILLION 1954 DOLLARS, ANNUAL RATE.

*Source:* For 1939-45, U.S. Department of Commerce, Office of Business Economics, *National Income*, supplement to the *Survey of Current Business*, 1954 edition; for 1946-55, *U.S. Income and Output, 1958*; for 1956-58, *Survey of Current Business*, July 1959. Current data are available in *Survey of Current Business* and *Business News Reports, National Income and Product*. Seasonally adjusted by the National Income Division of the OBE.

These series represent the value of all finished commodities and services resulting from economic pursuits, i.e. the market value of the nation's output before deduction of depreciation charges and other allowances for business and institutional consumption of durable capital goods. The figures include only the value of final products, excluding intermediate products except those added to inventory during the period. Certain items of production "in kind" are included, such as value of food produced and consumed on farms and the rental value of owner-occupied houses. The chief components of gross national product or expenditure are: personal consumption expenditures on goods and services, gross private domestic investment, net exports of goods and services, and government purchases of goods and services. Gross national product can also be regarded as comprised of the several types of income derived from current production

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(employee compensation, profits, net interest, and rental income) plus depreciation and other capital consumption allowances and indirect business taxes.

The constant dollar estimates have been derived by dividing seasonally adjusted current dollar expenditure components by appropriate price indexes, 1954 = 100. For a full explanation of fundamental concepts and statistical procedures employed in constructing these series, see *U.S. Income and Output, 1958* (Chs. 5 and 8) and the reference cited therein. Quarterly data are published by the OBE in the *Survey of Current Business*: first quarter in May issue, second quarter in August, third quarter in November, and fourth quarter in the following February. Preliminary estimates by the Council of Economic Advisers appear in *Economic Indicators* in the month following the end of each quarter.

For analyses of the behavior of gross national product and its components during business cycles, see Simon Kuznets, *National Income and Its Composition, 1919-1938*, New York, NBER, 1941, Chs. 5, 6, and 7; Wesley C. Mitchell, *What Happens during Business Cycles*, New York, NBER, 1951, pp. 153-158; and *U.S. Income and Output, 1958*.

### 16.1 GROSS NATIONAL PRODUCT IN CURRENT DOLLARS, BARGER AND KLEIN, QUARTERLY, 1921-41. UNIT: BILLION DOLLARS.

*Source*: Compiled by Harold Barger and Lawrence R. Klein from data developed by Harold Barger in *Outlay and Income in the United States, 1921-1938* (New York, NBER, 1942) and Simon Kuznets, *Commodity Flow and Capital Formation* (New York, NBER, 1938, Vol. 1). Seasonally adjusted by summing adjusted components.

This series represents the total national output of goods and services at current market prices, before deduction of depreciation charges and other allowances for capital consumption. The figures shown herein are the estimates of gross national product or expenditure presented by Barger in *Outlay and Income in the U.S.* revised to conform with Department of Commerce data published in *National Income*, supplement to the *Survey of Current Business*, July 1947. These data were developed by Barger and Klein for their article "A Quarterly Model for the United States Economy," *Journal of the American Statistical Association*, September 1954, pp. 413-437.

Generally the series is obtained by summing estimates of the several components. The quarterly estimates are derived from Kuznets' annual figures by interpolation with the help of sample data such as indexes of production, payrolls, or other appropriate monthly and quarterly information. Quarterly figures of total final product have been obtained in seasonally adjusted form only, prior adjustment having been made to

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each component individually. In terms of the original Barger data given in Table 11 of *Outlay and Income in the U.S.*, these estimates may be derived as the sum of consumers' outlay, gross private investment, and public outlay, less inventory change; or as total outlay plus depreciation minus inventory change. Quarterly gross national product estimates expressed in constant (1939) prices beginning in 1921 also have been computed by Barger (cf. series 17.0).

Because of the paucity of quarterly statistics prior to 1929, the estimates for many of the components are at best crude approximations. For discussion of these and related data, see source and the notes to series 16.0.

### 18.0 BANK DEBITS OUTSIDE NEW YORK CITY, FEDERAL RESERVE BOARD, MONTHLY, 1919-58. UNIT: BILLION DOLLARS.

*Source:* For 1919-41, Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, 1943; for 1942-May 1943, *Federal Reserve Bulletin*, March 1942 and following issues; for 1943-51, "Bank Debits and Rates of Turnover—Demand Deposit Accounts Except Interbank and Government Accounts—Revised Series 1943-52," mimeographed release by the Division of Bank Operations, December 1953; thereafter, *Federal Reserve Bulletin*, May 1953 and ff. issues. Current data are in FRB release, *Bank Debits* (No. G6). Seasonally adjusted by NBER (using Census Method II since 1948). The seasonal index for 1946-58 is adjusted for the number of Saturdays and Sundays in each month and for the extra day in February in leap years. FRB also issues seasonally adjusted data.

This series measures the extent to which depositors are using their bank accounts. Bank debits represent charges against bank deposits arising from checks drawn on banks and/or instructions given banks (orally, by mail or otherwise) by their depositors to perform specific services. Debits are reported by approximately 1600 banks in 344 centers outside New York City from January 1943 through March 1955 and 343 centers thereafter. The statistics, beginning in January 1943, cover debits or charges to demand deposit accounts at commercial banks of individuals, partnerships, corporations, and state and local governments, and payments from trust funds on deposit in the banking department. Debits to United States Government accounts, interbank transactions, and charges to time deposit accounts are excluded. It is estimated that in most centers the banks reporting debits account for 90 per cent or more of the center's total commercial bank deposits. Debits reported by New York City banks are published by the Federal Reserve Board but are excluded here because of the dominant influence of stock market and other financial transactions on the series.

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The earlier segment of the series, 1919-43, comprises only 140 centers outside New York City. The totals for these are only slightly lower than those for all centers which report at present, since all large cities were included. More significant, the earlier data include, in addition to the above-mentioned charges to demand deposit accounts, debits to savings and other time deposits and to U.S. Government deposit accounts. They were compiled from the weekly reports of cooperating commercial banks which were members of their local clearing-house associations. Estimates of monthly debits were derived by the FRB by prorating split weeks at the beginning and end of months. As in the current series, the earlier series excluded interbank accounts (payments of certified and officers' checks, payments in settlement of clearing house balances, charges to expense and miscellaneous accounts, corrections and similar charges, and debits to the accounts of other banks). In 1942 the collection of debits statistics was changed from a weekly to a monthly basis and the total number of reporting banks increased. The series on debits for 140 reporting centers is available through February 1953.

For further details, see *Federal Reserve Bulletin*, August 1943 and April 1953; *Banking and Monetary Statistics*, 1943, pp. 230-233; and *Debits and Clearing Statistics and Their Use* by George Garvy (Federal Reserve Board, 1959). For data on bank clearings outside New York City extending back to 1875, see series 18.1.

18.1 BANK CLEARINGS OUTSIDE NEW YORK CITY, COMMERCIAL AND FINANCIAL CHRONICLE, MONTHLY, 1875-1958. UNIT: MILLION DOLLARS, DAILY AVERAGE.

*Source:* Compiled by the National Bureau of Economic Research. For 1875-83, from *Annual Reports* of the New York State Chamber of Commerce, *Banker's Magazine*, *Merchants' Magazine*, and *The Public*; for 1884-1958, *Commercial and Financial Chronicle*. Monthly totals are converted to daily averages by dividing by the number of calendar days in the month. For 1875-78, the series was adjusted to approximate calendar month figures since about half of the reported monthly clearings were for 4- or 5-week totals instead of for the calendar month. Seasonally adjusted by NBER.

Bank clearings represent dollar totals of checks and drafts drawn on individual banks and credited to the accounts of other banks through city clearing house associations to which the individual banks belong. Hence they take no account of checks drawn to "cash", checks deposited for credit and chargeable against other accounts at the same bank, checks collected directly through the mails, and numerous types of charges to depositors' accounts in addition to those arising from the payment of checks. On the other hand, as actually reported by clearing house

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associations, the data contain a number of duplicating items connected with the process of clearing, such as remittance drafts for cash letters and other transfers of bank funds. Starting in 1919, bank debits figures (series 18.0) have for the most part supplanted clearings for the purpose of representing total check transactions, although clearings data are still available weekly whereas debits are not (see below). For a discussion of the relation of bank debits to clearings, see the *Federal Reserve Bulletin* for September 1918, and *Debits and Clearings Statistics and Their Use* by George Garvy (Federal Reserve Board, 1959).

Bank clearings outside New York City is a more reliable indicator of current movements in output and trade than total clearings, because New York City's large volume of bank clearings are traceable to financial transactions that largely reflect stock and bond market trading. The series covers a gradually increasing list of cities, beginning in 1875 with Baltimore, Boston, Chicago, Cincinnati, Columbus, New Orleans, Pittsburgh, Philadelphia, St. Louis, and Worcester. According to *The Public*, reports from these cities and New York accounted for 12 clearing houses, embracing 312 banks out of a total for the country of 20 clearing houses, embracing 394 banks. By 1885, 29 cities are included; by 1900, 56. In 1920 the number of clearing houses reached a peak of 198. Since then, the number of reporting centers has remained close to that level. As of 1958, the sample includes 179 cities. No adjustments have been made for variations in the series coverage.

For a similar series on clearings outside New York City, 1875-1919, adjusted for changes in the number of cities included, see Frederick R. Macaulay, *Some Theoretical Problems Suggested by The Movements of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856*, New York, NBER, 1938, Tables 27 and 29. Macaulay's series are presented in original and in deflated form, and both versions are also given in seasonally adjusted, smoothed and trend-adjusted forms.

A series on clearings in seven cities outside New York, 1866-1914, is charted and described in Edwin Frickey's *Economic Fluctuations in the United States*, Cambridge, Mass., 1942, pp. 338, 360-361. Carl Snyder's clearings index of business (*Journal of the American Statistical Association*, September 1924) is based on outside clearings 1875-1918 and outside debits thereafter and is smoothed and adjusted for trend, seasonal, and price changes. It has been extended through 1939 by the Federal Reserve Bank of New York. Since 1919 Dun and Bradstreet has compiled weekly figures on bank clearings for New York City and 24 other cities (25 beginning April 28, 1954). These clearing statistics have been published every Thursday in the release, *Business Trends News: Bank Clearings*, since 1947. Monthly totals appeared in *Dun's Statistical Review* through December 1957, thereafter in monthly releases.

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19.0 PERSONAL INCOME, OFFICE OF BUSINESS ECONOMICS, MONTHLY, 1929-58. UNIT: BILLION DOLLARS, ANNUAL RATE.

*Source:* For 1929-45, U.S. Department of Commerce, Office of Business Economics, *National Income*, 1954 edition, a supplement to the *Survey of Current Business*; for 1946-55, *U.S. Income and Output*, November 1958; thereafter, *Survey of Current Business*, July 1959. Current data are available in *Business News Reports, Personal Income*. Seasonally adjusted by the National Income Division, Office of Business Economics.

This series represents the current income received by persons from all sources including transfer payments from government and from business enterprises. "Current income" comprises (1) monetary receipts; (2) income in kind, such as food, clothing, and lodging provided free to employees of households and nonprofit institutions (except lodging in the case of domestic servants); and (3) imputed income, such as food and fuel produced and consumed on farms, imputed net rent of owner-occupied dwellings, and imputed interest (value of services rendered by commercial banks and other financial institutions for which explicit monetary charges are not made). "Persons" cover not only individuals (including owners of unincorporated enterprises) but also nonprofit institutions, private trust funds, and private pension, health, and welfare funds.

Personal income is the sum of wage and salary disbursements, other labor income, proprietors' net income, net rental income, dividends, interest, and transfer payments. Transfer payments consist of (1) monetary income receipts of individuals from government and business (other than government interest) for which no services are currently rendered (e.g. unemployment compensation payments and pension benefits), (2) government payments and corporate gifts to nonprofit institutions, and (3) individuals' bad debts to business. Certain elements of current income not subject to disposal by the individual, such as employee contributions for social insurance and the excess of wage accruals over disbursements, are excluded from personal income. However, income is measured before taxes. Quarterly estimates of "disposable income" (personal income less federal, state, and local tax payments) are also published by the Office of Business Economics.

Personal income may be larger or smaller than national income, but has a large element in common with it, and it is the largest component of national income available on a monthly basis. To arrive at national income as computed by the Department of Commerce, it is necessary to add to personal income undistributed corporate profits excluding inventory profits, corporate profits taxes, contributions to social insurance funds, and the excess of wage accruals over disbursements, and to subtract transfer payments and net interest paid by government. The Department of Commerce publishes certain components of personal income, such as



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wage and salary disbursements and nonagricultural income, in seasonally adjusted monthly form. For an analysis of the cyclical behavior of personal income and its several components, see *Personal Income during Business Cycles*, by Daniel Creamer, Princeton for NBER, 1956.

### 19.1 PERSONAL INCOME, BARGER AND KLEIN, QUARTERLY, 1921-41. UNIT: BILLION DOLLARS.

*Source:* For 1921-28, computed by Harold Barger and Lawrence R. Klein, from data given by Harold Barger in *Outlay and Income in the United States, 1921-1938* (New York, NBER, 1942); for 1929-41, quarterly totals at annual rates computed from monthly data in *National Income*, supplement to the *Survey of Current Business*, July 1947 (3rd printing). Seasonal adjustment by prior adjustment of components.

Estimates of personal income for 1921-28 represent Barger's quarterly "total income" series (Table 18, col. 6) modified by deducting corporate retained earnings to obtain figures conforming approximately to the concept of personal income used by the Department of Commerce from 1929 on. Using seasonally adjusted data, Barger and Klein accomplished this by:

1. Subtracting Barger's series on corporate net profits (Table 28, series "X") from the "total income" series (Table 18, col. 6);
2. Replacing the dividends removed in step 1 by adding in the series on dividend payments to all individuals (the dividend series derived by adjusting *Journal of Commerce* monthly data to the level of annual estimates given for 1921 in "Income Forecasting by the Use of Statistics of Income Data," by J. F. Ebersole, S. B. Burr, and G. M. Peterson in *Review of Economic Statistics*, November 1929, and for 1922-28 in *Statistics of Income*);

3. Adjusting the results of (1) and (2) to the Department of Commerce level of personal income in 1929 by subtracting \$599 million quarterly.

Owing to the sparsity of quarterly data before 1929 the methods of estimation used for many of the components are necessarily crude and the resulting aggregates can be considered only a rough average graduation of annual data. Although for the most part the components estimated by such graduation are more stable than the rest, hence subject to smaller errors of estimate, the method is nevertheless likely to impart certain smoothing biases (e.g. rounded peaks and troughs).

Estimates for the period 1929-41 are similar in concept and coverage to series 19.0. Differences reflect mainly the use in series 19.0 of revised methods and sources, introduced in 1953, in estimating components of personal income, especially the noncorporate sector. See *National Income*, 1954 edition, supplement to the *Survey of Current Business*.

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19.2 LABOR INCOME IN MINING, MANUFACTURING, AND CONSTRUCTION, OFFICE OF BUSINESS ECONOMICS, MONTHLY, 1929-58. UNIT: BILLION DOLLARS, ANNUAL RATE.

*Source:* U.S. Department of Commerce, Office of Business Economics. Compiled by NBER from basic data furnished by OBE. Seasonal adjustments are by the National Income Division, OBE.

This series represents total wage and salary disbursements (excluding "other labor income") to workers in all commodity-producing industries except farming. The data cover mining, manufacturing, contract construction, forestry, fisheries, and agricultural services, but wages and salaries for mining, manufacturing, and construction form more than 99 per cent of the total. Since these are "cyclically sensitive" industries, and since wages (though not salaries) are one of the more cyclically sensitive types of income, this component of total personal income tends to move closely with business cycles. See Volume I, Chapter 3; also Daniel Creamer, *Personal Income during Business Cycles*, Princeton for NBER, 1956.

To derive this series, monthly farm wages are subtracted from the published figures on wage and salary disbursements for all commodity producing industries. (See *National Income*, 1954 edition, Table 52, and *U.S. Income and Output, 1958*, Table II-3.) Seasonally adjusted farm wages have been furnished by the National Income Division of the Office of Business Economics. These data, which are not published, may be approximated from employment and wage data published in the monthly release "Farm Labor," Agricultural Marketing Service, U.S. Department of Agriculture.

20.0 SALES BY RETAIL STORES, CENSUS, MONTHLY, 1935-58. UNIT: MILLION DOLLARS.

20.2 SAME, EXCLUDING FOOD STORES.

*Source:* U.S. Department of Commerce, Office of Business Economics and Bureau of the Census. For 1935-51, *Survey of Current Business*, September 1952; for 1951-58, *ibid.*, June 1957 and ff. issues. Seasonally adjusted by the OBE. For preliminary current estimates (unadjusted), see Census Bureau's *Advance Retail Trade Report*, issued 10 days after close of month.

These series represent the estimated aggregate dollar volume of sales to ultimate consumers, based on reports by establishments with at least 50 per cent of their sales at the retail level. The data relate to total receipts (including payments for services and merchandise sold for resale) net of deductions, refunds, customer allowances, sales taxes and other taxes collected by stores directly from customers over and above the marked selling price and paid directly by stores to local and state taxing

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agencies. Excise and other taxes commonly passed on to retailers but paid by the manufacturer and/or wholesaler are included. The series excluding sales of food stores (20.2) is somewhat more sensitive to cyclical fluctuations than the total.

As originally compiled, beginning 1935, monthly sales of all retail stores were derived by summing estimates for each of ten kind-of-business groups. Estimates were constructed from reports by samples of identical stores, adjusted to benchmark levels derived from the Census of Business for 1935 and 1939.

To eliminate the biases inherent in a constant sample, quarterly estimates of retail sales beginning in 1943 were developed on the basis of reported changes in sales-tax collections, Internal Revenue Service compilations, retail truck sales, highway use of gasoline, farmers' expenditures, and sales of state-operated liquor stores. Monthly estimates were then made by interpolating the quarterly data with the monthly sales series derived from the independent and chain-store samples compiled by the Bureau of the Census. The data of the first segment, 1935-51, are the revised figures computed on this basis and represent a continuous series.

Beginning January 1951, retail sales data are direct estimates from sample data. The coverage of the series was enlarged to include all stores in business at any time during 1948. As a result, the level of the new series in 1951 was 3 per cent above the old. The sample covered (1) all firms with eleven or more retail stores according to the 1948 Census; (2) all department stores (not in (1) above) whose 1948 sales exceeded \$5 million; (3) a sample of all remaining retail stores located in some 230 sample areas. Currently, statistics of retail sales are compiled essentially by the methods adopted in 1951. In April 1957, the sample was revised so as to use the 1954 Census of Business in the same way that the 1948 Census had been used previously. For details, see Notice of Sample Revision in the Bureau of the Census *Monthly Retail Trade Report*. Comparable end-of-month data on retail store inventories are also provided by the source as well as separate data by type of store.

Retail store sales data overstate actual consumer purchases by including sales at retail to other businesses. At the same time they fail to cover purchases of commodities by consumers directly from producers and wholesalers, as well as expenditures on services not sold through retail stores, such as rent and transportation. The Department of Commerce publishes quarterly estimates of total consumption expenditures and its three major components: durable goods, nondurable goods, and services.

For a more complete description of the Retail Trade Survey and the estimating procedure used, see: "Description of the Sample for the Monthly Retail Trade Report, Revised," Bureau of the Census (October

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1955); *Survey of Current Business*, November 1943, September 1952, June 1957. A summary analysis of the cyclical behavior of consumers' purchases and their relation to production is given in *What Happens during Business Cycles* by Wesley C. Mitchell (New York, NBER, 1951), pp. 114-128.

### 20.1 INDEX OF DEPARTMENT STORE SALES, FEDERAL RESERVE BOARD, MONTHLY, 1919-58. UNIT: 1947-49: 100.

*Source*: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, December 1951, December 1957 and ff. issues. Seasonally adjusted by FRB.

The index of department store sales, representing the daily average of the dollar volume of sales, covers a varying number of department stores that submit figures to the various district Federal Reserve Banks. The sample included about 500 stores in the 1920's and 1930's. In the early 1940's, it was increased to about 1,400 stores, or more than one-third of the 4,051 department stores counted in the 1939 Census of Business and more than 70 per cent of their total sales. By 1958 the sample reports included about 1845 stores and accounted for approximately 87 per cent of total department store sales in the United States. Since 1954, department stores have accounted for roughly 6 per cent of sales of all retail stores.

As used herein, department stores are retail stores carrying a general line of apparel (such as suits, coats, dresses) and furnishings, such as draperies, linens, major household appliances, dishes, and utensils. These and other merchandise lines are normally arranged in separate sections or departments but integrated under a single management. Establishments included in this industry normally employ 25 or more persons. The sample includes retail units of the large national department store chains, local or regional chains, independent department stores, and the retail store units of mail order houses.

An index for each of the 12 Federal Reserve districts is obtained from aggregate sales of the district sample allowing for changes in the list of reporting stores. The indexes have been adjusted to the levels indicated by the 1929, 1939, 1948, and 1954 Census data. Each district index is adjusted for variations for the number of trading days in the month, for seasonal variations, and in changes in the date of Easter. To obtain the national index, the district indexes are weighted by the relative importance of the sales of the department stores in the district in the base period 1947-49.

The variety of goods sold by department stores has made their sales a useful indicator of total retail sales, especially before more comprehensive monthly data became available (see series 20.0). The principal types of consumer goods not handled at all or to a minor extent by department stores are automobiles, tires and parts, gasoline and other fuels, and food.

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A weekly index of department store sales, beginning January 1937, is issued by the FRB in *Weekly Department Store Sales* (No. H. 8a). For a seasonal adjustment of this series, see Volume I, Chapter 18. Monthly series on department store sales by departments, and on accounts receivable, inventories, and orders also are compiled by the Federal Reserve. For further details, see the following *Federal Reserve Bulletins*: April 1958, December 1957, November 1953, and October 1952.

For an analysis of the cyclical relations between department store sales, their inventories, their orders, and the output of the goods they buy, see "Cause and Consequence of Changes in Retailers' Buying" by Ruth P. Mack and Victor Zarnowitz, *American Economic Review*, March 1958, pp. 18-49.

21.0 INDEX OF WHOLESALE PRICES OF ALL COMMODITIES OTHER THAN FARM PRODUCTS AND FOODS, BUREAU OF LABOR STATISTICS, MONTHLY, 1913-58. UNIT: FOR 1913-41, 1926 = 100; FOR 1926-58, 1947-49 = 100.

*Source*: For 1913-41, see BLS Bulletins 543, 572, 616, 694, and 1016. For 1926-58, see BLS mimeographed table, "Revised Wholesale Price Index, All Commodities Other than Farm Products and Foods" (undated) and Bulletins 1214, 1235, and 1257. Current data in monthly release, "Wholesale Prices and Price Indexes." Seasonally adjusted by NBER (using Census Method II).

This series is designed to measure the average change in prices of nonagricultural commodities sold in primary markets. Since the prices of farm products and foods do not conform to business cycles as consistently as most other prices, this index tends to conform more closely than the comprehensive wholesale price index, of which it is a part. Commodities from thirteen industrial categories are included, representing 70 per cent of the comprehensive index weight in the comparison period (1947-49), using 1947 weights, and 77 per cent as of December 1957, using 1954 weights.

Basic data of the index are, as far as possible, price quotations in the first commercial transaction for each commodity, i.e. the price to the first large volume class of buyer, whether a manufacturer, jobber, wholesaler, dealer, or, in some instances, the final consumer. The term "wholesale" refers only to sales in quantity, not prices paid or received by wholesalers, jobbers, or distributors. Prices are for tangible goods and exclude the construction of finished structures, services (except gas and electricity), real estate, transportation, and securities. Most prices are f.o.b. point of production or sale, and net of applicable trade and quantity discounts, free deals or allowances, and excise taxes. Nominal prices are used when

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they are acceptable as indicative of the market situation and no other price is available. Through 1951, prices were monthly averages of one-day-a-week prices. Beginning in 1952, prices have been for the most part those of the Tuesday of the week which includes the 15th of the month. Most prices are obtained by mail directly from the manufacturer or other producer. A few are reported by trade associations, and some are taken from authoritative trade publications or from government agencies which collect price quotations as part of their regular work.

Currently the index is calculated as a weighted average of price relatives for the individual items, using the period 1947-49 as 100. The weighting factors for the index are the values of goods sold by or to manufacturers or producers, except internal book transactions. Each commodity price is assigned its own weight plus the weight of other commodities it was selected to represent in the index. The weight pattern is reviewed and amended whenever new industrial Census data become available. Effective with data for January 1958, the weights are based on 1954 net selling values of commodities as reported in the 1954 Censuses of Manufactures and Minerals Industries and data furnished by the Bureau of the Mines, Department of Agriculture and other sources. A continuous index is constructed by joining together index series for successive periods that use different weight bases.

Concurrently with modifications in the weighting structure, the BLS often increases the coverage of the index. For example, in January 1958 it added to the index 90 new items, mostly machinery and metals, and dropped 58 goods whose importance in terms of value of shipments had declined. Coverage changes in 1931 increased the number of items included in the index from 550 to 784 and in 1952 from about 900 to about 2,000. In both instances the proportion of fabricated products in the index was increased. For overlapping years of "old" and revised indexes, as 1926-31 and 1947-52, these revisions tended to reduce the cyclical swings in the index in the later as compared with the earlier periods. See Harry McAllister's report, "Cyclical Stability of the Wholesale Price Index: Effect of Changes in Method of Construction," in the *40th Annual Report of the NBER*, May 1960. For a comprehensive appraisal of the index, see the forthcoming NBER report, "The Price Statistics of the Federal Government: Review, Appraisal, and Recommendations."

Other indexes based on an economic classification of commodities (and further divided according to end use and durability), such as crude materials for further processing, intermediate materials for durable manufacturing, materials and components for construction, consumer finished goods, and producer finished goods for nonmanufacturing industries, are published by the BLS. For a detailed description of these and related series, see BLS Bulletins 572, 1168, 1214, 1257.

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22.0 PLANT AND EQUIPMENT EXPENDITURES, TOTAL, OFFICE OF BUSINESS ECONOMICS, SECURITIES AND EXCHANGE COMMISSION, QUARTERLY, 1947-58.

UNIT: BILLION DOLLARS, ANNUAL RATE.

*Source:* U.S. Department of Commerce, Office of Business Economics; and Securities and Exchange Commission. *Survey of Current Business*, June 1956, March 1958 and ff. issues. Current data are also available in *Business News Reports, Plant and Equipment Survey*. Seasonally adjusted by OBE-SEC.

This series measures in current dollars the volume of expenditures on new plant, machinery, and equipment, not chargeable to current account, made by private business concerns outside of agriculture. The estimates are derived from the annual and quarterly reports submitted by corporations registered with the SEC, by a group of transportation firms under Interstate Commerce Commission jurisdiction, and by a large sample of nonregistered companies, unincorporated as well as corporate, reporting to the Department of Commerce. The sample of reporting companies accounts for over 60 per cent of aggregate new investment in plant and equipment. Coverage is high in railroad transportation, public utilities, and some manufacturing industries, and small in real estate and some financial institutions.

Estimates are made for actual plant and equipment outlays during a given quarter and for expected outlays for the two succeeding quarters. The method of estimation is to extrapolate benchmark estimates on the basis of the quarterly reports of actual and expected capital expenditures. The use of a relatively constant sample of firms necessitates adjustments in the estimates to correct for biases arising from changes in the business population. Major revisions in the series occurred during 1951-52 and were published in the *Survey of Current Business*, December 1951 and August 1952. Estimates of total capital outlays were adjusted to the gross capital assets and industrial classification of corporations as reported to the Internal Revenue Service during the 1948 tax year. The earlier benchmark was based on 1940 tax year data.

Annual data are available for total and major industry groups for 1939 and 1945 ff. (see e.g. *The Economic Report of the President*, January 1960, Table D-30). Other quarterly series that measure new fixed investment are the "producers' durable equipment" and "new private nonresidential construction" components of gross private domestic investment in the GNP accounts. The OBE-SEC series is not comparable with these since the latter include and the former exclude expenditures charged to current account and the capital outlays of agricultural industries, professionals, and institutions. Historical data on plant and equipment investment are shown in the forthcoming report by Simon Kuznets, *Capital in the American Economy: Its Formation and Financing* (in press).

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For details of the statistical procedures used in the OBE-SEC estimates, see the December 1951 and August 1952 issues of the *Survey*. For a review of the historical data available for cyclical analysis of fixed capital investment, see Millard Hastay, "The Cyclical Behavior of Investment," *Regularization of Business Investment*, Special Conference Series 4, Princeton for NBER, 1954. See also "An Appraisal of OBE-SEC Estimates of Plant and Equipment Expenditures, 1947-1958," Office of Statistical Standards, U.S. Bureau of the Budget (Statistical Evaluation Reports, No. 1, October 1959); and "Statistics on Business Plant and Equipment Expenditure Expectations," Report of the Consultant Committee on Business Plant and Equipment Expectations, Board of Governors of the Federal Reserve System, July 1955.

### 22.1 PLANT AND EQUIPMENT EXPENDITURES, MANUFACTURING, CHAWNER, QUARTERLY, 1915-40. UNIT: MILLION DOLLARS.

*Source*: U.S. Department of Commerce, Bureau of Foreign and Domestic Commerce, Division of Business Review. See Lowell J. Chawner, "Capital Expenditures for Manufacturing Plant and Equipment—1915 to 1940," *Survey of Current Business*, March 1941. No seasonal adjustment considered necessary.

This series measures the current-dollar capital outlay for productive facilities for manufacturing purposes excluding expenditures for used facilities and for such natural resources as land, oil fields, and mines. The estimates, built up from many sources varying in coverage and quality, exclude expenditures for small cutting tools, hand tools, and outlays for the maintenance and minor repairs of structures or machinery.

Estimates of plant expenditures cover buildings (together with elevators, heating, plumbing and similar accessory equipment), blast furnaces, docks, boilers, stills, tanks, vats, and similar fixed structures. Figures for factory building construction—approximately 80 per cent of total estimated plant expenditure—have been derived from F. W. Dodge Corporation contract data supplemented by building permit data of the BLS and the industrial contracts-award series compiled by the *Engineering News-Record*. Estimates of plant construction other than building were obtained by allocating to manufacturing capital certain percentages of the value of products as reported by the Bureau of the Census for accessory plant equipment. These values were adjusted for underreporting and for the difference between factory and final user cost.

Plant equipment includes specialized industrial machinery and general purpose equipment (i.e. electric motors, conveyor belts, cranes, trucks, and office machines). Estimates of equipment expenditures are based upon the value of production reported in every Census year from 1914 to 1939 for each of approximately 65 major groups of industrial



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machinery and related equipment used for manufacturing purposes. Quarterly estimates have been interpolated between the data for Census years by using a quarterly index of payrolls for industrial machinery manufacturers derived from BLS data. These quarterly figures are further adjusted to make allowance for exports and imports and for distribution, transportation, and installation costs. Since 1930 corrections have been made for inventory change.

For descriptions of this series, see the *Survey of Current Business*, March and December 1941 and May 1942. For further references on plant and equipment investment, see the notes to series 22.0.

### 23.0 WAGE AND SALARY COST PER UNIT OF OUTPUT, MANUFACTURING, MONTHLY, 1946-58. UNIT: MILLION DOLLARS PER INDEX POINT.

*Source:* Computed by NBER by dividing total wages and salaries in manufacturing by index of manufacturing production, both seasonally adjusted. For 1946-55, manufacturing wage and salary disbursements (reduced to monthly totals) are from Department of Commerce, Office of Business Economics, *U.S. Income and Output*, November 1958; and for 1956-58, from *Survey of Current Business*, July 1959. Current data are available in OBE, *Business News Reports*, *Personal Income*. Index of manufacturing production (1947-49 = 100) is from Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, December 1959. Current data are available in FRB, *Business Indexes* (No. G.12.3).

The earnings data used in the numerator of this cost index are gross wages and salaries whether received in kind or as monetary payments. Pay received for sick leave, holidays, and vacations is included. Retroactive wages are counted when received rather than when earned. Other employer disbursements such as contributions for social insurance, company pension and welfare funds, and compensation for injuries, directors' fees, jury duty are excluded, since they are not available on a monthly basis. These supplements to wages and salaries amounted to \$1.7 billion in 1946 and \$6.9 billion in 1958, 4.7 per cent and 9.0 per cent respectively of total manufacturing wages and salaries in those years. For sources and methods used in compiling these data, see *National Income*, Supplement to the *Survey of Current Business*, 1954 edition.

The denominator of the cost index—the FRB index of manufacturing production—measures the relative change in the physical volume of manufacturing production from the base period (1947-1949 = 100). This index is the principal component of the FRB index of industrial production (series 15.0), the other components being minerals and electric and gas utilities production.

Wage and salary cost per unit of output uses more comprehensive figures on costs than series 23.1, production worker wage cost per unit

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of output. Wages and salaries include payments to nonproduction workers, which rose from 24 per cent of the total in 1946 to 34 per cent in 1958. Both cost indexes are subject to the limitation that about half the industrial coverage of the production index is based on man-hours data interpolated or extrapolated by monthly estimates of output per man-hour. For a discussion of the behavior of labor cost as it is related to production, hourly earnings, and output per man-hour, see *Changes in Labor Cost during Cycles in Production and in Business*, by Thor Hultgren (Occasional Paper 74, New York, NBER, 1960). See also Volume I, Chapter 16.

23.1 PRODUCTION WORKER WAGE COST PER UNIT OF OUTPUT, MANUFACTURING, MONTHLY, 1919-58. UNIT: FOR 1919-50, 1947-49 = 100; FOR 1947-58, 1957 = 100.

*Source:* Computed by NBER from data compiled by Bureau of Labor Statistics and by the Federal Reserve Board. For 1919-38, BLS index of factory payrolls is from "Production Worker Employment, Payroll, Hours, and Earnings in Manufacturing Industries," mimeographed release LS 53-0902, (9-52); for 1939-50, from "Employment, Payroll, Hours, and Earnings—Manufacturing," mimeographed release LS 53-2884 (2-53); for 1947-58, from unpublished BLS tabulation. FRB index of manufacturing production is from *Federal Reserve Bulletin*, December 1953, for 1919-50, and December 1959, for 1947-58. Seasonally adjusted by NBER.

This series is derived by dividing the unadjusted BLS index of factory payrolls by the unadjusted FRB index of manufacturing production. Payrolls are the earnings of all full- and part-time production workers (defined as "wage earners" before 1945) who worked during, or received pay for, any part of the pay period ending nearest the 15th of each month. The series differs from 23.0 in that it does not include payments (largely salaries) to nonproduction workers. Monthly figures for the latter are not available before 1929. Neither series includes other labor costs such as employer contributions to social security and private pensions. Both series are subject to limitations, as measures of short-run changes in unit cost, inherent in the fact that about half of the index of output, used in the denominator of the cost index, is constructed by applying monthly interpolated and extrapolated estimates of output per man-hour to man-hour data.

Monthly indexes of production worker wage cost per unit of output have been constructed by the National Bureau for durable and non-durable manufacturing, railroads, and selected mining and manufacturing industries. For an analysis of the industry indexes and of the limitations of comprehensive labor cost indexes, see Thor Hultgren, *Changes in Labor Cost During Production and Business Cycles*, (Occasional Paper 74, New York, NBER, 1960).

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### 23.2 LABOR COST PER DOLLAR OF REAL GROSS NATIONAL PRODUCT, QUARTERLY, 1947-58. UNIT: CENTS.

*Source:* Computed by the NBER by dividing total compensation of employees in current dollars by gross national product in 1954 dollars, both seasonally adjusted. Basic data (quarterly at annual rates) are from the Department of Commerce, Office of Business Economics. *U.S. Income and Output*, November 1958, and the *Survey of Current Business*, July 1959.

These estimates measure changes in the total labor cost per unit of real gross product originating in all parts of the nation's economy. The numerator of the cost index includes aggregate payments to labor (wage and salary disbursements and other labor income) plus employer contributions for social insurance and the excess of wage accruals over disbursements. Compensation of private, military, and government civilian employees is included. The denominator of the index measures the total real output of the nation (see series 17.0). That is, the effect of changes in prices on the value of output is eliminated.

Note should be taken of some limitations of this series. Compensation for the labor of proprietors is excluded from the numerator of the cost index. In the denominator, much of the output in the government sector is measured in terms of deflated labor input with no allowance for changes in productivity. For further discussion of unit labor cost and the problem of measurement, see the notes to series 23.0 and 23.1 and the references cited therein. An index of labor cost per unit of output for the corporate sector of the economy, quarterly 1947-59, can be computed from data provided by Edwin Kuh, "Profits, Profit Markups, and Productivity," Study Paper 15, *Study of Employment, Growth, and Price Levels*, Joint Economic Committee, 86th Congress, 1st Session, January 25, 1960 (col. 3, Table 1 divided by col. 2, Table 2).

### 24.0 MANUFACTURERS' INVENTORIES, BOOK VALUE, CENSUS, OFFICE OF BUSINESS ECONOMICS, QUARTERLY FOR 1926-38, MONTHLY FOR 1938-58. UNIT: MILLION DOLLARS.

### 24.1 MANUFACTURERS' FINISHED GOODS INVENTORIES, BOOK VALUE, CENSUS, OFFICE OF BUSINESS ECONOMICS, MONTHLY, 1939-58. UNIT: BILLION DOLLARS.

*Source:* U.S. Department of Commerce, Bureau of the Census and Office of Business Economics. For 1926-38 (series 24.0), see *Survey of Current Business*, April 1949. Only seasonally adjusted figures are available. For 1939-58, see *Survey of Current Business*, May 1953, January 1954, May and June 1955, September 1957, and *Business Statistics*, 1959 edition. Seasonally

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adjusted data for total inventories, 1939-45, are direct from the Office of Business Economics. Current data are available in *Business News Reports, Manufacturers' Sales, Orders, and Inventories*.

Manufacturers' inventories represent the book value of stocks on hand at the end of the month or quarter and comprise purchased materials, goods in process, and finished goods. All inventories owned by a company are covered, including not only those located in factories but also goods in transit, in warehouses, and in manufacturers' sales branches. Manufacturers' inventories are, in general, valued at the lower of cost or market price. In 1958 about 15 per cent of manufacturers' inventories were valued on a last-in-first-out basis. Fluctuations in book values are, therefore, affected by changes in the prices at which inventories are valued as well as by changes in the physical volume of stocks.

Estimates are based on the Monthly Industry Survey, which collects information on sales, inventories, and orders from a sample of manufacturing companies estimated to include currently (1958) over 50 per cent of all manufacturing sales. Inventory data reflecting end-of-month values carried on the books of reporting panels are used to extrapolate benchmark estimates based on the latest available information from the Internal Revenue Service. The most recent benchmark figures have been derived from 1954 income tax returns for corporations and sole proprietorships and 1953 returns for partnerships.

The quarterly estimates for 1926-38 were developed by the OBE as part of an analysis of the historical behavior of manufacturers' inventories by Walter W. Jacobs and Sylvia F. Broida (*Survey of Current Business*, April 1949). The estimates conform with current monthly series of manufacturers' sales and inventories as of 1948.

Annual and monthly inventory statistics are published by the OBE for retail and wholesale trade as well as for individual manufacturing industries and for durable and nondurable manufacturing groups. Estimates of manufacturers' inventories of purchased materials and goods in process as well as finished goods are also available. For a description of these and related series on manufacturers' sales and new orders, see *Survey of Current Business*, October 1951, October 1952, December 1953, May 1955, June 1957, and August 1957.

Monthly estimates of manufacturers' inventories, 1929-44, have been compiled by the National Industrial Conference Board. See National Industrial Conference Board, *Inventories, Shipments, Orders, 1929-1940: Revised Indexes*, a Supplement to the *Economic Record*, Vol. II, December 26, 1940 and issues of *Economic Almanac* for 1941-45. Since 1949, Standard and Poor's Corporation has published monthly data on manufacturers' inventories. See source cited in notes to series 4.0.

For an analysis of the cyclical behavior of inventories, see Moses

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Abramovitz, *Inventories and Business Cycles, with Special Reference to Manufacturers' Inventories*, New York, NBER, 1950, and the forthcoming NBER report by Thomas M. Stanback, Jr. on postwar cycles in manufacturers' inventories. The close association between business inventories and commercial and industrial bank loans outstanding is analyzed by Doris Eisemann, "Manufacturers' Inventory Cycles and Monetary Policy," *Journal of the American Statistical Association*, September 1958.

25.0 CONSUMER INSTALMENT DEBT, FEDERAL RESERVE BOARD, MONTHLY, 1929-58. UNIT: MILLION DOLLARS.

*Source*: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, April 1953, October 1956, December 1957, and November 1959. Current data are in FRB release, *Consumer Credit, Short- and Intermediate-Term* (No. G.19). Seasonally adjusted by NBER.

This series represents total consumer instalment credit outstanding at the end of the month on the books of financial institutions or retail dealers, i.e. obligations that are scheduled to be repaid in two or more instalments. Revolving credit, budget, and coupon accounts are included, and the data embrace, in most cases, the finance, insurance, and other charges incurred under the instalment contract. Excluded are single payment loans, charge accounts, and service credit, all termed "noninstalment consumer credit." Real estate mortgage credit, although often repaid on an instalment basis, is not included. Currently (1958) instalment debt accounts for 75 per cent of total consumer credit; in 1929 the proportion was about 50 per cent.

To estimate the volume of consumer instalment credit outstanding, benchmarks are established on the basis of the Federal Reserve Board's survey of finance companies, Regulation W registration statements, the Bureau of the Census annual survey of retail trade, and annual reports from the Bureau of Federal Credit Unions and State supervisory agencies. Current monthly estimates are extrapolated from the latest benchmark estimate on the basis of sample data obtained from the accounting records of retail outlets and financial institutions. Conceptually the amount of outstanding credit represents the sum of the balances in the instalment receivable accounts of financial institutions and retail outlets on any given date. Credit extended covers all debit entries to these accounts during a given period, and credit repaid covers all of the credit entries except charge-offs. The difference between credit extended and credit repaid during any given period is thus equal to the change in the outstanding balance during the period, if allowance is made for losses and charge-offs. In these estimates, charge-offs are included as repayments. See *Detailed Description of Sources and Methods Used in Revision of Short- and Intermediate-Term Consumer Credit Statistics*, FRB, 1953.

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The sources available do not enable the compilers to exclude all nonconsumer credit and include all consumer credit. For example, data do not permit an accurate allocation between consumer and nonconsumer uses of some credit obtained by individuals to purchase durable goods, such as automobiles, used both for consumption and business purposes. Commercial bank call reports do not classify loans to farmers according to consumption and production purposes; hence they are excluded entirely from the consumer credit figures. In general, the amount of consumer credit omitted from the series probably exceeds the amount of nonconsumer credit that still remains.

The series is shown as continuous for the entire period although estimates for the years 1929-39 differ conceptually from later figures. The major revision of consumer credit statistics in 1953 involved the collection of data according to holders of credit rather than types of credit (i.e. sale or loan), the inclusion of credit extended by mutual savings banks and savings and loan associations, the inclusion of repair and modernization loans, the adoption of new techniques for making nonconsumer credit adjustments, and other changes in methods of estimation and adjustments to new benchmark figures. Data were not available for the years 1929-39 to permit revision of the series in line with all the changes adopted for the period 1939-58. However, major components of the old series have been adjusted to the level of the revised series for the 1929-39 period on the basis of the relationship between the new and old estimates at the end of 1939. The differences between the new and the old series at the end of 1939 are small.

The Board publishes monthly statistics of total consumer credit and noninstalment credit beginning 1929. Available since 1939 are monthly estimates of instalment credit by holder and by type of credit, and, since 1940, monthly estimates of extensions and repayments. For a more detailed statement of these and related series, see "Revision of Consumer Credit Statistics," *Federal Reserve Bulletin*, April 1953. *Consumer Instalment Credit*, a six-volume series published by the Board of Governors of the Federal Reserve System in 1957, presents a broad discussion of the role of instalment credit in the economy. For an earlier analysis, see Gottfried Haberler, *Consumer Instalment Credit and Economic Fluctuations*, New York, NBER, 1942.

### 26.0 BANK INTEREST RATES ON BUSINESS LOANS, FEDERAL RESERVE BOARD, QUARTERLY, 1939-58. UNIT: PER CENT.

*Source*: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, March 1949 and ff. issues. No seasonal adjustment necessary.

This series represents the weighted average of interest rates actually charged for each new short-term business loan or renewal made in the

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first half of March, June, September, and December as reported by a sample of large banks in 19 leading cities. The figures cover all business loans, maturing in one year or less, made to individuals, partnerships, and corporations, except those secured by real estate. Also excluded is open market paper purchased.

Beginning June 1948, the estimates are summary averages for the 19 cities obtained by (1) computing the average rate paid on each size group of loans in each city by dividing the dollar amount of interest charged, figured at annual rates, by the dollar amount of loans made; (2) combining the rate averages for minor size groups of loans into the following major size groups: \$1,000–\$9,999, \$10,000–\$99,999, \$100,000–\$199,999, and \$200,000 and over; (3) taking the weighted means of the average rate on loans in the major size categories. The weights used reflect the relative importance of the loan size groups in the loan portfolios of reporting banks and in the business loan volume outstanding as of November 20, 1946. For details of the computation of the summary averages, see Richard Youngdahl, "New Statistics of Interest Rates on Business Loans," *Federal Reserve Bulletin*, March 1949, Appendix A.

Before the introduction of the revised report form in June 1948, the respondent banks did not furnish data needed to adjust interest rate averages for variations in the size distributions of loans.

For the period March 1939–May 1948, the estimates were obtained by reworking the old interest rate reports and using a constant system of weights based on size-of-loan statistics as described in source, Appendix B.

Quarterly data of bank rates on business loans for each major size group for New York City, 7 northern and eastern cities, and 11 southern and western cities are also published regularly in the *Federal Reserve Bulletin*. For further discussion of these and related series, see source and the notes to series 26.1.

### 26.1 BANK RATES ON CUSTOMERS' LOANS, RIEFLER, MONTHLY, 1919–39.

UNIT: PER CENT.

*Source*: For 1919–28, Winfield W. Riefler, *Money Rates and Money Markets in the United States*, New York, 1930, pp. 232–236; thereafter, furnished directly by the Board of Governors of the Federal Reserve System. No seasonal adjustment necessary.

This series represents that part of the short-term money market which embraces loans arising from banks dealing directly with individual customers. Short-term open market rates are excluded, as well as rates on real estate loans. The estimates for 1919–28 pertain to bank rates charged customers on commercial loans and loans on securities, the latter getting somewhat less than half the weight. They are based on rates reported by leading banks as being currently charged on the bulk

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of their loans. Banks in 22 cities are included during 1919-23, and in 31 cities for 1924-28. Fixed weights are applied to the quotation for each separate type of loan (commercial loans, time loans on securities, and demand loans on securities) in each city. For further details, see the source, Appendix I. Separate averages are provided for rates in New York City, other northern and eastern cities, and southern and western cities.

Beginning January 1929, the series was continued to February 1939 by the Federal Reserve Board, which used the same methods of reporting and averaging prevailing rates on three types of loans as employed by Riefler for the 1921-28 segment. Reports of banks in 36 cities were included. In March 1939 the Federal Reserve Board introduced a revised series of bank rates based on a quarterly system of reporting, refined methods of weighting, and coverage limited to 19 leading money centers. (see series 26.0). The new series covered only rates on *new* commercial and industrial loans, excluding loans secured by stock exchange or other current collateral. For further discussion of these and related series, see notes to series 26.0, *Banking and Monetary Statistics*, pp. 426-427, and the *Federal Reserve Bulletin*, October and November 1939.



