economic review

JANUARY 1965

IN THIS ISSUE

FEDERAL RESERVE BANK OF CLEVELAND

SOME PERSPECTIVE ON AUTOS

The importance of the automobile industry in the total economy is often accepted without knowledge of the relative weight carried by that industry. That tendency is particularly evident at present because three years of unusually large production of motor vehicles have prompted more than the usual questions about prospects of the automobile industry for 1965.

There is no one answer to the question of "What measurement of importance does the auto industry have in our economy?" In addition to large-scale indirect effects on related industries as well as throughout the economy, the auto industry makes up a highly variable proportion of the totals of different statistical series in which the auto component is identifiable. For example, as appears on subsequent tables, "autos", in a narrowly defined sense of new car assemblies, has a weight of 1.8 percent in the Federal Reserve industrial production index. On the other hand, in the case of instalment credit, automobile paper amounts to roughly 40 percent of the total.

Not only are the definitions or coverage of the auto industry quite different in various economic series, with corresponding differences in weight (assigned importance), but also the tendency of the auto component to fluctuate varies a great deal from series to series. In cases where the auto component fluctuates more widely than the other components of a given series, the auto industry will account for a larger share of the *fluctuations* of the total than would be indicated by its weight, alone. In fact, such behavior is characteristic of the auto components of a number of statistical series as is shown later.

The purpose of this article is to explore the relationship between the auto component and the series total for a number of familiar statistical series in economic analysis. In each case the definition of the auto industry and its relative weight is identified; in addition, the contribution of the auto component to fluctuations of the total in recent years is examined. There is no attempt, however, to evaluate the full significance of the auto industry for the total economy. Nor is attention paid specifically to related industries such as gasoline, repairs and other services, and highway construction.

INDUSTRIAL PRODUCTION INDEX

The Federal Reserve industrial production index provides several classifications and combinations in the automobile category. Two of these series have been selected for examination in detail — "autos" in the narrow sense, from the market groupings, and "motor vehicles and parts" from the industry groupings.[1] "Autos" in the market groupings has a weight of 1.82 percent of the total industrial production index. "Motor vehicles and parts" has a weight of 4.68 percent of the index.

Weights of all the series that make up the industrial production index were determined by the issuing agency (Board of Governors of the Federal Reserve System) by dividing the "value added by manufacture" for each series by the sum of the "value added" for all series. The effect of a change in one series on the total index is the change in the index points of that particular series multiplied by its weight. Table I illustrates the method that has been used throughout this article to measure the auto component's contribution to the fluctuation in a given statistical series in which the auto industry, by one or another definition, is a significant factor.

TABLE I

Change in "Autos" as a Component of Industrial Production Index, 1962 and 1963

	1961	1962	1963
1. Autos, Index Position (1957-59 = 100)	108.6	135.9	149.5
2. Point Change in Index Position, Autos	—	+27.3	+13.6
3. Weight of Autos in Total Index	1.82%	1.82%	1.82%
4. Contribution of Change in Autos to Change in Total Index (in points)	—	.50(a)	.25(a)
5. Industrial Production Index (1957-59 = 100)	109.7	118.3	124.3
6. Change in Industrial Production Index (in points)	—	8.6	6.0
7. Contribution of Change in Autos to Change in Total Index, Percentage	—	5.8%(b)	4.2%(b)

(a) Change times weight, i.e., line (2) times line (3)
(b) Line (4) divided by line (6)

Source: Board of Governors of the Federal Reserve System

As Table I shows, the auto index rose 13.6 points from 1962 to 1963. The 13.6 point increase multiplied by 1.82 percent (the weight of "autos" in the total index) is equal to .25 point, which was the actual contribution of autos, as defined in the market groupings, to the change in the total index between 1962 and 1963. Item 6 of Table I indicates that the industrial production index rose 6.0 points between 1962 and 1963. The contribution of autos to the rise was, therefore, 4.2 percent (dividing .25 by 6.0) or more than twice its weight.

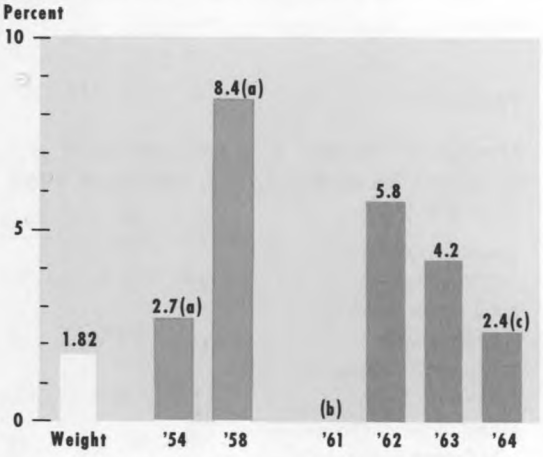
[1] The market groupings of the index of industrial production include broad categories such as "consumer goods, equipment, materials." Within the consumer goods group, "automotive products" accounts for 3.21 percent of the total index. This, in turn, breaks down into two parts: "autos", referring to assemblies of new cars, accounting for 1.82 percent of the total index, and "auto parts and allied products", accounting for 1.39 percent of the total.

The industry groupings of the index, on the other hand, include a category called "transportation equipment" that accounts for 10.19 percent of the total index. Within this category, "motor vehicles and parts" accounts for 4.68 percent of the total index. This category includes trucks.

For this article, both a narrow and a broad coverage for the auto industry have been selected, i.e., "autos" from the market groupings and "motor vehicles and parts" from the industry groupings.

Chart 1.

CONTRIBUTION of "AUTOS" to CHANGE in INDUSTRIAL PRODUCTION INDEX



(a) Changes in '54 and '58 from the preceding year are declines. Changes in other years are increases.
(b) Less than .05%.
(c) Based on 9-months data.

Source of data: Board of Governors of the Federal Reserve System

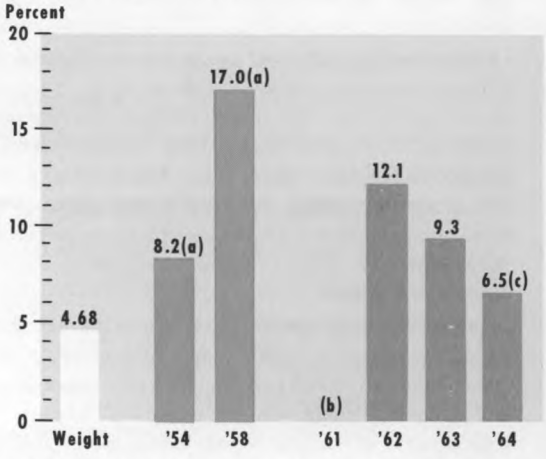
Chart 1 illustrates the percent of change in the industrial production index attributable to autos in the four most recent years as well as two earlier recession years. It is clear that in each case the auto component contributed more than proportionately to changes in the total production index. In the two recession years, the industrial production index declined and the bars on Chart 1 represent the percent of decline accounted for by the drop in the auto index.

Within the industry groupings of the industrial production index, "motor vehicles and parts" has a weight of 4.68 percent of the total index, as previously mentioned. Chart 2 indicates that in each of the past three years "motor vehicles and parts" contributed more than proportionately to the fluctuations of the industrial production index. As in the case of "autos", the proportion of the increase provided by motor vehicles and parts has been declining. Motor vehicles and parts accounted for 12.1 percent of the increase in the total index in 1962, for 9.3 percent in 1963, and for 6.5 percent in the first nine months of 1964. In 1961, however, production of motor vehicles declined while the total industrial production index advanced.

In both recession years shown, "motor vehicles and parts" contributed to a percentage decline in the total industrial production index in excess of its weight. In fact, in 1958 "motor vehicles and parts" accounted for a greater share of the change in the industrial production index, on the down side, than in any of the recent high production years, on the up side.

Chart 2.

CONTRIBUTION of "MOTOR VEHICLES and PARTS" to CHANGE in the INDUSTRIAL PRODUCTION INDEX



(a) Changes in '54 and '58 from preceding year are declines. Changes in other years are increases.
(b) See text for this year.
(c) Based on 9-months data.

Source of data: Board of Governors of the Federal Reserve System

RETAIL SALES

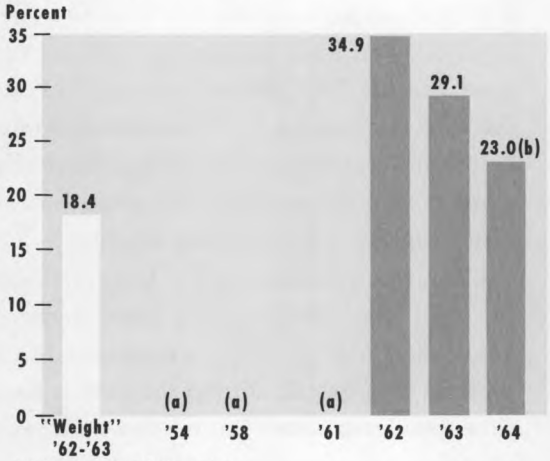
The retail sales series published by the U. S. Department of Commerce shows sales in dollars of various types of retail outlets. Since such retail outlets are classified according to the nature of their most important lines of goods, it is inevitable that secondary lines, perhaps differing rather markedly from the primary lines, will be reflected in the figures. Thus, the "automotive group" within the retail sales series, which applies to sales of auto dealers, includes the following: sales of new cars, used cars, automotive parts, tires, batteries, accessories, boats, motorcycles, household trailers and aircraft for private use. It does not include sales from establishments primarily engaged in selling trucks and motorized industrial equipment. Sales of gasoline service stations are also excluded.

Unlike the industrial production index, the retail sales series is based on aggregates of dollar volume. Each component part of the series, including the "automotive group", counts for as much in the total series as its sales in dollars indicate for the period under consideration; there are no fixed weights. For purposes of evaluating recent year-to-year changes in the volume of automotive sales compared with total retail sales, an arbitrary "weight equivalent" has been established by dividing automotive retail sales for the years 1962 and 1963 by total retail sales for the same period. For those two years automotive sales were 18.4 percent of total retail sales. (See Chart 3 and Table II.)

If that 18.4 percent figure is taken as the "weight equivalent" of the auto component of retail sales, then automotive sales have accounted for more than their share of recent

Chart 3.

CONTRIBUTION of "AUTOMOTIVE GROUP" to CHANGE in RETAIL SALES



(a) See text for these years.
(b) Based on 9-months data.

Source of data: U.S. Department of Commerce

TABLE II

Change in Automotive Group as a Component of Retail Sales, 1962 and 1963

	1961	1962	1963
1. Automotive Group (Sales in Billions of Dollars)	37.0	42.6	45.9
2. Retail Sales (Billions of Dollars)	218.9	235.0	246.3
3. Automotive Group Sales as Percent of Total Sales (Equivalent of Weight)	—	18.1%	18.6%
4. Dollar Change in Position, Automotive Group	—	+ 5.6	+ 3.3
5. Dollar Change in Retail Sales	—	+16.1	+11.3
6. Contribution of Change in Automotive Group to Change in Total Retail Sales	—	34.8%(a)	29.2%(a)

(a) Line (2) divided by line (4)

Source: U. S. Department of Commerce

annual fluctuations in total retail sales. The proportion of year-to-year increases in total retail sales contributed by automotive sales was 34.8 percent in 1961-62, 29.2 percent in 1962-63, and 22.3 percent in 1963-64 (first nine months). The pattern is similar to that of the auto component of the industrial production index—autos have continued to provide more than their weight to the growth of the series, but by a diminishing amount.

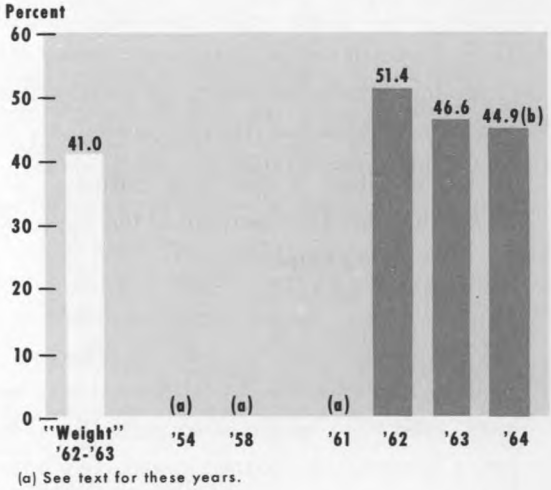
Changes in automotive and total retail sales in 1954 and 1958, which were recession years, and also in 1961, are unsuitable for plotting on Chart 3. During the earlier recession year auto sales turned down, whereas all other sales increased. The loss in auto sales more than offset the gain in other retail sales leaving a small net decline. In 1958, although the decline in automotive sales was greater than it had been in 1954, other retail sales increased sufficiently to permit total retail sales to achieve a small net gain that year. In 1961 automotive retail sales declined $2.3 billion, more than accounting for the $7 million decline in total retail sales.

INSTALMENT CREDIT OUTSTANDING

Instalment credit consists of automobile paper, other consumer goods paper, repair and modernization loans and personal loans. To determine the "weight" of automobile paper in its relationship to total instalment credit, the same method has been used as in retail sales; i.e., automobile paper for 1962 and 1963 was divided by total instalment credit outstanding for the same years. As shown in Chart 4, automobile paper amounted to 41.0 percent of instalment credit in 1962-63. Throughout the current expansion

Chart 4.

CONTRIBUTION of "AUTOMOBILE PAPER" to CHANGE in INSTALMENT CREDIT OUTSTANDING



(a) See text for these years.
(b) Based on 9-months data.

Source of data: Board of Governors of the Federal Reserve System

period, 1961 to date, automotive paper has contributed slightly more than its weight to the increase in instalment credit outstanding. The margin of difference, however, is less than is the case with other statistical series already noted.

During both 1954 and 1958, the influence of the auto component was quite noticeable. Automobile paper declined in each of those recession years while other instalment credit continued to advance. During 1958, automobile paper outstanding decreased by $1,188 million as other instalment credit increased by $963 million, with the net result being a $225-million decline in total instalment credit outstanding. In 1961, although automobile paper declined $465 million, total instalment credit outstanding increased $695 million.

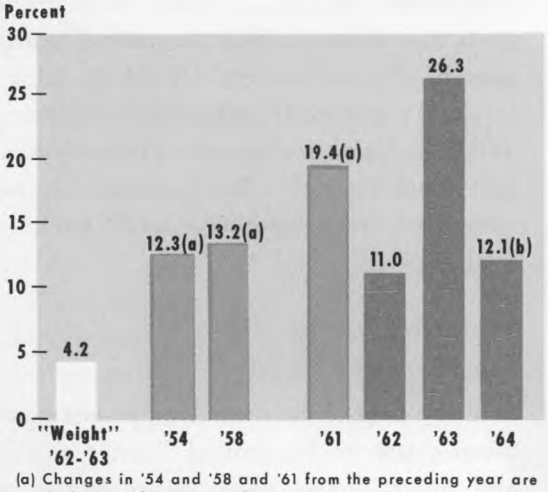
EMPLOYMENT

The employment series consists of total employment in motor vehicles and equipment (S.I.C. Code 371) compared with total manufacturing employment.

The ratio of employment in motor vehicles and equipment to manufacturing employment for the years 1962-63 is 4.2 percent. As shown in Chart 5, the auto industry, after accounting for 19.4 percent of the decline in manufacturing employment in 1961, has contributed far more than its "weight" to the recent expansion in employment. In 1962, motor vehicles and equipment were responsible for 11.0 percent of the increase in manufacturing employment; in 1963 the proportion rose to 26.3 percent; for the first nine months of 1964, motor vehicles contributed 12.1 percent of the gain in employment over the same period in 1963.

Chart 5.

CONTRIBUTION of "MOTOR VEHICLES and EQUIPMENT" to CHANGE in MANUFACTURING EMPLOYMENT



(a) Changes in '54 and '58 and '61 from the preceding year are declines. Changes in other years are increases.
(b) Based on 9-months data.

Source of data: U.S. Department of Labor

In the two recession years shown on Chart 5, motor vehicles and equipment accounted for the drop in manufacturing employment to an equally high degree. The decline in employment in 1954 in the auto industry, however, needs qualification. In 1953, some of the employees in the auto industry were producing war materials rather than autos. When the Korean War came to an end, government contracts for the Armed Forces were concluded and there was a cutback in employment in the auto industry that was entirely unrelated to auto production.

EXPORTS

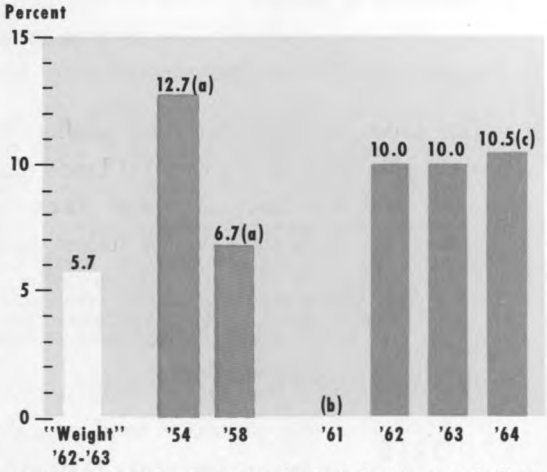
The export figures used in this series exclude defense spending. Motor vehicles and parts include both passenger cars and commercial vehicles, along with service and repair parts, and auto parts for assembly in other countries. The principal items not included are tires and batteries for assembly or replacement.

With the exception of 1961, the contribution of motor vehicles and parts to the increase in exports in recent years has held steady around the 10 percent level. This rate is almost twice the "weight" of auto exports to total exports in 1962-1963. In 1961, however, total exports increased, while exports of motor vehicles and parts declined.

In the recession years of 1954 and 1958, both motor vehicles exports and total exports declined. In 1954 motor vehicles and parts accounted for 12.7 percent of the decline in exports; in 1958 they accounted for 6.7 percent of the decline.

Chart 6.

CONTRIBUTION of "MOTOR VEHICLES and PARTS" to CHANGE in EXPORTS

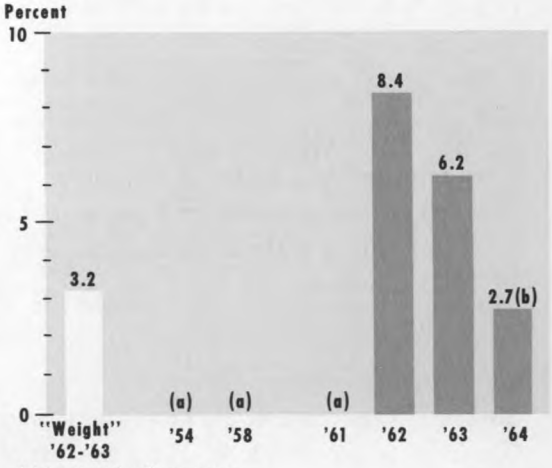


(a) Changes in '54 and '58 from the preceding year are declines. Changes in other years are increases.
(b) See text for this year.
(c) Based on 9-months data.

Source of data: U.S. Department of Commerce

Chart 7.

CONTRIBUTION of "MOTOR VEHICLES and PARTS" to CHANGE in IMPORTS



(a) See text for these years.
(b) Based on 9-months data.

Source of data: U.S. Department of Commerce.

IMPORTS

The motor vehicles and parts segment of imports includes passenger cars, commercial vehicles, and service parts.

In most recent years, imports of motor vehicles and parts have contributed a larger share than their "weight" to the increase in total imports. In the first nine months of 1964 compared with the same period in 1963, however, motor vehicles and parts accounted for only 2.7 percent of the increase, or less than their 1962-63 "weight".

In 1961 imports of motor vehicles and parts declined by $48.7 million compared with a decline of $17.2 million in total imports. During the latter part of 1960 the American auto industry had introduced a compact car to the market. In 1961, the first full year that domestic compact cars were available, sales of foreign passenger cars declined sharply. Since 1961, sales of foreign cars have been steadily increasing although they have not yet regained their 1959 peak.

In 1954, imports of motor vehicles and parts increased slightly compared with a decline in total imports. By 1958, sales of foreign cars in the U. S. had gained considerable momentum and imports of motor vehicles and parts showed a $213 million increase compared to a decrease of $138 million in total imports.

PLANT AND EQUIPMENT EXPENDITURES

In the case of plant and equipment expenditures, the fluctuations of "motor vehicles and parts" have been measured against changes in capital outlays in all manufacturing industries. Plant and equipment spending

for motor vehicles and parts amounted to 6.2 percent of total capital spending in manufacturing in the years 1962-63.

Plant and equipment expenditures declined in 1961, with "motor vehicles and parts" accounting for 17.5 percent of the decline. In 1962, when plant and equipment expenditures returned to a rising phase, motor vehicles and parts accounted for 8 percent of the increase, only a trifle more than its weight. In 1963, however, the auto industry's contribution to the increase in capital outlays advanced to 22.8 percent. Its contribution to change in the first nine months of 1964 compared with the like period in 1963 was 15.1 percent. In 1954, plant and equipment expenditures in the auto industry increased while plant and equipment expenditures for total manufacturing declined. In 1958, however, both segments declined, with the auto industry responsible for 11.0 percent of the decrease.

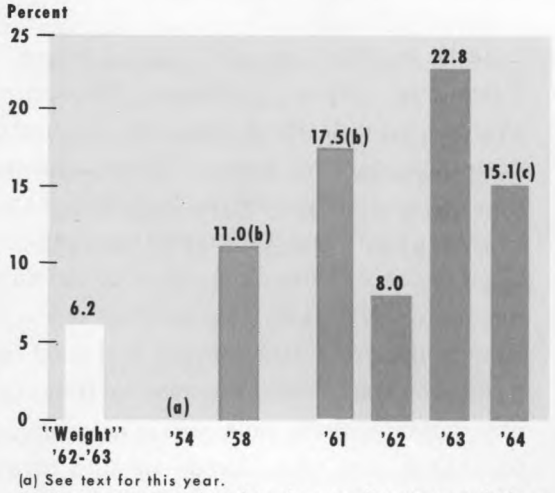
MANUFACTURING PROFITS AFTER TAXES

The series on manufacturing profits after taxes is published by the Federal Trade Commission and the Securities and Exchange Commission. Such data, to the fullest extent possible, eliminate the multiple counting of all interplant and other intracompany transfers.

The "weight" for motor vehicles and equipment as a proportion of total manufacturing profits, based on the years 1962-63, is 10.3 percent. Motor vehicles provided one-third of the gain in manufacturing profits in 1962. (See Chart 9.) In 1963 the figure

Chart 8.

CONTRIBUTION of "MOTOR VEHICLE and PARTS" to CHANGE in PLANT and EQUIPMENT SPENDING in MANUFACTURING

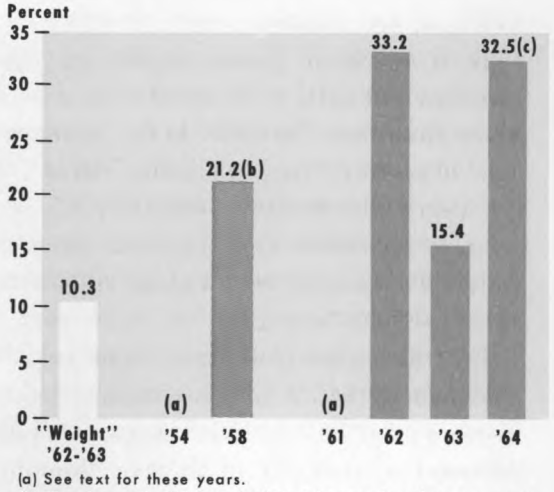


(a) See text for this year.
(b) Changes in '58 and '61 from the preceding year are declines. Changes in other years are increases.
(c) Based on 9-months data.

Sources of data: Securities and Exchange Commission and U. S. Department of Commerce

Chart 9.

CONTRIBUTION of "MOTOR VEHICLES and EQUIPMENT" to CHANGE in PROFITS AFTER TAXES in MANUFACTURING

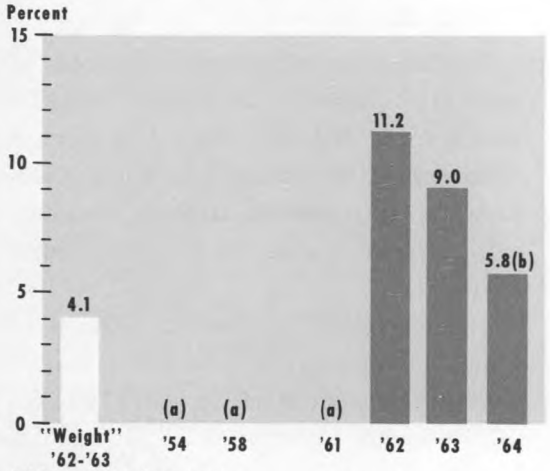


(a) See text for these years.
(b) The change in '58 is a decline. Changes in other years are increases.
(c) Based on 9-months data.

Sources of data: Federal Trade Commission and Securities and Exchange Commission

Chart 10.

CONTRIBUTION of "AUTO PRODUCT" to CHANGE in GROSS NATIONAL PRODUCT

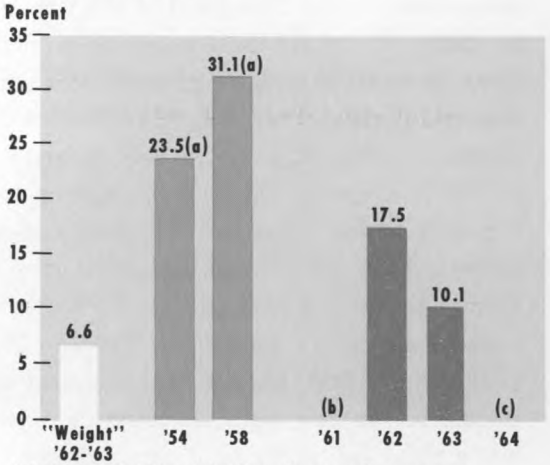


(a) See text for these years.
(b) Based on 9-months data.

Source of data: U.S. Department of Commerce

Chart 11.

CONTRIBUTION of "MOTOR VEHICLES and EQUIPMENT" to CHANGE in VALUE ADDED by MANUFACTURE



(a) Changes in '54 and '58 from the preceding year are declines. Changes in other years are increases.
(b) See text for this year.
(c) Not available.

Source of data: U.S. Department of Commerce

dropped to 15.4 percent. In the first half of 1964, motor vehicles again accounted for roughly one-third of the increase in manufacturing profits from the first half of 1963. In all three years, motor vehicles and equipment accounted for more than their "weight" in the growth of manufacturing profits.

In the recession year of 1954, motor vehicles profits increased but manufacturing profits declined. In the recession year of 1958, both manufacturing and motor vehicles profits declined. In that instance motor vehicles accounted for 21.2 percent of the decrease, or roughly twice their "weight." In 1961 profits in the auto industry decreased by $188 million, while profits in manufacturing rose by $112 million.

GROSS NATIONAL PRODUCT

Early in 1963 the U. S. Department of Commerce, Office of Business Economics, offered a new statistical measure of output of passenger cars as part of Gross National Product. The component has been designated "auto product" and it represents a composite of parts derived from a number of standard sectors of GNP. Thus, auto product is equivalent to the gross value of new and used car purchases less amounts received for trade-ins, plus certain exports, plus certain government purchases, and plus change in auto inventories.

As shown on Chart 10, auto product was 4.1 percent of Gross National Product for the

years 1962-63. In comparing the increases of auto product with rises in GNP during the last three years, it is apparent that auto product has made a contribution greater than its "weight" each year, but with diminishing effect.

During the 1954 recession year, auto product accounted for more than half the decline in GNP. During the 1958 recession year auto product declined, whereas GNP continued to increase. The same held true in 1961 when GNP increased by $16.1 billion while auto product declined by $3.1 billion.

VALUE ADDED

"Value added by manufacture" is derived by subtracting purchased goods, energy, and services from the total value of a product. It corresponds roughly to the shares of total value accruing to wages, profits, and taxes.

The proportion of "value added" by motor vehicles and equipment to "value added" by all manufacturing industries for the years 1962-63 was 6.6 percent. In 1961, value added by the auto industry declined, whereas value added by manufacturing industries increased. In 1962, however, the auto industry contributed 17.5 percent of the increase in value added by manufacturing and in 1963, it contributed 10.1 percent. (See Chart 11.) In both instances auto's contribution was much stronger than its "weight". The same holds true for the recession years examined in this article. Value added by motor vehicles and equipment accounted for 23.5 percent of the decline in value added by manufacturing in 1954 and for 31.1 percent of the decline in 1958.

"Value added" by the auto industry, when examined in a somewhat different perspective, can be utilized to throw indirect light on the "assembly" characteristic of the auto industry, i.e., the extent to which the industry brings together a large aggregate of valuable purchases from other industries. When "value added" in the auto industry is viewed as a proportion of *gross output* of the industry it is seen to be an unusually small proportion of gross output; items purchased from other industries are correspondingly large. Thus, the latest input-output table published by the U. S. Department of Commerce (which is based on 1958 inter-industry relationships) shows that value added by the "motor vehicles and equipment" industry is only 29 percent of the gross output of the industry. Such a proportion is lower than that which obtains in all but 6 of the 82 industries covered by the input-output table; the proportion is low despite the fact that wage rates and profits are relatively high in the auto industry.

An accompanying summary table (Table III) recapitulates the data applying to the charts and the text discussion for each of the eleven statistical series discussed above.

TABLE III—SUMMARY

Total Series	Auto Series	Weight or Equivalent (a) of Auto Series in Total Series	Contribution of Auto Component to Annual Change in Total Series					
			1954(b)	1958(b)	1961(c)	1962	1963	First 9 Mos. 1964
Industrial Production Index	Autos—Market Groupings	1.82	2.7%	8.4%	x	5.8%	4.2%	2.4%
Industrial Production Index	Motor Vehicles and Parts (Industry Groupings)	4.68	8.2%	17.0%	—	12.1%	9.3%	6.5%
Retail Sales	Automotive Group	18.4	—	—	—	34.8%	29.2%	23.0%
Instalment Credit Outstanding	Automobile Paper	41.0	—	—	—	51.4%	46.6%	44.9%
Manufacturing Employment	Motor Vehicles & Equip.	4.2	12.3%	13.2%	19.4%	11.0%	26.3%	12.1%
Exports	Motor Vehicles & Equip.	6.6	12.6%	14.9%	—	13.8%	10.5%	10.5%
Imports	Motor Vehicles & Equip.	3.2	—	—	—	8.3%	6.1%	2.7%
Plant & Equip. Spending (Mfg.)	Motor Vehicles & Parts	6.2	—	11.0%	17.5%	8.0%	22.8%	15.1%
Corporate Profits—Mfg. Industries	Motor Vehicles & Equip.	10.3	—	21.2%	—	33.2%	15.4%	32.5%(d)
Gross National Product	Auto Product	4.1	56.5%	—	—	11.2%	9.0%	5.8%
Value Added—Mfg. Industries	Motor Vehicles & Equip.	6.6	23.5%	31.1%	—	17.5%	10.1%	n.a.

(a) Weights are assigned in the case of the two series included in the industrial production index. For all other series, the "weight equivalent" is the proportion of the total series represented by the auto component during 1962 and 1963.

(b) Percentages for the recession years are shown only in instances when **both** the auto component and the total series registered declines.

(c) Both auto component and total series declined.

(d) Percentages are based on profits for the first half of 1964 compared with like period in 1963.

x Less than .05 percent.

n.a. Not available.

ADDENDUM on Auto-Strike Effects

The figures in the above analysis do not go beyond the third quarter of 1964, since complete data for the fourth quarter were not available at the time this article was being prepared. Yet, because of the important auto strikes that occurred in the fourth quarter of the year just passed, that period is an unusually interesting one for which to measure the impact of changes in auto production. In this connection, information available on a monthly basis for October and November of 1964 can be used to illustrate the method of measuring impact, at least with respect to changes in the index of industrial production.

Auto plants of the largest producer in the industry were shut down by a strike in late September that lasted until early November. During November the second largest producer was affected by a number of local stoppages. Thus, the auto strikes exercised a slight downpull on the industrial production index in September and a much larger downpull in October; in November there was a sharp rebound despite the local stoppages at plants of the second largest producer.

In September the auto strike appears to have exercised a downpull of about one-half a point in the production index, which was offset by rises in other industries so that the total index held about even. The index of industrial production, in its seasonally adjusted form, was 134.0 in September. In October the index declined 2.3 points to 131.7. In November, it rose 3.2 points to a new high of 134.9. "Autos" in the narrow sense associated with the market groupings (as identified earlier in this article) had an index of 146.0 in September, lost 63.0 points in October, and regained 62.0 points in November. Multiplying these points by the weight of "autos" (1.82), the results are as follows: "autos" accounted for 1.15 points of the 2.3 point decline in the industrial production index in October, or 50 percent. In November, "autos" contributed 1.13 points of the 3.2 point increase in the total index, or 35.3 percent.

In the broader category of "motor vehicles and parts", with a weight of 4.68, the drop in the motor vehicles component in October was 54.2 index points and the increase in November was 51.1 points. Taking the weight into account, these auto changes were equivalent to a 2.5 point decline in the total index in October and a 2.4 point rise in November. The actual changes in the total production index were a 2.3 point decline in October and a 3.2 point rise in November. Thus, in effect, the motor vehicles component accounted for 110 percent of the October decline (which was possible only because rises in other industries were partially offsetting the auto-induced drop), and about three-fourths of the November rise in the total index.

It becomes apparent, then, that the auto strikes of late 1964 had an appreciable effect on the industrial production index, despite the low weights involved and despite the fact that the underlying movement of the economy was persistently and strongly upward.

The indirect effects of the auto strikes, in the sense of their impact on related industries, are not measured here, although they are, of course, reflected in the total index of indus-

trial production. In that connection it should be noted that the industry classification "motor vehicles and parts" does not include numerous items which are classified in other industries but which do, in effect, become auto parts. Illustrations are: metal stampings which are classified under "fabricated metal products"; much electrical equipment (such as starting motors, generators and ignition apparatus) which is classified under "electrical machinery"; and rubber tires, which are classified under "rubber products". If all these and other similar items were included, the "motor vehicles and parts" classification would be substantially larger than 4.68 percent of the total index of industrial production. If the impacts that are even more indirect, such as the demand for steel or textile fabrics, were included, the role of the auto industry would be correspondingly enlarged.

Performances of other statistical series, in addition to the index of industrial production, were affected by the auto strikes of late 1964. Retail sales, for example, were unfavorably affected in October by the unavailability of numerous makes and models of new cars. No attempt is made here to trace the wider ramifications of the impact of the strikes. For most series, the impact was appreciably smaller than was the case with the index of industrial production.

PER JACOBSSON FOUNDATION LECTURES

On November 9, 1964, the Per Jacobsson Foundation inaugurated its lecture series with two addresses presented in Basle, Switzerland, by Maurice Frere, former President of the Bank for International Settlements, and Rodrigo Gomez, Director General of the Bank of Mexico. Their subject was "Economic Growth and Monetary Stability".

The Foundation has published the proceedings of the inaugural meeting, including the full texts of the lectures, in English, French, and Spanish, and is making copies available without charge.

Requests for copies (specifying the language desired) should be addressed to:

The Per Jacobsson Foundation
International Monetary Fund Building
Washington, D. C. 20431

CAPITAL SPENDING IN THE CLEVELAND AREA

Capital spending by business firms is undertaken in order to (1) maintain operations, (2) expand operations, or (3) improve efficiency and thereby reduce costs. Whatever the specific purpose, however, capital spending for plant and equipment is largely associated with the current and anticipated state of economic conditions. Decisions to spend on plant and equipment are also influenced by a comparison of the costs of investment with prospective returns.

Spending on plant and equipment is a major factor in the nation's economic activity. Thus, business analysts carefully evaluate the periodically published estimates of anticipated capital spending as one of the more important indicators of the future pace and direction of economic activity. Unfortunately for this purpose, there are some gaps in the availability of complete current information, particularly on a regional basis.

CAPITAL SPENDING INFORMATION

Data on capital spending are available in two forms: expenditures actually made and expenditures expected to be made in the future. Information on actual dollar spending for new plant and equipment by manufacturing firms is published as annual totals by the U. S. Bureau of the Census.[1] Data are available for states, metropolitan areas and large counties and in each case are broken down by industries. Due to a time lag in publication —U. S. and state totals from the 1963 Census of Manufactures, for example, were released only in November of 1964 while local data from the same census are not yet available — the Census data are useful mainly for historical or retrospective analysis.

[1] The data are collected by the Census of Manufactures, which is conducted periodically, and by the Annual Survey of Manufactures, which covers intercensal years.

A series on plant and equipment spending published by the U. S. Department of Commerce and the Securities and Exchange Commission is more suitable for purposes of economic forecasting, since it contains data on capital spending intentions for several quarters in the future as well as on past spending. This series includes U. S. totals for both manufacturing and nonmanufacturing industries. However, due to conceptual differences between the two series, Commerce-S.E.C. data on manufacturing industries differ from Census data.

Estimates of future capital outlays are also published regularly as the result of surveys by private organizations, such as the Economics Department of McGraw-Hill. Similar to the Commerce-S.E.C. series, future spending data from private surveys are available only as U. S. totals, that is, there is no subnational information. Because of a lack of information on capital spending intentions below the national level, a number of institutions have conducted independent regional surveys for several years. These institutions include the Federal Reserve banks of Boston and Philadelphia and the Bureau of Business Research of the University of Pittsburgh.[2]

CLEVELAND AREA SURVEY

Encouraged by the relative success of other surveys, the Federal Reserve Bank of Cleveland decided to introduce a survey of capital expenditures in the Cleveland area, a region that is unusually sensitive to the ebb and flow of aggregate economic activity and therefore attracts both local and national interest.

Initiated by the Bank's Research Department in the fall of 1964, the survey was designed to collect, twice annually, information on actual and anticipated capital outlays by business establishments located in the Cleveland Standard Metropolitan Statistical Area (Cuyahoga, Lake, Geauga and Medina counties). While the initial survey concentrated upon the manufacturing sector of the local economy (SIC codes 19-39), it also included some firms in transportation and public utilities (SIC codes 40-49). Information was requested only from concerns employing at least 500 persons, a specification that resulted in a concentration of the participants in Cuyahoga and Lake counties.

Questionnaires were mailed in mid-October to all companies of the specified size in SIC groups 19-49. The manufacturing firms in the mailing sample account for slightly more than 50 percent of total manufacturing employment in the Cleveland area. The initial mail-

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[2] The Federal Reserve Bank of Boston collects information each spring on capital spending plans of a sample of manufacturing firms in both the State of Massachusetts and all of New England. The bank publishes estimated dollar totals of capital spending intentions for the current year and the year ahead. Revised data based upon a resurvey of a smaller sample of firms are published in the fall.

The Federal Reserve Bank of Philadelphia estimates total capital outlays of manufacturing concerns in the eight-county Philadelphia metropolitan area as well as in three adjoining smaller metropolitan areas. Data are collected in the fall for the current and the two subsequent years and are rechecked, on a smaller scale, in the following spring.

The Bureau of Business Research of the University of Pittsburgh collects in the fall of each year capital spending data for the past, current, and three following years from a sample of manufacturing and some nonmanufacturing firms in the four-county Pittsburgh metropolitan area. The results are published in the form of percent changes from the preceding year, without an estimate of aggregate dollar figures.

ing resulted in a response rate of about 70 percent, including communications from firms that declined or were unable to furnish requested information. Of the questionnaires containing usable data, all except three came from manufacturing firms representing 40 percent of manufacturing employment in the area.[3]

In tabulating the returns, some industry detail had to be omitted in order to avoid possible disclosure. Also, some of the tabulations, especially those showing a breakdown of expenditures for expansion and replacement, involved less than the total number of returns since some of the respondents failed to supply complete information.

The questionnaire was cast in final shape after a pilot run conducted with the cooperation of a small number of Cleveland business economists and firms. The questionnaire requested actual or anticipated dollar spending during each of the three semiannual periods from January 1964 through June 1965, with breakdown by category (plant, or equipment) and by purpose (replacement, or expansion). The questionnaire also included requests for information on sources of funds (internal, or external) for financing new investments, and on current and preferred rates of capacity utilization. Because this was a first-time survey, the results should be considered as preliminary and tentative. They are presented here in the attempt to provide additional "feel" as to what is happening in the Cleveland area.

[3] In terms of employment, both the mailing sample and usable returns contain 80 percent durable and 20 percent nondurable goods manufacturers; actual area employment in manufacturing industries is split 75 against 25 percent.

SURVEY RESULTS

A majority of the firms participating in the October survey anticipated higher capital outlays in the first half of 1965 than the average semiannual amounts spent in 1964.[4] The increases averaged 4 percent as shown in Table I, but this figure masks a wide diversity in both rates and direction of change between durable and nondurable goods industries and within each of those two groups.[5]

It is apparent from the table that the durable goods industries will supply the thrust to increased capital spending in Cleveland in 1965. This is even more apparent from the data shown in Table II, where the amounts to be spent by individual industries are shown as percentages of the total reported by all

[4] Comparison of the data for the first half of 1965 with the average for 1964 rather than the first half only was decided upon because the distribution of total expenditures between the two halves of 1964 in many instances was such that extreme percentages of change would have resulted from a comparison of the data for the first half of each of the two years.

[5] Capital spending by responding manufacturing firms adds up to $144 million for 1964 and $75 million for the first half of 1965. These figures are derived from a sample that does not include smaller firms nor some of the largest firms, and understate actual amounts spent by all manufacturing firms in the Cleveland area during the two periods. Estimates cannot be made of actual totals for the Cleveland area since usable benchmark data are unavailable.

The Census figure for 1962, the latest year for which such data have been released, showed $190 million spent for plant and equipment during the *entire* year by *all* manufacturing firms in the Cleveland metropolitan area, which at that time included only two of the present four counties. In its 1963 Annual Report, the Greater Cleveland Growth Board indicated that a sample of manufacturing firms in Cuyahoga and Lake counties spent $143 million on capital outlays in 1963.

manufacturing industries in 1964 and 1965. As a group, the hard goods industries (representing 75 percent of total manufacturing employment in the Cleveland area and 80 percent in the surveyed sample) are expected to increase their share of spending by all manufacturing firms from 86 percent of the total in 1964 to almost 90 percent in the first half of 1965. A higher rate of response to the questionnaire in certain categories would, of course, have produced a percentage distribution somewhat different from the one shown in the table, including, for example, a higher figure for Metal Fabrication. But it is doubtful that a larger number of replies would have reduced the overall percentage of spending by the durable goods sector or minimized the towering percentages in the Primary Metals and Transportation Equipment categories, two industries whose proportions of total spending considerably exceed their respective shares of total manufacturing employment in the area.

As Table III shows, five out of every six dollars that manufacturing firms in the Cleveland area expect to invest in 1965 are earmarked for the purchase of new machinery and other equipment—representing a 7 percent increase over 1964—while the remaining one-sixth of the total—or 7 percent less than last year—will be spent for new plant construction. Among individual industries, all except one expect to spend at least three dollars out of four for new equipment. In Printing and Publishing, only three out of every ten dollars of new capital spending will go toward the purchase of new machinery, reflecting the fact that one firm is continuing

TABLE I

Capital Expenditure Plans for 1965—Cleveland Area

Percent Change from 1964*

ALL MANUFACTURING INDUSTRIES	+ 4.0%
Durable Goods Industries	+ 8.9
Primary Metals	+16.7
Metal Fabrication	+25.2
Machinery	+ 1.5
Electrical Equipment	+13.8
Transportation Equipment	— 5.6
Nondurable Goods Industries	—25.0
Textiles; Apparel	—73.0
Printing and Publishing	— 6.8
Chemicals	+ 9.3
Rubber and Plastics	+36.2
Selected nonmanufacturing firms	—16.9
TOTAL (All returns)	+ 3.7

*Based upon semiannual average of actual or appropriated expenditures for 1964 and anticipated expenditures for first half of 1965.

Source: Federal Reserve Bank of Cleveland

TABLE II

Capital Expenditures Reported by Cleveland Area Manufacturers

Percent Distribution by Industry, 1964 and 1965*

	1964	1965 (1st half)
ALL MANUFACTURING	100.0%	100.0%
Durable Goods Industries	85.6	89.6
Primary Metals	43.8	49.1
Metal Fabrication	3.4	4.1
Machinery	8.3	8.1
Electrical Equipment	5.6	6.2
Transportation Equipment	22.9	20.8
Others	1.6	1.3
Nondurable Goods Industries	14.4	10.4
Textiles; Apparel	5.6	1.4
Printing and Publishing	3.4	3.0
Chemicals	3.5	3.7
Rubber and Plastics	1.4	2.0
Others	0.5	0.3

*Based upon semiannual average of actual or appropriated expenditures for 1964 and anticipated expenditures for first half of 1965.

Source: Federal Reserve Bank of Cleveland

TABLE III

Capital Expenditures of Cleveland Area Manufacturing Firms

Percent Distribution Between Plant and Equipment, 1964 and 1965*

	PLANT		EQUIPMENT	
	1964	1965	1964	1965
ALL MANUFACTURING	18.5%	16.6%	81.5%	83.4%
Durable Goods	15.5	15.1	84.5	84.9
Primary Metals	19.0	17.5	81.0	82.5
Metal Fabrication	9.1	23.3	90.9	76.7
Machinery	4.7	8.3	95.3	91.7
Electrical Equipment	22.0	9.8	78.0	90.2
Transp. Equipment	10.4	10.9	89.6	89.1
Nondurable Goods	36.3	29.3	63.7	70.7
Textiles; Apparel	22.5	2.3	77.5	97.7
Printing and Pub.	71.4	68.1	28.6	31.9
Chemicals	32.6	11.7	67.4	88.3
Rubber and Plastics	19.1	22.0	80.9	78.0

*Based upon semiannual average of actual or appropriated expenditures for 1964 and anticipated expenditures for first half of 1965.

Source: Federal Reserve Bank of Cleveland

an expansion program that involves large outlays for construction.

The breakdown of total expenditures into those for replacement and for expansion (see Table IV), in conjunction with information on current utilization of manufacturing capacity, was intended to shed some light on possible pressures on capacity in individual industries. The decline in the proportion of total spending set aside for expansion of present facilities from 40 percent last year to the 31 percent anticipated for 1965, which is equivalent to a 16 percent drop in the dollar figure, seems to indicate less urgency for additional capacity, even though the proportion of spending for expansion remains rather high in certain areas of the soft goods sector. Conversely, the increase in the proportion of spending for replacement of existing facilities—a 14 percent rise in dollars—underscores the continuing emphasis on modernizing present plant and equipment in order to achieve greater operating efficiency.

Virtually all of the returns indicated that spending programs for both 1964 and the first half of 1965 will be financed from internal sources.

TABLE IV

Capital Expenditures of Cleveland Area Manufacturing Firms

Percent Distribution Between Replacement and Expansion, 1964 and 1965*

	FOR REPLACEMENT		FOR EXPANSION	
	1964	1965	1964	1965
ALL MANUFACTURING	59.6%	68.6%	40.4%	31.4%
Durable Goods	67.8	73.2	32.2	26.8
Primary Metals	69.2	80.1	30.8	19.9
Metal Fabrication	100.0	60.0	0.0	40.0
Machinery	65.0	56.3	35.0	43.7
Electrical Equipment	50.1	50.6	49.9	49.4
Transp. Equipment	73.4	65.4	26.6	34.6
Nondurable Goods	23.2	35.6	76.8	64.4
Textiles; Apparel	4.9	33.6	95.1	66.4
Printing and Pub.	5.7	6.7	94.3	93.3
Chemicals	56.3	62.9	43.7	37.1
Rubber and Plastics	32.9	22.0	67.1	78.0

*Based upon semiannual average of actual or appropriated expenditures for 1964 and anticipated expenditures for first half of 1965. Percentages were derived from a reduced sample as some questionnaires did not supply information on this question.

Source: Federal Reserve Bank of Cleveland

GENERAL OBSERVATIONS

An attempt to compare capital spending plans in the Cleveland area with those in the nation as a whole runs the serious risk of misinforming and misleading users of the data because regional and national figures may vary as to coverage, response rate, industry mix, timing, and geographical distribution of outlays by individual firms. Yet, the nature of the Cleveland economy is such that an indication of the direction in which its capital spending is headed is desirable not only for evaluating regional economic developments, but also for gaining some insights into possible national trends. With these factors in mind, we have aligned Cleveland area figures with results for the nation in Table V. The tabulated summary shows that capital spending anticipated for 1965 in Cleveland is pointed upward as is the case for the nation. While some of the figures for individual industries in Cleveland are remarkably close to those for the nation, others are quite inconsistent. This should not be surprising in light of the reasons mentioned earlier.

A resurvey of capital spending in the Cleveland area will be conducted by this Bank in the spring. At that time, we will request new information looking ahead to the second half of 1965 as well as revised data for the first half of the year. These figures should provide a better fix on capital spending in Cleveland in 1965, which could be further improved by the possible addition of reports from other firms. Subsequent surveys will provide useful statistics that will lend themselves to more detailed and meaningful analysis of the Cleveland area.

TABLE V

Capital Expenditure Plans for 1965 of Manufacturing Industries in the Cleveland Area and the U. S. as Percent Change from 1964

	Cleveland Survey[1]	United States McGraw-Hill[2]	United States Commerce-S.E.C.[3]
ALL MANUFACTURING	+ 4%	+ 8%	+11%
Durable Goods	+ 9	+ 6	+ 9
Primary Metals	+17	+ *	+ 9
Metal Fabrication	+25	0	n.a.
Machinery	+ 2	+ 3	+ 7
Electrical Equipment	+14	+14	+ 9
Transp. Equipment	— 6	+18	+15
Nondurable Goods	—25	+11	+12
Textiles; Apparel	—73	+ 7	+28
Printing and Pub.	— 7	n.a.	n.a.
Chemicals	+ 9	+24	+13
Rubber and Plastics	+36	+23	n.a.

[1] first half of 1965 compared with semiannual average of 1964

[2] total for 1965 compared with total for 1964

[3] first quarter of 1965 compared with quarterly average of 1964

* less than 1 percent

n.a. not available

Sources: Federal Reserve Bank of Cleveland; McGraw-Hill Economics Department (Fall Survey 1964); U. S. Department of Commerce—Securities and Exchange Commission (November 1964 Survey)