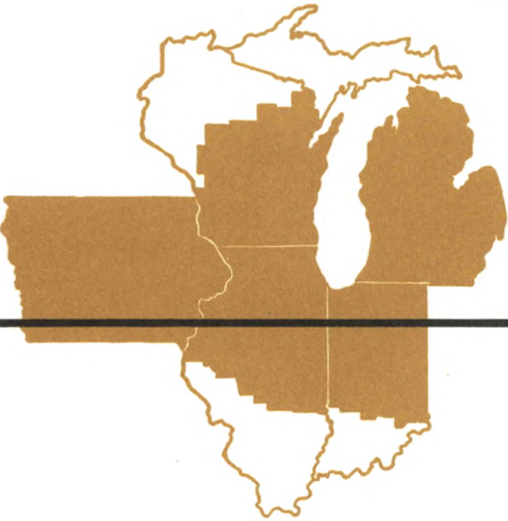
*A review by the* **Federal Reserve Bank of Chicago**

# Business Conditions



**1958 May**

**Contents**

Uncertainty clouds home-building outlook 5

Inventory reductions depress output 8

Productivity—the last frontier 12

**The Trend of Business 2-4**

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# THE Trend OF BUSINESS

The business horizon remained in a heavy overcast during the first quarter of the year as each month brought new reports of reduced employment and production. There were few specific rays of sunshine denoting a better business climate ahead. Construction was responding sluggishly, due in part to a "late spring," and consumers were curtailing their spending at retail stores. Nevertheless, there has been widespread confidence that activity would turn upward again, perhaps fairly soon, as suggested by investor confidence in stocks and other types of assets. But the important question as to how far the decline will go and when an upturn can be expected remained unanswered.

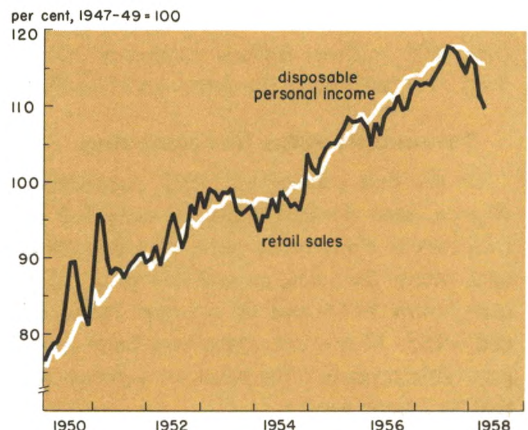
There was some evidence that the decline in over-all activity proceeded at a slower pace in March and April. The downtrends in industrial production, employment, personal income and retail sales slowed somewhat. But to some extent this may merely have reflected the fact that February declines were accentuated by severe weather conditions. In any case, the majority of Midwest states, including Michigan, Indiana, Illinois and Wisconsin, were witnessing sharper declines in employment and sales than the nation generally, reflecting the heavy emphasis of the hard-hit machinery, automotive and steel industries in those areas.

The belief that the current downtrend will bottom out in the near future is based heavily upon the expectation that the rapid inventory liquidation noted in the first two months of the year will not continue for long. Also, the revival of defense orders and the various Federal anti-recession measures are expected to have a progressively greater impact.

### Consumers turn cautious

Although inventory liquidation and falling capital expenditures remained the dominant depressing factors in early 1958, evidence has been mounting that consumers are spending available cash less freely and are using credit more sparingly in the purchase of durable goods. Between December and March, retail trade dropped from a seasonally adjusted annual rate of 17 billion to 15.9 billion—a decline of over 6 per cent. During the same period, personal income fell less than 1 per cent.

**Retail sales** drop faster than income



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Slower buying during the first quarter was accompanied by a rise in personal liquid savings. Commercial bank savings accounts, savings and loan association shares outstanding and Treasury savings bond sales all rose significantly. Incomplete information for the U. S. and various Midwest centers indicated that this trend continued in April.

A decline in sales and a rise in savings, with over-all personal income maintained fairly well, support the view that the consumer is holding back on his purchases in order to build up reserves of buying power through payment of debt and additions to savings. The income of the great majority of the nation's spending units has not been reduced appreciably, and many incomes have continued to rise. It is apparent that the drop in sales stems in part from the fact that many of these families either see an income drop as a possibility or expect that the current economic downtrend will eventually produce greater bargains in the form of lower prices.

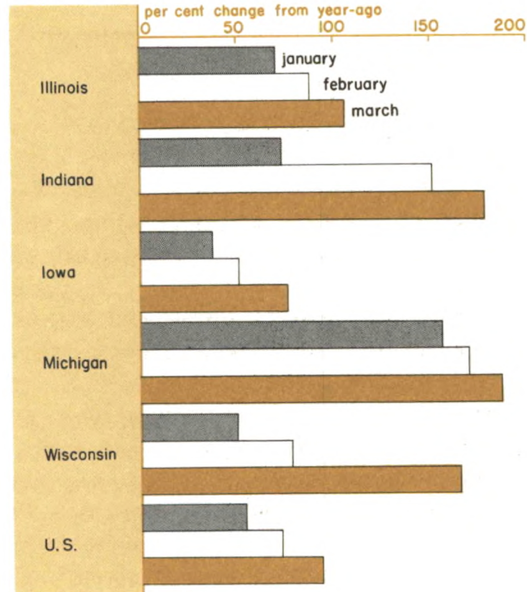
The more conservative pattern of spending was especially evident for hard goods. In March, stores handling consumer durables reported sales to be off 13 per cent from a year ago, whereas nondurables stores reported a 4 per cent gain, led by a rise of 8 per cent for the food group.

In February, instalment credit declined over 400 million dollars compared with a drop of 80 million in the same month in 1957.

### Automobile sales disappointing

In the first quarter of 1958, according to *Wards,* auto dealers delivered only 1.1 million cars to their customers. This was 29 per cent below the same period last year, 33 per cent below 1956 and 40 per cent below record 1955. Moreover, there has been no appreciable tendency for sales to improve relative to a year ago.

**Year-to-year rise** in new unemployment claims widened in early 1958




Production cutbacks brought a halt to the rise in automobile inventories in March. In the second quarter, production schedules call for a further reduction in assemblies to about 1 million units. This compares with 1.2 million in the first quarter and 1.6 million in the second quarter of 1957.

### Construction still not vigorous

Total construction contract awards tabulated by F. W. Dodge trailed 1957 by 11 per cent in the U. S. and 24 per cent in the Midwest during the first three months of the year. Contract awards in this area showed larger declines than for the nation in all major categories. Public works projects, particularly road building, which have helped maintain contract awards totals in the United



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States, have been the weakest link in the Midwest.

| | Per cent change January-March 1958 from January-March 1957 | |
|---|---|---|
| | U. S. | Midwest |
| Residential building | − 8 | −25 |
| Nonresidential building | −13 | −17 |
| Heavy construction | −12 | −35 |
| Total | −11 | −24 |

Reports on potential home-building activity in this area are mixed. Both builders and lenders are proceeding cautiously, awaiting the acceptance of new models. Some showings have attracted substantial buyer interest, but there is no evidence yet that this will become widespread. It is apparent in the Chicago area that builder emphasis has shifted to lower price brackets as compared with other recent years. Seasonally adjusted private housing starts remained below 900 thousand in the nation during March.

### Employment and unemployment

Nonfarm wage and salary employment, seasonally adjusted, declined 300,000 between February and March. Construction employment recovered part of its February drop in March. For employment other than in construction, the drop in March was almost as large as in February, which in turn was the greatest since the downturn began last September.

In March, the Labor Department placed many additional areas in the "substantial labor surplus" category. The breakdown for the nation is given in the accompanying table. Almost half of the major areas now have 6 per cent or more unemployed and are considered to be areas of "substantial labor surplus."

In the Seventh Federal Reserve District all areas were reported in March to have 3 per cent or more of their labor force unemployed. In the 3-6 per cent group were Kalamazoo, Aurora, Chicago, Quad Cities, Rockford, Madison, Milwaukee, Cedar Rapids and Des Moines. Unemployment ranged between 6 and 9 per cent of the labor force in Lansing, Saginaw, Joliet, Peoria, Fort Wayne, Indianapolis, Terre Haute, Kenosha and Racine. Unemployment was in excess of 12 per cent in Flint, Grand Rapids, Muskegon, South Bend and Detroit. The relative deterioration has been greater in the Midwest than in the nation as a whole. Only three of the District's 24 labor-market areas were designated as having substantial labor surpluses a year ago. In March, 15 of the 24 were so classified. For the U. S., 19 of 149 centers were in these classes a year ago. In March, 70 of 149 were so classified.

By far the largest portion of the layoffs in the Midwest has been accounted for by the automotive, industrial machinery, construction machinery and steel industries. There were additional layoffs in most of these lines in March and early April.

**More U. S. labor market areas have high unemployment rates**

| (Per cent unemployed) | March 1957 | January 1958 | March 1958 |
|---|---|---|---|
| | | (number of areas) | |
| Under 1.5 | 2 | 0 | 0 |
| 1.5 - 3.0 | 41 | 13 | 0 |
| 3.0 - 6.0 | 87 | 91 | 79 |
| 6.0 - 9.0 | 13 | 36 | 45 |
| 9.0 - 12 | 4 | 7 | 18 |
| Over 12 | 2 | 2 | 7 |
| Total | 149 | 149 | 149 |



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# Uncertainty clouds home-building outlook

Against a backdrop of weakening in other sectors of the economy, residential construction has displayed relative firmness during the past year. After declining from the peak of nearly 1½ million units reached at the end of 1954, private starts—on a seasonally adjusted yearly basis—bottomed out last spring at 933,000 units. During the summer, the rate climbed back up to the million mark, then held close to that level until February. In that month, starts were well down, at 890,000, and they failed to show any revival in March. If, as is widely suspected, poor building weather was accountable for the slippage, the figures for succeeding months should register improvement.

### Houses and credit

Toward the end of last year, it had become clear that the supply of mortgage money was due to ease, with abatement of the business demand for credit as spending for new plant and equipment tapered off and the build-up of business inventories came to an end. Since tight money apparently had been an important factor behind the decline in housing starts, the prospect of somewhat easier availability of credit and perhaps a fall in mortgage interest rates was widely heralded as a bullish omen for residential construction. Few saw signs that credit would ease up materially, but the belief was widespread that even a modest change would have considerable impact.

Recent weeks have seen an abrupt change in the conditions of credit supply. A canvass of builders and lenders in several of the large Midwestern markets turns up evidence that credit availability has all but ceased to figure in speculation on the outlook for the rest of 1958. A seeming abundance of mortgage funds is now at hand.

### Terms ease up

Instances are frequently reported of reductions in interest rates, of a disposition on the part of lenders to go out further on mortgage maturities and to accommodate lower down payments by buyers. Even before April 1, when provisions of this year's Housing Act took effect, there were signs of a pickup in FHA loan activity. The 5¼ per cent ceiling interest rate had begun to look considerably more enticing to lenders after yields on alternative investments turned down than it had during the earlier period of higher market rates. The reduction in required FHA down payments is widely expected to contribute further to an upturn in Government-insured home financing, since it presumably makes eligible for FHA loans some who could not meet the more exacting cash requirements previously in force. Moreover, the VA home financing program appears to have a new lease on life. The decline in market interest rates, coupled with a quarter-point increase in the maximum rate on VA mortgages—from 4½ to 4¾ per cent—promises to give veterans' home loans enhanced lender appeal. Whether the prospectively greater significance of FHA and VA financing will spell a greater over-all volume of home buying



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activity, or merely a more or less commensurate curtailment in the volume of conventional lending, of course, remains to be seen.

Interest rates on conventional loans have softened noticeably since the first of the year. Where 6 per cent was the "going" rate as recently as in late 1957, 5½ per cent is now widely quoted in the larger centers and 5¾ in the smaller. Some borrowers, moreover, are said to be obtaining mortgage credit at 5 and 5¼ per cent, although usually for fairly short terms and with relatively large down payments.

### Spotlight on the buyer

As the credit situation has eased, attention has come to focus on the demand side. Is there still a big demand for new homes? What about resistance to rising prices? What sort of "package" tempts 1958's would-be home-owner?

Reflected in the plans of some builders this season is a disposition to test the market carefully before becoming committed. Several report that they are building an assortment of model homes and will then take orders, in contrast to past seasons when they emphasized speculative building.

Builders in the Detroit area, particularly those in the lower price ranges, have expressed concern over the impact of the job layoffs and shortened work weeks that have resulted from the sluggishness in the automobile industry.

In the Chicago area, the bigger developers are expecting a reasonably good year. Some of the largest plan more starts than in 1957; others are planning to market a larger, more expensive house than last season's. However, some sellers of higher-priced houses, in the 30 to 40 thousand dollar bracket for instance, are apprehensive, feeling that reduced corporate earnings, weakness of the stock market and uncertainty over job security will motivate their executive clientele to "stay put" until the outlook becomes clearer.

Lenders report that there has been some slowing in the rate of repayment on existing mortgages, but this is attributed principally to a marked decline in prepayments arising out of refinancing, an effect of slowing in the tempo of sales activity. Outright delinquency, while on the rise for some time, remains quite low. A number of lending institutions report that they are paying closer attention than for some years to their moderately delinquent accounts, that is, those 30 days or so in arrears. Efforts are being made to forestall the emergence of a serious delinquency problem. Mortgage foreclosures reportedly have been increasing, but their number is negligible by most standards.

### Prices: up again

The current season is expected to see prices of new houses in the Midwest generally up somewhat from last year. This will reflect, in part, a further increase in building costs. The prospect is that prices of materials will hold the line, but that wage rates will notch upward again.

Several builders emphasize higher land and development expenses and increasingly stringent code requirements as factors that will keep pressure under asking prices. More and more, mass building of houses entails development of new sites in outlying locations. Paving, sewers, sidewalks, water mains and schools must be newly provided if the seller's product is to be readily marketable. The tightening of building-code provisions —calling for greater unit size, more lot area or compliance with more exacting construction standards—adds further to the outlay a builder must seek to recoup.

Another factor likely to push asking prices



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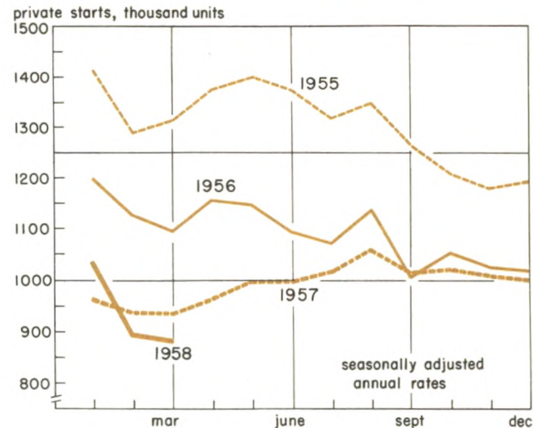
upward—in certain price ranges, at any rate—is quality and size upgrading. The "mix" of the industry's product will doubtless reflect even more than last year the preference of today's buyer for a minimum of three bedrooms, separate dining space, a recreation or family room, an additional half or full bathroom and, in many instances, a carport or garage. Moreover, it appears that the tendency to supply kitchen and laundry appliances and extra "built-ins" as part of the package will become even more common than it has been.

Many builders believe that buyers will take a modest further price rise pretty well in stride, particularly if the product incorporates the features and provides the space home seekers appear to want. Year-to-year increases have been made for so many seasons now that "they are more or less expected." Moreover, prospects reportedly remain more sensitive to the amount of cash needed and the size of the monthly mortgage-tax-insurance remittance than they are to the total consideration involved. Easier credit can be expected to make the buyer's cash stretch further and reduce somewhat the carrying-cost component of his monthly mortgage payment.

Yet there is some uneasiness over the 1958 prospective purchaser's probable reaction to price. This is found in the indications that prefabricated units, rowhouses and larger multiple-family dwellings will figure more prominently in builders' plans this year than last. It is found also in the plans of some of the larger-scale builders to extend their price ranges this season and offer a highly diverse set of models which it is hoped will appeal to a wide cross-section of would-be buyers. Assertions that all possible construction economies will be pursued harder than ever, as well as predictions that small-volume, custom builders will be hard pressed by their bigger rivals, further confirm the impression that the trade approaches the 1958 season with considerable caution.

## Residential construction off to a slow start in first quarter




### The buyers: still willing and able?

At this early date, of course, no one can know how many prospects will turn out for the 1958 showings, nor, more importantly, how many will sign up and later qualify as buyers. It is obvious that people want more new housing, but it is equally obvious that they also want a lot of other things—including additional savings—which compete for available funds. Buying a new home, moreover, is something that can be put off for a while. And when people are concerned about job layoffs, loss of overtime, three- and four-day work weeks, cuts in dividends and cost-cutting personnel reshuffling in the higher job echelons, they may decide to stand pat and build up their financial reserves. One effective way to do this is to postpone the postponable—to make do with the old house.

Indications that there is some warrant for



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the wariness displayed by builders came from the most recent survey of consumer finances, conducted in January and February by the Board of Governors of the Federal Reserve System in conjunction with the Survey Research Center of the University of Michigan. The proportion of consumer units disclosing intentions to buy homes this year was only 7.1 per cent. Not since 1952 had the ratio been as low as this. A year before, 8.7 per cent reported plans to buy; in early 1956, 9.4 per cent.

Undoubtedly, many of those who had no expectation of entering the 1958 market when they were queried at survey time will in fact become buyers before the year is out. And, on the other hand, some who expressed a clear intention to buy will fail to do so. Results of past surveys have proved an imperfect guide to the tempo of subsequent activity in the nation's real estate markets. This may well prove to be the case in 1958. But the intimation of consumer bearishness drawn from the recent survey suggests that it may take more than a change in the credit climate to stimulate a significant and sustained upturn in housing. Nevertheless, the easier availability and lower cost of mortgage money should lessen considerably the likelihood of any further substantial decline.

# Inventory reductions depress output

Ever since the decline in economic activity began last September, business firms have been reducing inventories. Perhaps two-thirds of the drop in production and employment from the highs of last year can be traced to inventory adjustments.

In the fourth quarter of 1957, the book value of business stocks was being worked down at an annual rate of about 2.5 billion dollars. In the first two months of the current year, liquidation accelerated sharply to a rate of over 8 billion dollars—the greatest in the postwar period. This figure provides an approximation of the extent to which current demand was being satisfied from goods already produced rather than from current production. Short of a severe and extended decline in final demand, inventory reductions on such a scale cannot be long continued.

While there is no reason to believe that the inventory decline has slackened thus far —business sales have fallen even faster than inventories—it is expected that the rate of liquidation will ease off soon, as holdings of more and more types of goods are reduced. Any slowing in the rate of liquidation would constitute a "plus factor" in evaluating the trend of business. In order to maintain its depressing influence on activity, inventory liquidation would have to continue at the recent high rate. Any decline in the rate at which stocks were being reduced would



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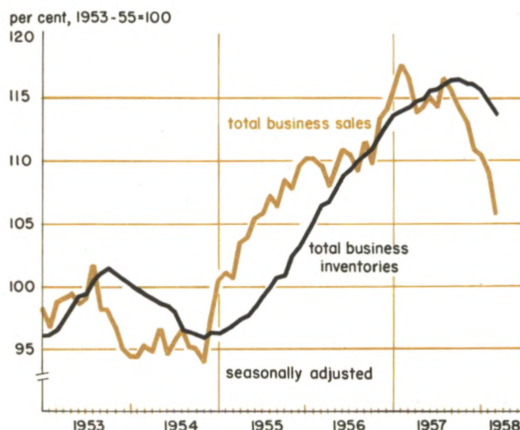
mean that a larger proportion of final demand would have to be provided from current production.

**Lower sales dictate cutbacks**

Inventories in the aggregate did not appear to be particularly high last fall relative to the operating needs of manufacturing and trade firms. However, stock-sales ratios *were* rather high in durable goods manufacturing. Moreover, as sales began to recede from the 1957 peak, holdings of goods became excessive in many lines. Once sales turned down, inventory adjustment played a major role in magnifying the decline in activity.

An inventory "adjustment" of sorts had occurred early in 1957 when, after adjustment for price changes, rapid accumulation gave way to a slight liquidation. Factory production slowed concurrently, but the reaction was not intense enough to prevent further growth in total employment and spending. These measures continued to rise until the autumn. Then, a reduction in defense spending, a slowdown in outlays on capital goods, a reduction in exports and hesitation in consumer buying brought about renewed efforts to reduce stocks. All of these factors combined to produce the downward movement in general business which followed.

**Inventory changes lag changes in sales**




**Hard goods dominate rise and decline**

In the three years ending last September, the book value of total business inventories rose by about 16 billion dollars, or 21 per cent. About half of this amount was accounted for by the durable goods manufacturing firms.

| | Inventories | |
|---|---|---|
| | Hard goods manufacturing | All other |
| | (billion dollars) | |
| September 1954 | 23.7 | 51.7 |
| September 1957 | 31.8 | 59.5 |
| February 1958 | 30.2 | 59.1 |
| | (per cent change) | |
| September 1954-1957 | +34 | +15 |
| February 1957-1958 | − 5 | − 1 |

Expansion in production and employment were also most pronounced in hard goods during the 1954-57 upswing. During the period of inventory growth, production had risen 17 per cent in durable goods manufacturing compared with 14 per cent in nondurables. Since then output of durables has declined 16 per cent, whereas the drop in nondurables has been only 5 per cent.

Despite recent reductions, inventories of durable goods manufacturers remain quite high relative to sales. At the end of February, inventories of these firms were valued at two and one-half times sales—the highest ratio in the postwar period by a considerable margin. Inventories of machinery and transportation equipment appeared particularly high. Layoffs in automobiles, road-building machinery and industrial machinery have been related to the continued drive to reduce stocks of these kinds of finished goods



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at both the manufacturer and retail levels.

Stock-sales ratios in nondurable goods manufacturing and retailing have risen since last fall, but still appear to be at fairly reasonable levels when compared with other recent years. One well-known exception to this generalization concerns automobiles at retail. Unlike manufacturers of most other types of consumer goods, automobile producers do not carry any significant portion of the industry's finished goods inventory. Passenger cars typically are shipped and billed to dealers as soon as they are produced.

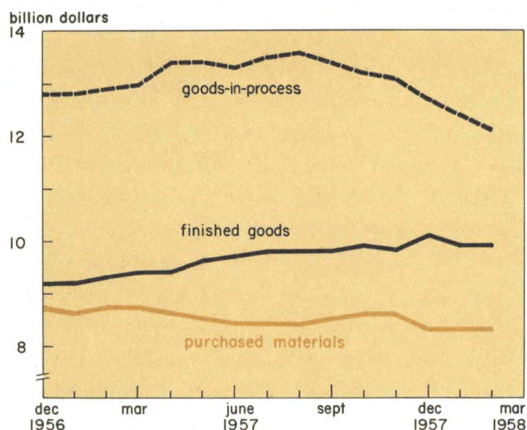
### The reduction process

Inventories of manufacturers are carried on the books at cost and consist of three parts — purchased materials, goods-in-process and finished goods. Aside from accounting methodology, therefore, changes in the book values of producers' inventories are determined by the rate of purchase of raw materials, the rate at which labor and overhead is added to these materials, and the rate of sales of finished goods to customers.

When a manufacturer wishes to reduce inventories, he can act most directly in the area of purchased materials. Buying of these supplies can be slowed down or cut off, although it may be necessary to accept goods ordered in the past.

In the case of durable goods manufacturing, inventories of purchased materials reached their highest point in December of 1956 and have since been reduced by about 5 per cent. Goods-in-process reached a high last August and had declined 11 per cent by March 1. In fact, since last fall 80 per cent of the drop in durable goods producers' inventories has been accounted for by goods-in-process. Finished goods continued to rise to the end of last year and were reduced only slightly in the early months of 1958.

**Goods-in-process** account for bulk of decline in inventories of hard goods manufacturers




### The inventory cycle

In recent years, the inventory cycle has been given increasing emphasis in analyses of changes in the level of general business activity. Waves of inventory building and liquidation, of course, always have been significant, but these changes had not received as much attention as "cycles" in capital outlays for new plant and equipment and other construction. In large part, this increased emphasis stems from the growing belief that over-all business fluctuations, henceforth, will be kept within reasonable bounds, both in duration and magnitude. Under the circumstances, it is apparent that inventory changes, a relatively short-run phenomena, are certain to account for a large share of over-all movements.

If economic growth could proceed year after year at a fairly stable rate, a continuing rise in inventories might be expected. Unfortunately, growth does not occur at an even pace. Moreover, businessmen tend to over-



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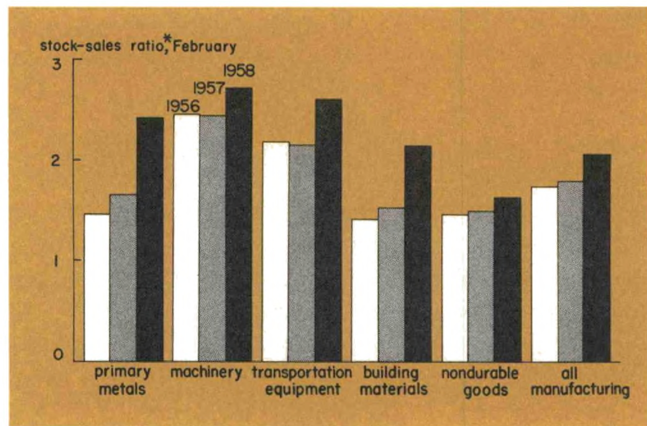
estimate their needs when sales are rising.

When inventory growth gives way to decline, production drops sharply from a point above current consumption to one below. If final demand also declines while this occurs, the condition, of course, is aggravated.

The inventory cycle can be said to have four phases: first, *involuntary liquidation* when sales begin to rise; second, *voluntary accumulation* as sales continue to move up; third, *involuntary accumulation* as sales cease to rise and then turn down; and fourth, *voluntary liquidation* as deliveries are brought under control. The economy is in this fourth phase now. In time it will pass back into the first phase because growth will be reasserted sooner or later. When it is, the upward movement in activity may be quite sharp. Current rapid delivery schedules hardly could be maintained in the face of any pronounced uptrend in final sales. Hence, inventories might soon prove inadequate and production would have to be increased to provide for current consumption and additions to inventory.

**"Excess" inventories** most marked in capital goods industries




*End-of-month inventories divided by sales

### Inventories and competition

Over the past year and one-half, competition has forced a marked speed up in deliveries of goods. Lead times have been shortened steadily as supplies have become easier in virtually all lines.

Suppliers of manufactured goods often are better able than their customers to assume the inventory burden because of a stronger financial position. In the postwar period, numerous manufacturers selling directly to retailers have built networks of warehouses convenient to trading centers. Goods can often be supplied in 24 hours where waiting times had been a week or more.

For this reason, retailers' and manufacturers' stocks must be considered as a package in many cases when stock-sales comparisons are made. The finished goods inventory of an individual manufacturer may seem "too high" merely because the firm is carrying a portion of the stock formerly held by wholesalers or retailers.

### An early turnabout?

Sales, production and new orders in manufacturing apparently continued to decline through March and April. Retail sales are estimated to have fallen further during March, and construction activity continues to be disappointing. Nevertheless, it is widely believed that inventory liquidation is slowing.

Some merchants have lost sales because inventories of specific items are too low. In some cases, this has been due to a tendency upon the part of consumers to downgrade



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purchases. Where holdings in moderate-priced lines have been thin, stores have been unable to satisfy this demand. Too extensive an inventory is costly and wasteful. But too tight a control over stocks may be at the cost of potential sales and profits.

Better location of warehouses and improved transportation facilities, together with more efficient planning and handling of inventory, have helped to reduce stock-sales ratios relative to prewar. But other factors have worked in a reverse direction. There has been a growing multiplicity of fabrics and other materials, and of models and designs. Also, the introduction of color in the case of such products as appliances, office machinery and lavatory equipment has tended to increase the holdings of goods necessary to maximize sales and profits. A greater variety of product makes it easier for stocks to become "unbalanced." Excess holdings of slow-moving goods, of course, are no help to sales if stocks of goods in demand are inadequate.

Another reason for expecting an early slowing in inventory liquidation concerns the holdings of basic materials by users. Steel provides a prime example. It is believed that in recent weeks steel consumption has exceeded output by a ratio of 6 to 5. User holdings of this basic metal doubtless have been reduced greatly. In the case of nylon, inventories were lowered to the point that an increase in production was announced recently. Instances of this type can be expected to multiply.

A more general indication of current trends is provided by surveys of purchasing agents. These business executives indicate that the acceleration in deliveries has been reaching its maximum and that more firms are finding their current inventory position to be "comfortable" in terms of current levels of production and sales.

One uncertainty in the inventory picture relates to the effects of price changes on expectations of consumers and businessmen. To some extent, buying for inventory or final use will be accelerated or deferred depending upon price expectations. In time, of course, lower prices stimulate consumption of any goods.

# Productivity—the last frontier

That universally admired phenomenon, America's high and rising standard of living, is the product of an unusually favorable combination of forces at work during the past century and a half. We have had bountiful resources, a rapidly growing population to exploit these natural endowments, and the inventiveness and eagerness to use new techniques sufficient to permit large increases in output per capita everywhere in the economy.

These days, population growth, and the stimulus to demand and output it affords, are more or less taken for granted, and with good reason. But increases in output per person—in the productivity of the nation's economic mechanism—cannot be taken for granted, for productivity is a complex mat-



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ter, hard to define and measure and difficult to relate to the distribution of the national income among those who contribute to the productive process.

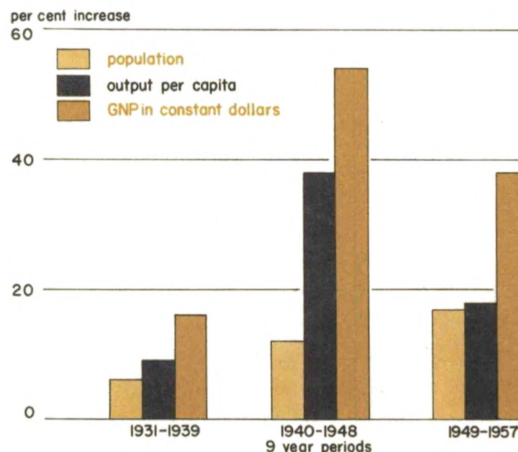
### Productivity defined

We should note at the outset that increased productivity does not necessarily mean more goods and services for the nation's consumers taken as a whole. Productivity is a measure of the efficiency with which the resources at work are utilized. Thus, if the amount of unemployed resources should rise substantially, the volume of output "lost" could exceed the gains from increased productivity of the employed resources. In these circumstances, increased productivity and lower per capita consumption could occur simultaneously. The 1930's are a case in point. A somewhat similar result could occur if there was a sharp increase in the birth rate for a few years. A more rapid addition of "mouths to feed" than "hands to work" could result in reduced per capita consumption, even at high levels of employment.

It isn't difficult to demonstrate that we consume more and hence produce more goods and services per person than our fathers did, even though the work week has been greatly shortened. But despite much thought and energy applied to the task in recent years, it has been remarkably difficult to measure "by how much." To cite just one example — how does one measure the change in the quality, say, of a 1908 and a 1958 automobile? Thus, it is difficult even to measure output.

The figures most widely used, but always with strong reservations, suggest that over the past fifty years productivity has increased in the private sector by 164 per cent at an annual average rate of about 2.1 per cent compounded. This compares with population

**Rise in GNP from early 1930's largely a rise in output per capita**




growth of 14 year olds and over at an annual average rate of 1.4 per cent compounded.

Equally difficult is the job of measuring the amount of resources used in the production processes. Changes in the quality of machines and other capital equipment are as elusive as changes in the quality of automobiles and washing machines. But it is necessary to have reliable measures of changes in the amounts of resources at work if changes in productivity are to be gauged with useful accuracy.

Despite these difficulties of measurement, however, public interest in the productivity phenomena is becoming more rather than less intense. With most of the world's easily exploitable resources already staked out and being worked, increasing output must necessarily involve more intensive and advanced techniques for developing what we have. Governments, committed to promote stable, maximum growth, can be expected to encourage study and research into the conditions in which high and rising productivity —



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the last frontier — flourishes or can be made to flourish.

And the ever-present urge in a competitive economy to boost efficiency is by no means a trivial stimulus to the managements of individual firms.

Labor unions and business management, traditionally and hotly contesting over to whom shall go the fruits of productivity gains, can be expected to throw much heat and perhaps some light on the subject. The chronic inflation that has plagued the nation since World War II has served to sharpen the interest in productivity, especially in view of the small gains in productivity estimated for 1956 and 1957, years otherwise marked by good profits, substantial wage increases and inflating prices.

### Confusion compounded

Difficult as it is to measure aggregative changes in productivity, the problems are many times magnified when we attempt to measure the contribution which each factor of production-land-labor-management-capital makes to gains in productivity.

No practical means of measuring the relative contribution which each factor makes to the increased output of all combined have been devised, even though most of the theoretical difficulties have been overcome.

In the free and perfectly competitive society, "who contributes how much" is synonomous with "who gets how much." The shares and contributions are determined simultaneously in the market place through the interactions of the forces of supply and demand. And, to be sure, these forces retain much of their virility and applicability in present-day surroundings as every businessman and consumer knows.

But the real world is not a perfectly competitive society in important respects. In place of the many businesses, any one of whose actions cannot affect over-all prices and employment, we have in some sectors of our economy a few that can. Instead of many employees seeking a larger share of output individually, we have collective bargaining. In these circumstances, the actual division of the benefits of increased output among the consuming public through lower prices, employees in the industries in which productivity is rising, and returns to capital invested in these industries cannot be explained by any neat theoretical formulation.

Much of the confusion surrounding discussions about productivity is a direct result of the way in which it is conventionally described. Output per man-hour over some specified time period is referred to as a level of productivity, but the denominator could equally be dollar of investment or, in some instances, of a machine unit. Attributing changes in output solely to changes in the efficiency of the factor used as a denominator is a natural but erroneous inference.

Actually, productivity gains are generally associated with a variety of considerations besides increasing labor productivity. Mechanization or the addition of machines to labor — to increase the machinery component of the machine-man production mix — is important. Moreover, productivity gains can and do result from better management techniques at existing levels of technology. A few of these are new techniques of product sampling and inspection, new methods of scheduling and programing plant operations and improvements in personnel selection and management.

But this is not the whole story. Gains in productivity are stimulated and expanded through sizable public investment in services and facilities. Basic governmental research, improved and more extensive highways, air-



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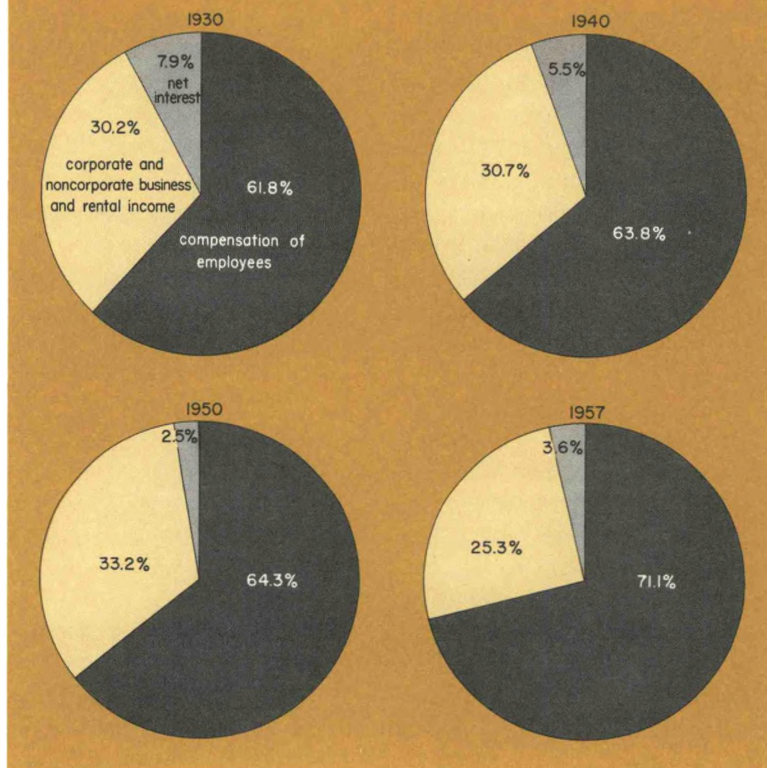
ports and waterways, and new facilities for water supply and disposal are ready examples of the types of public expenditures which have increased the unit effectiveness of private investment and productive activity. Finally, there can be no doubt that widely diffused education and public health activities have resulted in a more efficient manpower, broadly defined.




It is unfortunate that we have not devised better ways of measuring productivity. As currently measured, it is but a short step to imputing to labor the entire increase or decline in output per unit of input, since the only input measured is labor. Properly used, however, and for all their limitations, such data are helpful in understanding and testing the economy's growth performance.

**Productivity in selected industries**

Productivity gains have been impressive, if somewhat erratic, over the past two and one-half decades. With few exceptions the economy has posted year-to-year gains. The wide range of fluctuations in year-to-year changes, however, point up differences in productivity in individual industries.

Other things being equal, we can expect upward shifts in productivity to reflect either the more efficient use of existing resources at prevailing levels of technique or the introduction of new techniques. Conversely, downward shifts in productivity can be expected to follow from either under- or over-utilization of resources at existing levels of technology.

The record of the railway transportation industry since the early Thirties is an excellent example of the above. The very sizable



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gains in productivity from the depth of the depression to the middle war years are accounted for, in the main, by the more intensive use of existing resources at prevailing levels of technique. Recovery and war demand resulted in more cars to the train and more tonnage to the car than the industry had known for years.

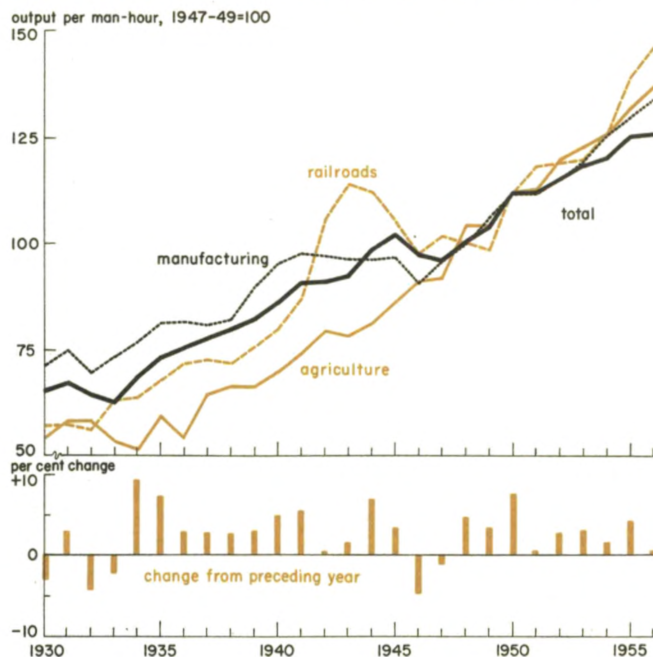
The very sizable gains since World War II, however, stem mostly from innovations in the form of dieselization, mechanization of repair and maintenance and the introduction of a whole host of automatic devices.

The gains in agriculture, also very substantial over the period, are attributable almost wholly to a wide range of scientific developments which have included increased mechanization, widespread adaptation of chemistry, including pest and disease control, and fertilization, as well as improvements in livestock breeding and seed.

Changes in productivity in manufacturing have tended to follow those in railroading more closely than those in agriculture. Thus, recovery and war demand not only resulted in enhanced output but a more efficient use in resources up to the early war years. Optimum use of resources was reached more quickly, however, in manufacturing. As the chart shows, efficiency actually declined in the war years as submarginal resources were increasingly utilized and new investments were inhibited by wartime necessities. In the postwar years, gains have been substantial—reflecting the introduction of new techniques.

For individual industries, as well as for the economy as a whole, the record seems to show that increased productivity can result from a resurgence in demand from depressed levels. But continued growth can only be expected through increasing investment — both public and private — in improved plant and equipment, in developing labor skills and by research improve the efficiency of the factors of production.

**Productivity**—shows vigorous growth trend

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