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CONTENTS

Industrial Review and Outlook

THE year 1953 will go into the record books as the most prosperous year ever enjoyed by this country. This will be true for both business and consumers. Only the farmers — of all the major economic groups—suffered any deterioration in their position.

Every major business or economic indicator set a new peacetime record this year as shown in the accompanying scoreboard. In each case the final months of the year have been estimated.

These annual totals or monthly averages, however, conceal the fact that during the year the great post-Korean war boom reached its top, and started down toward unknown but certainly lower levels. The exact timing of the peak may be the subject of some debate. It depends upon which economic indicator is used as a barometer.

Gross National Product crested in the second quarter at an annual rate of $372.4 billion and then declined only 1 percent in the third quarter to $369 billion, largely because of a lower rate of business inventory accumulation. The downward trend has probably continued into the current quarter because of a further slowdown in inventory accumulation together with somewhat lower rates of consumer spending for durable goods. For the year as a whole, Gross National Product is expected to average about 5 percent above the 1952 record.

Industrial production, as measured by the Federal Reserve Board index of production, reached a seasonally adjusted peak of 243 in March*, or little more than 1 percent under the previous record high established at the height of the World War II production effort in late 1943. (For these figures the average of 1935-39 is taken as 100.) By October, the physical outpouring of goods had dropped 5 percent, with some additional decline expected before the close of the year. Durable goods were chiefly responsible for the downturn with a drop of 9 percent between March and October, while nondurable goods output slipped less than 4 percent. Despite this downward drift, production for the year as a whole will probably average nearly 8 percent above that of the previous 12 months.

Total employment in the nation (unadjusted) reached its top in August, at 63.4 million persons. Adjusted nonagricultural employment peaked in July, or some four months later than the turndown in production. Factory hiring since July has been

THE SCOREBOARD

	1953	1952	% Change
Gross National Product (billions)	$367	$348	+ 5%
Personal Income (billions)	$284	$270	+ 5
Construction Activity (billions)	$ 34.7	$ 32.6	+ 6
Industrial Production (index, 1935-39 =100)	236	219	+ 8
Employment (Millions—mo. avg.)	61.9	61.3	+ 1
Unemployment (Millions—mo. avg.)	1.5	1.7	—12

* The *revised* Federal Reserve Index of Production may show a different peak month.

lower than during the corresponding period in any postwar year. Curtailed hiring activity has been accompanied by a marked increase in layoffs, which are now about equal to the rate prevailing in the fall of 1951. Average weekly hours of manufacturing production workers have been declining since March, but hourly earnings have continued to increase slightly so that weekly earnings have moved irregularly since that date.

Unemployment, however, apparently reached its lowest ebb in October, when scarcely more than 1.1 million persons were out of work and actively seeking new employment. The apparent discrepancy between the peak of employment and the trough of unemployment is partly explained in terms of a seasonal drop in the labor force which usually occurs at the end of the third quarter as many temporarily employed workers return to school and thus drop out of the labor force without causing a rise in unemployment.

In terms of personal income, the crest was attained in July at an annual rate of $287.5 billion. The subsequent turndown has been minor, but it represents the first significant retrogression in incomes since the inventory recession experienced in the first half of 1949. This development, if continued, could play an important role in the spending plans of consumers in the months ahead, and have an effect upon their willingness to go into debt for the purchase of all classes of durable goods.

Industries

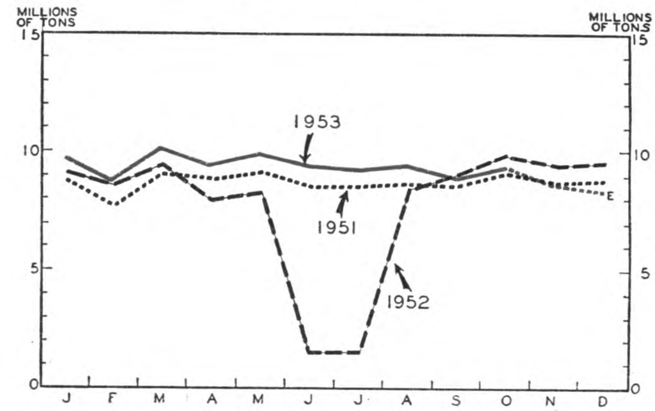
Some of the developments of the year within industries which are especially important to the Fourth Federal Reserve District are noted below.

Steel The nation's steel furnaces this year will have poured a record tonnage of steel ingots and steel for casting, amounting to about 112 million tons. This outpouring will top strike-torn 1952 by 20 percent, and will beat the 1951 record of 105.1 million tons by nearly 7 percent.

The transition to a buyer's market in steel was accomplished rather smoothly during the year, and without the sharp break in production rates that has characterized similar periods in other years. From a first-quarter rate of 100 percent of capacity, the industry drifted downward to 99 percent in the second quarter, 93 percent in the third period, and to an estimated 90 percent in the current quarter.

As buyers gained the upper hand in the second half of the year, expensive conversion deals were abandoned where possible, and premium-price producers brought their charges into line with competitors. In addition, major steel companies announced that freight absorption would be practiced on selected

STEEL PRODUCTION
Ingots and Steel for Castings
Monthly, 1951-53



. . . the continued easing of steel demand will pull fourth quarter production down to about the 1951 rate.

E November and December estimated.

Source: American Iron and Steel Institute.

items to meet particular competitive situations. Buyers began to restrict purchases to mills located most favorably with regard to freight charges, and also began to insist on close observance of contract quality specifications. The net result of these developments has been lower steel costs to consuming industries, and a brisk competitive fight for business.

Steel producers in the Fourth District have felt such changes in market conditions, and operations in the District have paralleled rather closely the national rate. Production has been maintained at better than average rates, however, in the Wheeling area and in the Cleveland-Lorain area. Operations in Pittsburgh and Youngstown are about on a par with the national rate, but the Ohio River area has slackened noticeably. By early November, one Ohio river mill was down to 33 percent of capacity and another was near to closing, with production only 20 percent of capacity. The Canton-Massillon area, which has a very large proportion of electric furnace capacity and specializes in alloy steel, was particularly hard hit by the sharp drop in demand for alloy steel.

Lake iron ore shippers, favored by an early start, an enlarged and faster fleet, and very good shipping weather, established a new shipping record. Nearly 96 million tons of iron ore were moved from upper lake ports, or about 4 million tons more than in 1942, the previous record year. Toward the end of October, storage yards at mills were nearly full, and storage space at Lake Erie ports was at a premium. As a consequence, ships were laid up at an early date and the season closed at the end of November for the first time in nearly a decade. Stocks of Lake

Superior iron ore on that date assured a more than ample supply for the winter months.

Machinery Virtually every category of machinery production showed some weakness during the year. During the second half, production continued to outrun new orders, and backlogs shrank. New machine-tool orders dropped to only 199 in October (1945-47 = 100) and the ratio of unfilled orders to production was less than seven months. A year ago, a full year's business remained on the books.

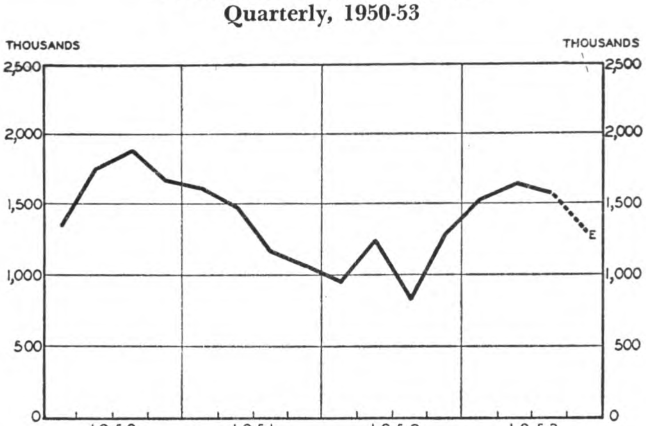
The sharpest drop was experienced by producers of agricultural machinery and tractors, followed closely by manufacturers of household machinery. Some downward movement was also experienced by producers of construction equipment, engines and turbines, and general industrial machinery.

Autos For the automobile industry, 1953 marked the end of the postwar seller's market. The switch from a seller's to a buyer's market was heralded early in the year by rapidly mounting new-car inventories. Part of the accumulation took the form of replenishing stocks which had been depleted during last year's steel strike. Part, however, was involuntary, leaving a large number of new cars on hand as the 1953 model year drew to a close. Although model changeovers curtailed production during the final months of the year, thus easing the upward pressure on inventories, sales efforts had to be greatly intensified in order to clear dealer lots for the 1954 models.

Despite the added sales effort needed to move cars

PASSENGER CAR PRODUCTION

Factory sales from U. S. plants
Quarterly, 1950-53



. . . production of passenger cars during the second half of the year declined from previous high levels, at least partly as a result of seasonal influences.

E Fourth quarter estimated.

Source: Automobile Manufacturers Association.

in the closing months, 1953 proved a very satisfactory year by all past standards. In terms of both production and sales it will rank second only to 1950. By year-end, about 6.1 million passenger cars will have rolled off the assembly lines as compared with 1950's 6.7 million units. Sales (registrations) for the year are expected to total about 5.6 million cars as against 6.3 million in 1950.

The drop in auto production in the second half of the year (see chart) was about in line with prewar seasonal dips. Prior to World War II, roughly 55 percent of the year's output occurred in the first half and 45 percent in the second half. Part of the decline in output this year was due to model changeovers and part to the change in the new car market. For the first time in over a decade, new car salesmen had to go out of the showrooms searching for customers.

Rubber Passenger-car tire manufacturers continued their efforts in the third quarter to bring tire inventories into line by scheduling output at the lowest level of the year. This move, together with continued good sales, pulled stocks down to 10.5 million casings at the end of September, or some 18 percent below the mid-year level, but still 44 percent above the year-ago stock.

Employment in Ohio rubber factories in October was 2.6 percent below a year ago and the average weekly hours had dropped to 37.5 as compared with 39.9.

Nevertheless, total tire production and shipments in 1953 will establish a new record. Replacement sales have been running slightly higher than in 1952, but original equipment sales have scored a very large advance over last year to keep pace with new car production.

Major Household Appliances Production of large home appliances was reduced substantially during the first nine months of the year. Output rose sharply following last year's steel strike, reached a peak in February, and then began to fall. After allowance for seasonal factors, the persistent downward drift in output culminated in a 25 percent drop from the earlier high by September. Output for the year 1953, however, will total well above 1952. Production of radio and television sets dipped much more sharply in the first half, but recovered somewhat in the third quarter so that September's output (after seasonal allowances) was only about one-fifth below the early 1953 high. Subsequent layoffs in the television industry indicate that output was again curtailed in October and November.

From the scattered industry reports available, the production cutbacks in major household appliances, radios, and television sets were made necessary by mounting inventories. Since the middle of the year, however, stocks have been reduced somewhat in most lines, indicating that production fell somewhat short of sales in the third quarter.

Electric Power Power production in Ohio eased slightly during the third quarter as industrial activity tended to level off. Meanwhile, U. S. output of electric energy set new records in July and August before suffering a seasonal dip in September. National output figures have been boosted by rapidly growing power centers scattered throughout the nation, particularly in areas where atomic energy plants are operating. An interesting example of the effects that atomic energy development can have on power statistics is provided by the recent experience in Kentucky, where expansion of electric utility output to serve the giant new Paducah AEC development has been primarily responsible for pushing third-quarter power output more than 50 percent above the comparable 1952 period. Ohio's own Pike County atomic project has not yet progressed far enough to be a major factor in the state's current power picture.

Coal An estimated 460 million tons of bituminous coal were mined in the United States during the year, or about the same as 1952's strike-reduced total. Output at Fourth District mines turned up moderately from a year ago, however, with all of the increased production coming from Pennsylvania mines. Since much of Pennsylvania's output consists of high-grade coking coals, the state's tonnage increase over 1952 presumably reflects 1953's record steel output.

The soft-coal industry continued to lose in the home-heating and railroad markets during the year, but the record tonnage consumed by the nation's coke ovens and electric power utilities offset such losses during 1953. Other industrial users increased consumption moderately from a year ago.

Over half of the country's soft coal is now converted into either electric power or coke and coal-chemicals. Thus, any slowing down in industrial activity would further accentuate coal's shrinking markets.

The Outlook

Against this general background of slightly ebbing business activity, businessmen in general and many economic forecasters remain confident that the coming year will see a continuation of high-level business activity and employment. It is generally conceded that some adjustments are in prospect, but many observers believe that when the 1954 score is finally tallied, it will rank second only to the 1953 record. According to this view, a repetition of the downturn in business activity such as took place in 1948-49 or 1937-38 is not envisioned.

Such expressions of confidence in the future have been fortified by the recent publication of estimates of probable activity in 1954, in two important segments of the economy, capital equipment expenditures and new construction activity.

A preliminary report by a large publishing house, covering new plant and equipment expenditures in 1954 now planned by private business, indicates, only a 4 percent decline from the 1953 record total. The trend for individual industries will be mixed, according to this estimate. Manufacturers will drop their expenditures by 8 percent, but offsetting this, in part, will be anticipated increases in commercial trade and services and continued record rates of spending by gas and electric utilities.

Also, the Bureau of Labor Statistics and the U. S. Department of Commerce have issued their joint forecast of construction activity in 1954. According to this estimate, no more than a 2 percent sag in total construction activity is anticipated from the record established this year. Private construction is envisioned as being off only 3 percent, and another million new housing units are expected to be started. (The total this year will be close to 1.1 million units.) Public construction activity is viewed as being virtually unchanged since only a 1 percent dip is estimated.

This optimistic view of construction activity is shared by the private agency that collects construction contract-award data. Total awards in 1954 are estimated at only 3 percent below those of 1953. A 10 percent drop is envisioned in residential contract awards, with "starts" of nearly a million. This is expected to be offset in part by strength in public works and utilities.

Forecasts of capital equipment expenditures and construction activity of the type just mentioned should be treated with caution. On the one hand, past estimates from these sources have been consistently on the low side; that is, actual results have been somewhat higher than the original forecasts. On the other hand, there has been no experience in evaluating such predictions in a period of declining business activity. In other words, the question arises whether business men would stick to their spending schedules if sales should weaken and profit outlook become less certain.

Before accepting these essentially optimistic views as to probable business activity in 1954, serious consideration should be given to several other sectors of the economy where, conceivably, adverse developments could precipitate a decline of the 1948-49 magnitude or greater.

At the head of the list, perhaps, should be placed the general problem of business inventories. These have been rising almost without interruption since the start of the Korean War. Inventories in relation to sales are now very close to the ratio that prevailed in late 1948, or just prior to the general inventory liquidation that persisted through the first half of 1949.

There is no valid reason to anticipate further voluntary accumulation of stocks in view of prevailing stable prices, abundant supply, and weakening sales. In fact there is considerable evidence that business, in general, is vigorously trying to stop any further accumulation, and to bring stocks into balance with the prevailing pattern of present and prospective sales. If business — retail, wholesale, and manufacturing — is successful in this endeavor, what will be the effect upon general business activity?

At least part of the answer can be found by looking at the record of the immediate past. The accompanying table shows the changes in the Gross National Product by quarters, from each previous quarter, together with the changes in nonfarm business inventories.

CHANGES FROM PREVIOUS QUARTER
in Billions of $'s

	1952	1953		
	4th Q	1st Q	2nd Q	3rd Q
G.N.P.	+$15.8	+$0.9	+$10.4	—$3.4
Nonfarm Business Inventory Accumulation	+ 8.1	+ 2.6	+ 8.7	+ 4.5
G.N.P., excluding Inventory Accumulation	+ 7.7	— 1.5	+ 1.7	— 7.9

It becomes readily apparent, that the rate of accumulation of nonfarm business inventories can have an important effect upon the Gross National Product. If, for example, there had been no inventory accumulation in the third quarter of 1953, G.N.P. would have fallen by nearly $8 billion, at an annual rate, from the second quarter, instead of sagging only $3.4 billion.

This analysis suggests, then, that a mere leveling out of inventories in 1954 could have considerable effect upon business activity, and reduce to some extent the number of men needed to run the production lines.

A second area of the economy that should be examined closely at this time, is the rate of consumer instalment credit expansion. In the year ending September 30, instalment credit outstandings had increased at an average monthly rate of $344 million. This expansion was undoubtedly a factor in sustaining, and in some cases increasing, the sale of all kinds of consumer durable goods.

The boom in consumer credit has dwindled. The increase of $116 million in September was only about half that of August, and about one-fourth the average increase of the late spring and summer months. Is the economy approaching a period of leveling off in instalment credit outstandings? If so, what will be the effect upon the sale of automobiles and the whole range of big-ticket consumer durable goods? The effect upon employment in industries producing these items?

There are other specific areas which have a suggestion of weakness about them, at least in relation to recent past periods of performance. Housing starts, for example, have been estimated for 1954 at the very good level of 1,000,000 units. Nevertheless, this would represent a drop of nearly 10 percent from the 1953 total and would have an impact upon labor and material requirements. In another sense, however, this cannot be viewed as a particularly adverse development since starts at this level would represent a continuation of the rate which prevailed during the late summer and fall of 1953.

The automobile industry, which will likely produce about 6.1 million passenger cars this year, will face a year of rugged competition in 1954. Industry experts anticipate that output next year will range between 5 million and 5.9 million units, with the consensus centered at about the 5.5 million unit level. If this total should be realized, production would be the third best on record. But the important fact remains that output of 5.5 million cars would be 10 percent less than in 1953, and accordingly would subtract something from the quantity of materials, parts, and labor needed in 1954. Such a drop in activity may be concealed during the first part of the coming year, if the automobile manufacturers return to their prewar seasonal pattern of producing 55 percent of the annual output in the first six months and 45 percent in the latter half of the year.

The factors just identified should be taken into account in evaluating business prospects for 1954. No conclusion is drawn here as to whether the economy is pointed toward a plateau of activity only slightly below the 1953 level, or toward a relatively sharp jolt in both production and employment.

Agriculture During 1953

FARM PRICES in 1953 continued the downward trend which prevailed throughout 1952 and most of 1951. Output, however, was maintained at a very high level. Farm income declined further in 1953; total indebtedness rose moderately; and some letup in farm buying of industrial goods was observed.

The factor most important in sustaining the farm economy this year has been the continued growth in consumer income which has supported a strong and growing domestic demand for food. Foreign demand, on the other hand, fell sharply during 1952-53 from the unusually high points of the previous fiscal period.

Continued adjustments and developments on the agricultural scene during the year now drawing to a close have brought forth numerous problem situations which are far from new to this country's history. Surpluses, sharp and persistent farm price declines, relative stickiness in prices on production items, expositions on how to revive export markets, rising pressures for government assistance, consumer complaints of high food prices and congressional investigations of widening farm-to-retail price spreads are only a few of the recent agricultural headlines which have become classic through the generations in the literature of American agriculture.

Price Trends Farm price trends during 1953 generally continued to indicate an imbalance between market supply and the combined demands arising from domestic consumption, from the export market, and from government support operations. Since farm prices reached their peak as long ago as February 1951, there have been only isolated occasions where downward price pressures have not prevailed. The extension into 1953 of the downward movement following the especially sharp break which occurred in the middle of last year will bring the average farm-price level for 1953 to about 10 percent below that of 1952. By the closing months of 1953 the general farm price level was virtually the same as in June 1950, the month of the Korean invasion.

Individual farm products, however, have shown quite diverse movements in price during 1953.

Farmers and communities depending heavily upon hog receipts for their livelihood, for example, may well have considered 1953 as a year of very favorable prices. If their hog operations were supplemented primarily by egg production, it may be presumed that the language of depressed prices would be quite removed from their immediate vocabulary.

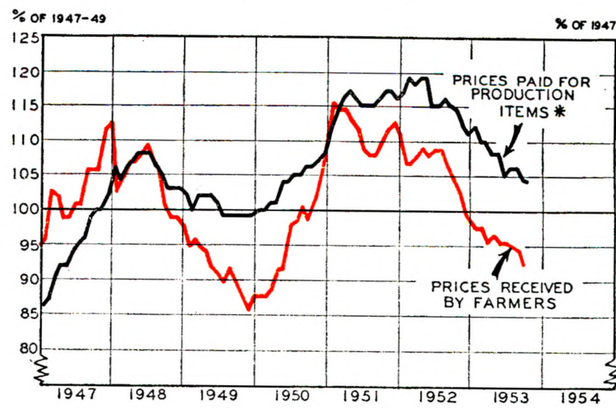
The beef feeder interpreted his 1953 price position in different ways, depending upon the times when he bought and sold his cattle and upon the efficiency of his personal management. The greatest price squeeze to local cattlemen occurred in the spring, when feeders which had been purchased at 28 cents per pound and upward were, when finished, being sold for 23 cents and less. Although very few instances occurred where the final sale value per animal was actually less than the original purchase value, it was more often the rule than the exception that the net return for labor was little more than the experience gained. Following such an episode, however, the next batch of feeder cattle could usually be obtained at greatly reduced prices, with reasonable assurance that the margin would once again be on the plus side to assure some profits.

In judging the severity of the cattle price decline, better informed farmers appear well aware that the drop was from a boom level inflated far beyond that enjoyed by any other commodity segment of the farm economy.

Dairymen also experienced additional weakness in their price structures, with 1953 milk prices generally the lowest since 1950. A customary seasonal price decline began somewhat earlier than usual last winter and the subsequent recovery was not com-

FARM PRICES AND PRICES PAID FOR PRODUCTION GOODS

(1947-49 = 100)



. . . farm prices continued to decline throughout 1953 to a point now very near that which prevailed at the Korean invasion. Prices paid for production goods have also slid substantially from the record levels of mid-1952 due largely to processed feed and feeder livestock.

* Includes machinery, building and fencing materials, fertilizer and lime, motor vehicles and supplies, feed, livestock, seeds and small equipment and supplies. Does not include taxes, interest, wage rates or family living items.

Source: U. S. Department of Agriculture data.

plete. Efficient well-established dairymen made a profit on 1953 milk prices, but a quite substantial block of "average" milk producers did not, especially if a monetary value is placed upon their labor.

Grain prices likewise failed in general to recover from a seasonal drop, which in this case had been scored in the summer and autumn of 1952. A seasonal pattern was evident during 1953 for such crops as corn, wheat, oats and barley, but the pattern was traced on a scale decidedly lower than that of a year ago.

Soybeans offer some contrast to the general crop-price picture, with a comparatively strong undertone shown by the market during much of the year. The coveted "$3 beans" of early 1951 and mid-1952, however, have been missing from 1953 cash markets.

Output and Demand for Farm Products Five elements appear prominent in determining farm price patterns in any given year. They are: current production, carryover stocks, domestic consumption rates, exports, and price support programs. Of these, the continuation of more than adequate supplies and the loss of nearly one-third of the foreign market have accounted for most of the severe price adjustments which carried over through 1953.

While aggregate output and price level data indicated oversupply, the major maladjustments in supply were within a few commodities which tended to dominate the totals. A similar situation is true in relation to the declining exports, and, as might be expected, the commodities involved were frequently the same. Wheat and cotton, for instance, both major export items, are in surplus supply largely as a direct result of diminished foreign buying of the commodities without a corresponding reduction in domestic production.

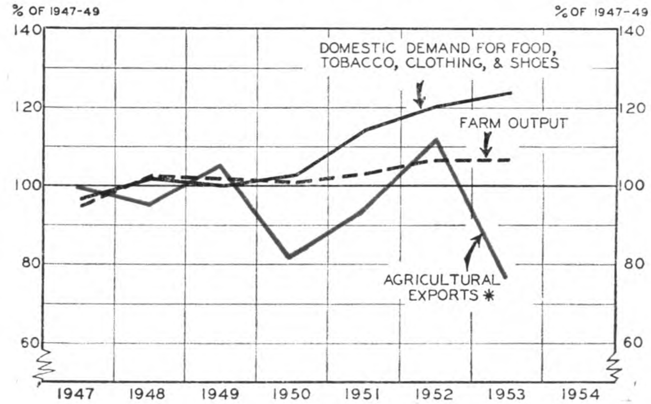
With cattle, unlike wheat and cotton, the price break which began in mid-1952 has been almost solely a result of a huge boost in production. Beef slaughter in 1953 will probably total over one-fourth greater in tonnage than a year ago, and will be the largest in the nation's history. Although this sharply increased volume has virtually all moved into consumption, markets could not be cleared without severe price concessions.

As is frequently the case, both production and prices apparently "overshot" in their adjustments to an imbalance in the opposite direction which prevailed several years ago. A tendency in finished cattle prices to level out during the latter part of 1953 suggests the approach of a closer alignment between supply and effective consumer demand.

Corn also reached a stage of moderate surplus in 1953 with a bountiful crop and a slackening demand from livestock feeders.

FARM OUTPUT COMPARED WITH DOMESTIC AND FOREIGN DEMAND

(1947-49 = 100)



. . . domestic demand for processed farm products (as reflected at retail outlets) continued to rise in 1953. Agricultural exports, however, dropped 30% in dollar value to the lowest of the postwar period. Farm output held steady at a level 8% above the 1947-49 average.

* Fiscal year data.

Source: U. S. Department of Agriculture and U. S. Department of Commerce data. 1953 partly estimated.

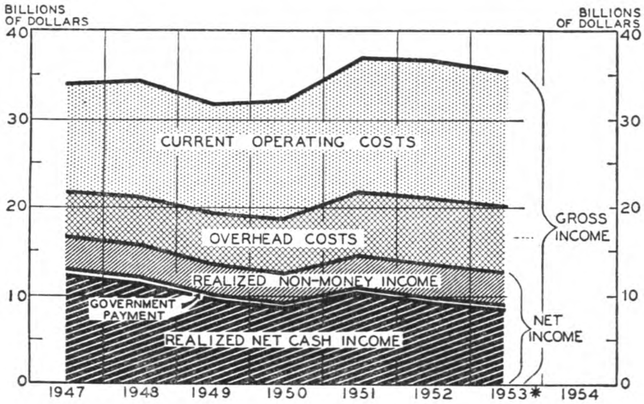
An accompanying chart shows the over-all support which has been provided by strong domestic demand for processed farm products. The demand is indicated by the line showing personal consumption expenditures for food, tobacco, clothes, and shoes. Such demand has brought favorable prices to many farm products in 1953, and has prevented more drastic declines than might otherwise have occurred in prices of other farm commodities hard hit by declining exports and by exceptionally high production. Although exports, as indicated in the chart, are for the fiscal year ended June 30, it is not expected that calendar-year data will reflect a greatly modified situation.

Income and Expense In their effect on income, price declines in the aggregate more than offset a record high physical volume of farm marketings in 1953. The consequent easing in gross income was also greater than the reduction in costs. Net income dipped an average of 7 to 10 percent to a point fully one-fourth below the 1947 postwar record.

Changes in net farm income varied widely over the nation, both by area and by type of farming. In most cases, however, the change from 1952 was downward.

Owner-operated dairy farms in the Northeastern section of the nation suffered an average reduction of about one-fourth in net income in one year alone, from 1952 to 1953. Both milk and cull cows sold at a substantially lower price this year. Lower feed

FARM INCOME AND EXPENDITURES

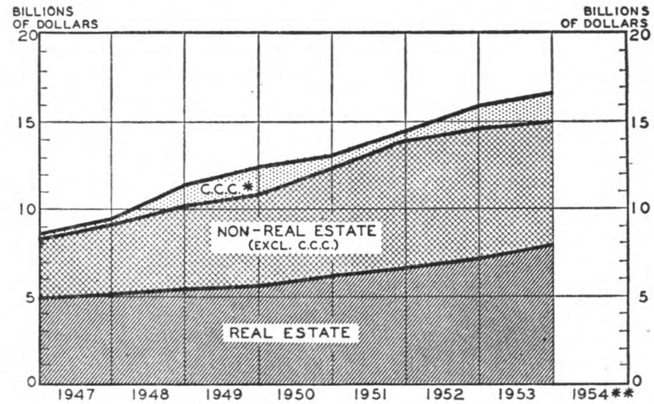


. . . **net farm income during the past two years reflected declines in gross income and continued high costs. Gross income in 1953 is 5% below the 1951 record, whereas net income is 25% below a record reached in 1947.**

* Estimated

Source: U. S. Department of Agriculture data.

FARM LOANS OUTSTANDING, JANUARY 1



. . . **small increases in loans secured by farm real estate and in CCC loans more than offset a decline in other non-real-estate loans during 1953. Total indebtedness is now at a record high in dollar volume, although still comparatively low with respect to assets.**

* Loans held and guaranteed by the Commodity Credit Corporation.

** Estimate for January 1, 1954.

Source: U. S. Department of Agriculture data.

prices provided only partial compensation. In areas where some grain is raised on the farm, and where the operation is supplemented by poultry or hogs, the decline in income was much less severe.

Beef-hog farms have also experienced an above-average decline in net income, with increased returns on hogs only partially offsetting lower income from cattle. The profit outcome on individual farms depended heavily upon how well the cattle operation fared.

Returns to individual grain farmers varied widely, with yields following the relative abundance or lack of rainfall. Good yields and reliance upon price-support loans have brought net returns above a year ago to many crop farmers.

Most of the moderate lowering in the over-all cost of producing the 1953 volume of farm output was due to the substantially lower prices paid for feeder livestock and for feed. Prices and volume of purchases of other production items held stable or registered small increases. Fertilizer expenditures, for example, are reported to be about the same as in 1952, with little change in price indicated. Some rise was noted in depreciation charges, and in spending on taxes, farm-mortgage interest payments, hired labor, and the operation of motor vehicles.

A decided slackening occurred in expenditures for farm plant and equipment during 1953; this was in response to the declining farm income or in many instances to a decreased need. Sales of farm machinery were off some 6 percent nationally at retail, during the first 9 months of the year. September sales were down 11 percent from the preceding year. The dollar value of new farm construction apparently will average about 12 to 14 percent below last year.

Farm Debt Loans outstanding to farmers have probably risen during 1953 to a new record level. Those secured by real estate have increased, as have loans held and guaranteed by the Commodity Credit Corporation. Other non-real estate debt, at least to lending institutions, has probably shown some decline in line with lower feeder-livestock prices, reduced purchases of machinery, a limited amount of conversion to real estate mortgages, and a generally more cautious attitude among borrowers and lenders alike.

Although farm indebtedness is high in dollar volume, it is relatively low with respect to the valuation placed upon assets. Financial assets alone are more than adequate to offset total liabilities when farmers over a wide area are grouped together. Looking at the aggregates, however, tends to cover the extremes. Of particular concern are the beginning and heavily indebted operators who are faced with an economic situation where continued heavy expenditures and the best in management are required to develop a favorable profit.

Interest rates on farm loans advanced slightly during 1953, although probably by less than ½ percent in most areas including the Fourth District. Money was considered in tight supply in the central markets early in the year, but it had little noticeable effect on the availability of farm credit in the District.

A Look Ahead Agriculture, through loss of net income, stood out as a conspicuous exception to the prosperity of 1952; it has had few companions in this respect in 1953, and it looks forward to little change in such a situation in 1954. Farm prices are expected to ease a bit more in 1954, although decidedly less than occurred this year. As a consolation to farmers, some mild downward pressures may prevail on prices paid for production items of nonfarm origin. While such a development does not point to recovery of previous reductions in net income, it does perhaps suggest a more moderate decline. The outlook is either good or improved for a number of major commodities, provided consumer income holds reasonably near to this year's levels. For commodities such as wheat which are in surplus supply, with no recovery of the export market in sight, the outlook is less bright.

Weather, always a major factor in the farm economy, is being looked upon with even greater skepticism at the present time. A continuation and more widespread occurrence of this year's drought could bring a mass disruption of the markets. While feed shortages and livestock liquidation have not been prevalent for many years in the major producing areas of the nation, they do pose an ever-constant threat both to the farmer and to the consumers of his produce.

ANNUAL INDEX
TO *MONTHLY BUSINESS REVIEW*
(1953)

FINANCE

INDUSTRY

INDUSTRIAL RESEARCH

AGRICULTURE

TRADE

GENERAL

MISCELLANEOUS

SUMMARY OF NATIONAL BUSINESS CONDITIONS

Released by the Board of Governors of the Federal Reserve System

Industrial production, construction activity, and retail sales in October and November continued moderately below the highs reached earlier this year. Wholesale prices remained at about the level prevailing since late 1952. Consumer prices rose slightly further in October. Bank loans and investments increased sharply in the first three weeks of November, reflecting primarily purchases of new Treasury securities as bank loans showed little change. Yields on Government and corporate securities rose slightly.

Industrial Production

The Board's preliminary index of industrial production in October was 231 per cent of the 1935-39 average as compared with 232 in September and 230 in October a year ago. A decline of about 3 index points — or 1 per cent — is now indicated for November reflecting mainly further curtailment in durable goods output from the very advanced rate reached earlier this year to somewhat below year ago levels.

Auto output, after rising somewhat in October from the moderately reduced rates of September, was reduced about 30 per cent in November, primarily because of model changeovers. Steel mills operated at about 90 per cent of rated capacity in November after rising moderately to 95 per cent in October. Activity in producers equipment industries generally held steady in October and there was little change in farm machinery output following several months of sharp declines. Television production declined moderately from very high levels in the latter part of October.

Output of nondurable goods in October showed a small further decrease to a level about 3 per cent below the peak rates of spring. There were moderate further curtailments in textile and fuel industries. Moreover, production of industrial chemicals declined reflecting lower output rates in various consuming lines. Paper and paperboard output, however, reached a record level in October and early November, and meat production continued sharply above a year ago.

Construction

Expenditures for new construction in October, seasonally adjusted, continued at the third quarter level, 6 per cent below the spring peak, but 4 per cent higher than in October, 1952. Value of contracts awarded in October reached a peak for the year as appreciable gains in awards for most categories of private construction offset declines in public awards. The 88,000 housing units started in October were nearly all privately financed, compared with 89,000 private starts in September, and 99,000 in October 1952.

Employment

Employment in nonagricultural establishments, seasonally adjusted, was little changed in October at 49.1 million, following slight reductions in the preceding two months, but was moderately larger than a year ago. Some further reduction in manufacturing employment in October was offset by increases in other lines of activity. The average factory work-week increased to 40.3 hours in October but was one hour less than a year ago. Average hourly earnings continued at $1.78, 5 per cent above the October 1952 level, and weekly earnings at $71.73 were about 2 per cent above a year ago. Unemployment in early October remained exceptionally low at 1.2 million. New claims for unemployment compensation have increased further since then and in early November were substantially above a year ago.

Distribution

Seasonally adjusted sales at department stores rose slightly further in the first three weeks of November, following some recovery in October from the reduced September level. Total retail sales changed little in October and were near their high year ago level, reflecting mainly continued high sales of new and used cars by automotive dealers. Seasonally adjusted stocks at department stores which had declined in September are estimated to have shown little change in October.

Commodity Prices

The average level of wholesale prices changed little from mid-October through November. Livestock showed further decreases, largely seasonal, through early November, but subsequently advanced sharply. Prices of pork and some other foods declined, but grains advanced, reflecting in part the influence of Federal support programs. Average prices of industrial commodities continued to change little. There were reductions in cotton textiles, alcohol, petroleum products, carpets and list prices for some makes of television sets. Acetate yarn was raised, however, and metal scrap increased slightly further.

Consumer prices again advanced in October, reflecting further increases in most groups of goods and services other than foods.

Bank Credit and Reserves

Total loans and investments at banks in leading cities increased substantially during the first three weeks of November, reflecting largely bank purchases of the new Treasury bonds issued on November 9. An increase in bank loans reflected mainly expansion in loans for purchasing and carrying securities. Real estate and consumer loans showed little further change. Business loans increased only slightly compared with a substantial rise in the same period last year.

Bank reserve positions continued generally easy during most of November, although at times banks in major cities were under some reserve pressure. During the four weeks ended November 25, excess reserves of member banks, on the average, exceeded borrowings at the Federal Reserve by about 300 million dollars. System open market purchases of U. S. Government securities, and an increase in float supplied additional reserves but these were absorbed through currency outflows and increases in required reserves. Early in November the Treasury used part of its free gold to retire securities held by the Federal Reserve Banks, a transaction which had no effect on member bank reserves.

Security markets

Yields on United States Government and corporate securities rose slightly over the first three weeks of November, following substantial declines in October. The Treasury offered 2½ per cent bonds of December 1958 or 1⅞ per cent notes of December 15, 1954 in exchange for the 2⅛ per cent notes maturing December 1, 1953.

Electronic Literature Searching

by CLYDE WILLIAMS, *President and Director, Battelle Memorial Institute*

During the past 150 years, the Industrial Revolution, based on the machine, has relieved man of the lion's share of his physical burdens. One-time undreamed-of industrial development has resulted. The machine is being similarly harnessed to relieve man of unnecessary mental burdens. One example of this effort is the electronic literature searching machine*. Such equipment, when fully developed, may bring immeasurable benefits in releasing man's energies for still higher pinnacles of achievement.

Recent developments in electronics have made it possible to employ patterns of electrical pulses to activate automatic searching equipment. These patterns, representing words, phrases, sentences, and paragraphs, may be recorded in various forms. Among the forms already tested are magnetic tape, punched cards, photographic film, teletype tape, and video scanning. Reading devices convert the magnetized spots, holes, or other forms of patterns into electrical pulses. These activate the machine's detecting and identifying circuits, which are set by the operator in accordance with the search to be conducted.

Those close to the development of literature searching machines caution against looking upon them as a panacea for the data searching problem. Reading, as practiced by humans, involves the ability to understand. And this the machine does not have. It can carry out matching operations based on patterns. It can determine whether words, phrases, sentences, and paragraphs are built up from prespecified units, but it can not interpret the meaning of the units involved. The machine is, in fact, a moronic robot able to perform routine operations with high speed, excellent precision, and unwavering patience.

Before machine searching comes into widespread general use, an adequate "machine language" must be evolved. This means that the key to maximum effectiveness for automatic searching equipment lies in the development of a new system of techniques for analyzing, indexing, and encoding or translating information into symbols appropriate for machine use. Such a new system is necessary (1) to enable machine searching to respond to the widest possible range of requests for information, and (2) to make the indexing-encoding step as simple as possible. Although considerable progress is being made toward fulfilling this need, much work remains to be done.

It is not the purpose of machine searching to discourage research scientists and research managers from doing their own reading, but to make it possible to read only pertinent material. Toward this objective, two relatively new concepts are being further developed. One of these is termed *creative reading*. This is based on the principle of relieving busy scientific and management personnel of the need to read a large volume of publications and reports of no immediate interest. Instead, comprehensive reviews are planned to ensure awareness of current trends. These reviews will be prepared from abstract bulletins specially designed to permit one to follow the details of recent developments in any given field with a minimum amount of reading time.

The other concept, *externalized memory*, involves the use of electronic equipment for high-speed searching of accumulated files of abstract bulletins prepared in connection with creative reading. Experimental types of searching machines have been made and have performed effectively within the limits of their capability. If and when such equipment becomes commercially available, it may eventually be capable of scanning up to five million documents an hour.

During the development of these two concepts over the coming years, transitional phases are, of course, anticipated. Conventional indexing, abstracting, and other existing library techniques will continue to be used and improved. Abstract bulletins, covering specific fields of knowledge and indexed appropriately for the development of machine searching methods, will be prepared as requirements are defined. Creative reading, or comprehensive reviews of current trends, will follow next. Finally, as abstract bulletins build up extensive files, externalized memory searching, based on machine methods, will be developed to provide information on demand.

The ultimate goal of machine and manual literature searching techniques is to meet the needs of expanding research activity. In recent decades, the accelerated advance of technology has generated the publication of masses of technical and trade information. One estimate places the current publication of technical matter at 60 million pages annually. To sift through even segments of such a vast accumulation of past knowledge and put it to work for future progress has become a time-consuming job. Some authorities say that as much as 25 per cent of the total time required to complete a research project may be needed to find, correlate, and assimilate relative past knowledge.

If the average businessman considers the frequently cumbersome task of combing through his own filing system for desired information, he might appreciate the magnitude of the research man's job whose information sources extend to the libraries of the world. When it comes to the development of new products, materials and processes, there is no more concrete basis for making decisions than the record of the past. And yet, in many cases, it has been found less time-consuming to repeat experiments than to search through masses of published data that might contain the results of those same or similar experiments.

Left unchecked, such unnecessary duplication of effort could become a drag on technological and economic progress. Industry and government, concerned over the matter, are already making a sizable effort to prevent the "embalming" of existing knowledge. Although still in early stages of development, electronic literature searching machines are being devised that could lead to a new milestone in man's use of the written record, perhaps as significant as the invention of printing in the fifteenth century. But it will be a stupendous task.

* Another example, the use of electronic machines for processing business data, was discussed in this series, December, 1952, under the title, "Electronics Aid Management."

Editor's Note—While the views expressed on this page are not necessarily those of this bank, the *Monthly Business Review* is pleased to make this space available for the discussion of significant developments in industrial research.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