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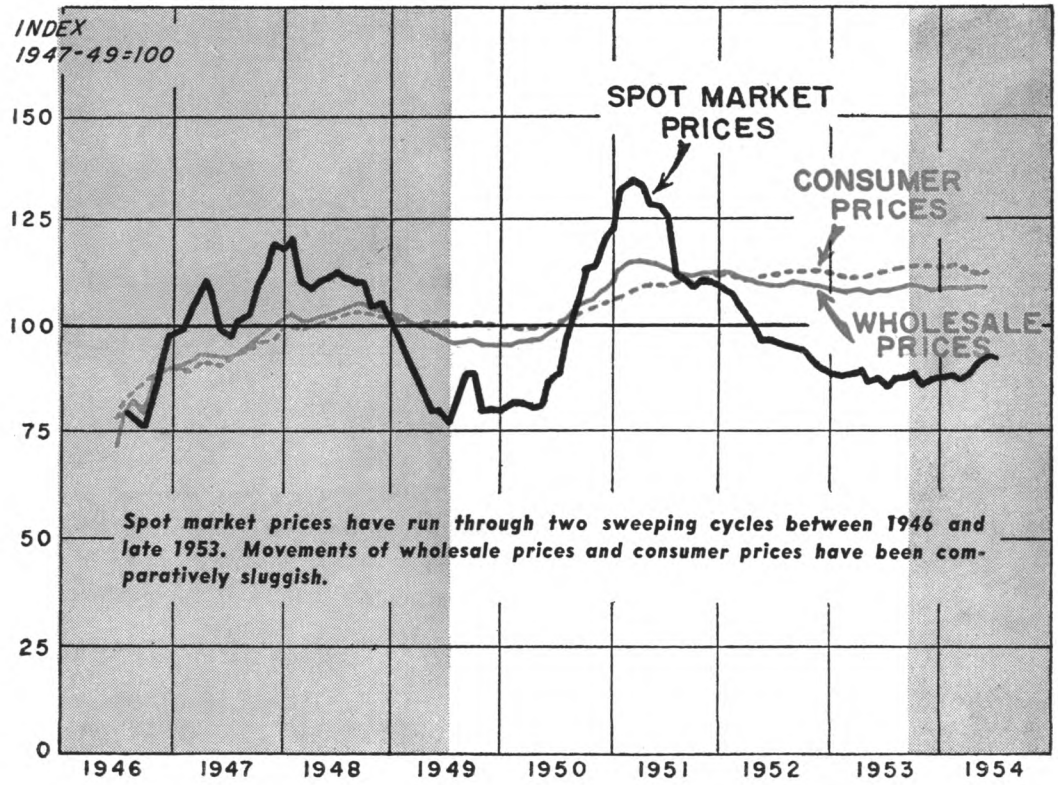


Spot market prices have run through two sweeping cycles between 1946 and late 1953. Movements of wholesale prices and consumer prices have been comparatively sluggish.

Cross Currents of Retail Trade

RETAIL SALES in the United States have been pointing upward in recent months, reversing a declining trend which had been in evidence throughout the last half of 1953. During January of this year, when the recent downslide reached its low point, total retail sales (seasonally adjusted) were 6 percent below the peak volume of the preceding July. By April, adjusted sales had increased 5 percent from January, and were only one percent below last July's peak. Advance reports for May indicate that total sales for the month were off from the preceding month on a seasonally adjusted basis, but only by about one percent.

The recent gains in retail sales, however, have not occurred as a steady increase in each month of the year to date. On the contrary, during March, and again in May, sales slipped a little following sizable gains in each of the preceding months.

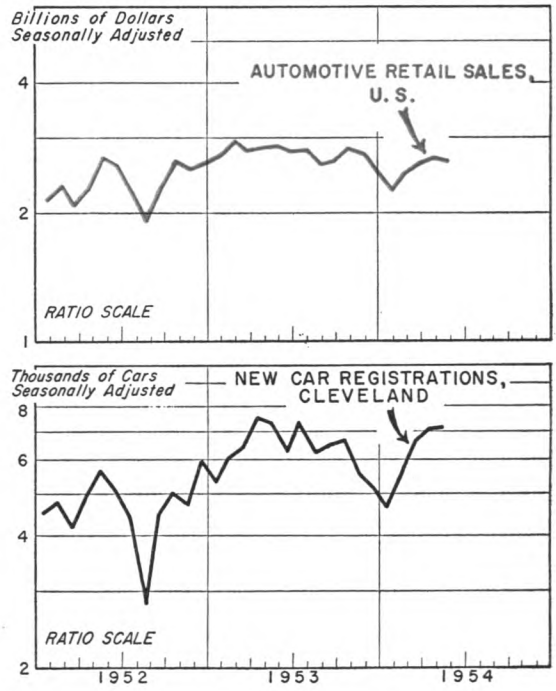
Even though the results of total retail trade during recent months may be suggestive of a rising tempo of business activity generally, it must be remembered that this trend in total sales has not been representative of all lines of consumer goods. Furthermore, it cannot be assumed that each geographical area of the country has shared equally in the rise.

In order that some of these variations in retail sales may be brought into focus, data on recent activity in certain lines of retail trade, both for the United States as a whole and for the Fourth Federal Reserve District, are presented below.

Automobile Sales Gain

Sales of automobiles and other automotive products constitute one of the most significant segments of total retail sales. An accompanying ratio chart shows the course of automotive sales over the past two and one-half years. (1) The line on the upper half of the chart indicates the seasonally adjusted monthly volume of sales by all automotive dealers in the United States, while the line

Adjusted sales by automotive dealers have been increasing since January 1954, when such sales were at a sixteen-month low.



Source: U. S. Department of Commerce, Bureau of the Census; Clerk of Courts, Cuyahoga County, Ohio.

(1) On a ratio chart, vertical lines of equal length represent equal ratios (or percent changes) between the points connected by the lines. This is in contrast to the more familiar arithmetic chart where vertical lines of equal length represent equal magnitudes.

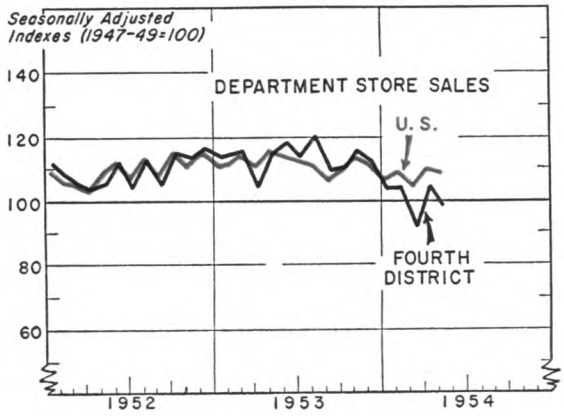
on the lower half of the chart indicates the number of new cars registered each month in Cleveland, Ohio — also seasonally adjusted. (Data for Cleveland have been selected for this comparison because of lack of figures for the Fourth District as a whole.) Although the U. S. series is based on dollar sales, mainly of new and used autos[2], while the Cleveland series is based upon number of autos sold, a rough comparison of short-term changes in the two series is possible.

In spite of some differences in coverage besides the geographical one, a striking similarity can be observed between movements of the two lines on the auto chart. In 1952, sales both in Cleveland and in the nation reached a low point during August, mainly as a result of the influence of the steel strike on supplies. Both indicators then rose and fell during the next 16 months, reaching a low point again in January 1954. For the United States, the peak month of adjusted automotive sales came in February 1953, while for Cleveland the peak was reached two months later—in April. Since last January, both series have shown a strong tendency to rise. In respect to percentage gain, the upturn in Cleveland since January has been greater than the national gain.

Department Store Sales Decline

A second accompanying chart indicates the course of seasonally adjusted monthly department store sales for the past two and one-half years, both in the United States as a whole and in the Fourth District. Department store sales, nationally, have shown a slightly declining trend in recent months, and by May the seasonally adjusted sales level stood 7 percent under the peak reached a year earlier. This is indicated by the green line on the chart. For the Fourth District, on the other hand, department store sales

Department store sales, both nationally and in this District, have failed to recover ground lost earlier this year.



have fallen off sharply in the months since last August, when adjusted sales reached a peak. (See black line on chart.) May sales in the District were about 18 percent below the August peak.

Certain local situations in the past year have contributed to the greater decline in Fourth District department store sales as compared with the U. S. sales picture. One important factor has been a prolonged strike of delivery workers against the Pittsburgh department stores. Adverse weather conditions during March this year also took a relatively greater toll of Fourth District sales than of national sales.

Department store sales in recent months have shown a striking contrast to automobile sales, both in this District and in the nation. While Cleveland auto sales have shown somewhat greater percentage gains so far in the current year than has been the case for the United States, as previously indicated, department stores in the Fourth District have shown a greater percentage sales decline than the national total.

Wearing Apparel Sales Down

Sales of men's and women's wearing apparel by department stores have been running below the 1953 average so far this year,

(2) There are several differences in coverage between the two series. The U. S. series includes sales of both new and used cars, and auto accessories, as well as services provided by automotive dealers. The Cleveland series, on the other hand, is limited to new car sales. Furthermore, the U. S. series should tend to be smoother than the Cleveland series because of the larger totals involved and the more numerous offsetting influences coincident with the greater area covered.

both in the Fourth District and in the nation. This is indicated on an acompanying chart in which the seasonally adjusted monthly sales index for the United States is shown in green and that for the Fourth District is shown in black. In the case of the Fourth District, the reduction in wearing apparel sales so far this year as compared with last year has been larger than that shown for the nation. However, sales in the Fourth District during 1953 had been at a higher level in relation to the 1947-49 average than was the case for the United States.[3] Thus far in the current year, sales indexes for both the U. S. and the Fourth District, based on the 1947-49 average, are at about the same level.

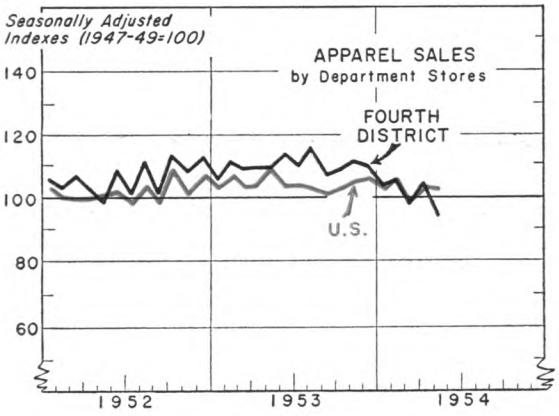
A factor in the analysis of apparel sales by department stores is the competition from specialty shops, especially in the suburban areas of large cities. Unfortunately, inadequate data are available on sales by specialty stores on a District level.

Sales of Furniture and Bedding

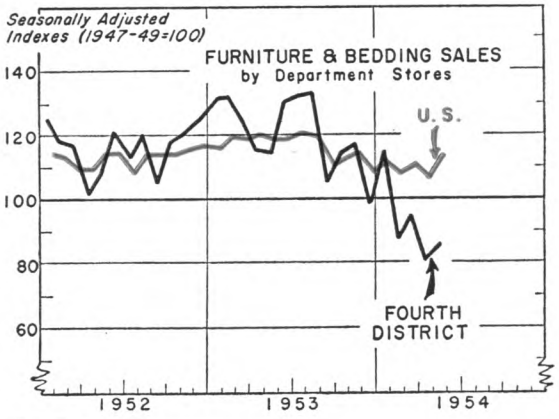
Seasonally adjusted sales of furniture and bedding by department stores in the Fourth District have fallen off considerably in recent months from the peaks of last summer. This is shown by the black line on the accompanying chart. Nationally, a decline in furniture and bedding sales by department stores has also taken place as indicated by the green line on the chart, but the extent of the percentage decline has been considerably less than in the Fourth District.[4] The delivery strike in Pittsburgh may have had considerable influence on the showing for the Fourth District.

An additional consideration in the analysis of furniture sales is the consumer credit situation. The tendency during most of the first half of this year for consumers to reduce rather than add to their total debt has probably been reflected in reduced sales of large items such as furniture, which are frequently bought by means of a financing plan.

In spite of an upturn in April, apparel sales by department stores are somewhat below the 1953 average.



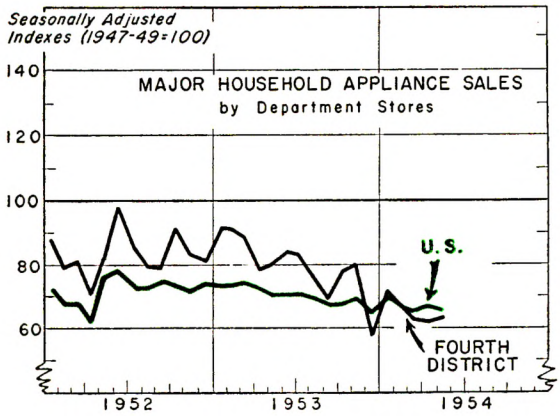
Recent declines in furniture sales by department stores have been especially pronounced in the Fourth District.



(3) Here again, the large aggregate of sales going into the national total tends toward minimizing fluctuations in the series, while the smaller aggregate in the Fourth District series allows fuller play to irregular variations.

(4) Sales of household furniture by retail outlets other than department stores have not been included in the charts shown here. Such sales, in the aggregate, are large, and their inclusion might have made for a relatively more favorable showing than indicated here, especially in the comparison of recent sales with those of a year ago.

Appliance sales at department stores appear to be leveling off at somewhat reduced rates.



Sales of Major Household Appliances

Sales of major household appliances by department stores, both in the Fourth District and in the nation exhibited a declining trend throughout 1953, after allowing for seasonal factors. So far in 1954, the trend appears to be leveling off, although monthly sales remain well below the 1947-49 average. Throughout most of the two-year period shown on the chart, the level of Fourth District sales has been considerably higher in relation to the 1947-49 average than has been the case in the country as a whole. In recent months, however, the Fourth District showing has been relatively less favorable.

The declines in department store sales of major household appliances probably reflect in part a reaction to the boom periods in such sales during the earlier postwar years and the buying surge which occurred shortly after the outbreak of hostilities in Korea. Furthermore, the useful life of most appliances is long enough to make replacement easily postponable if consumer earnings drop. The factory layoffs and reduction in the work week which occurred rather conspicuously in parts of the Fourth District during the first half of 1954 undoubtedly had an unfavorable influence on appliance sales.

Another factor in appliance sales by department stores is the competition by other types of retail outlets. Besides the furniture and appliance stores which have long been in the picture, the growth of "discount" operations in many centers appears to have taken some share of the department store's appliance market. No accurate data are available on this type of operation.

Summary

The overall picture of retail sales has been one of recent increases in automotive sales in contrast to some declines in department store sales. Within the department store, "hard goods" such as furniture and appliances have had harder sledding than the wearing apparel lines. Food sales, a third major factor in total retail sales, have tended to remain fairly steady, as usual, with most fluctuations representing price changes.

The automotive sector of retail trade has emerged as one of the most important factors in shaping total retail sales of recent years. Thus, the rise in automotive sales during early 1954, after seasonal allowance, is reflected in an increase in total retail sales during the period and it has been one of the more encouraging signs in the business picture up to latest reports.

The Fourth District ceased to be a pacemaker in department store sales during the period when business recession affected the industry of the area.

COMMODITY PRICES

After Two Postwar Cycles

THE DOWNWARD DRIFT that characterized total business activity from late last summer through the first quarter of this year has been quite generally characterized as a recession—a very mild one indeed, but still genuine. In view of this fact, the persistent refusal of commodity prices to behave during the past year in a manner befitting an orthodox recession has been a subject of comment. There has been nothing resembling the typical downward price movement that usually accompanies a period of business contraction. Improved second quarter reports have convinced many observers that the recession has ended; but whether it is over or not, a probe of commodity price trends is in order.

An explanation of the seemingly peculiar behavior of commodity prices lies partly in certain special circumstances attending the course of the mild business recession,—which will be discussed later. Fully as important, however, is the fact that significant downward movements in important groups of prices had *already* occurred, as part of the down phase of the Korean price cycle, prior to the onset of the recession in the summer of 1953. In fact, a low point or trough in *spot market* commodity prices was reached in October 1953.

The chart on the front cover depicts the course of three important price indexes since World War II. The black line represents the spot market price index, based on primary market prices of 22 standardized raw and semi-fabricated commodities whose prices are particularly sensitive to economic forces acting upon open markets and organized exchanges. The solid green line represents the general wholesale price index which covers nearly 2,000 commodities, including prices of manufactured goods as charged by manufacturers, and also farm commodities. The broken green line represents the consumers' price index, often called the cost-of-living index. All three are prepared by the United States Bureau of Labor Statistics, and all three are shown as index numbers based on 1947-49 average positions.

Average wholesale prices have declined only moderately during the past three years, and the consumer price index continued to edge upward until the end of 1953. Meanwhile, spot market prices fell 37 percent between early 1951 and late 1953.

At the wholesale and retail levels, where a considerable portion of the final price represents relatively inflexible labor and overhead costs, adjustments are more likely to be sluggish. Also, the consumer price index includes important components, such as rents and services, which respond very slowly to changed market conditions. For these reasons, it is generally the primary market prices of selected basic raw materials that command the attention of those seeking an economic indicator in the field of prices.

The alternating shadings of green and white on the cover chart are designed to mark off, somewhat arbitrarily, the duration of two postwar price cycles of the spot market index.[1] The trough of the first cycle is

(1) The arbitrary element is especially in connection with the designation of October 1953 as a price trough. If a marked downward movement should be resumed later this year, a retrospective view might minimize the significance of the recent upward movement, and might even assign the year's developments to the same general cycle which began with a rising phase in late 1949. Such an outcome, however, would not preclude the fact that the principal price-influencing factors now at work are different from those which were controlling in the specifically "Korean" phases.

June 1949, and the trough of the second cycle is October 1953. The two peaks, respectively, are January 1948 and February 1951.

The following discussion of the *spot market* price index is in a chronological order broadly corresponding to the sequence of price cycles marked off on the cover chart.

The First Postwar Price Cycle

At first glance, the two price cycles exhibited by spot market prices appear to be roughly comparable in amplitude and duration, a condition that might seem to suggest that they were essentially similar in character. However, closer analysis reveals significant differences. The two major component groups of the 22-commodity index played contrasting roles during the two time periods under consideration. (See accompanying chart.) Foodstuffs participated prominently in the first postwar price cycle. Farm prices rose immediately after the war, when the United States found it necessary to supply war-ravaged overseas areas with large quantities of agricultural products. A short corn crop in 1947 aggravated the situation.

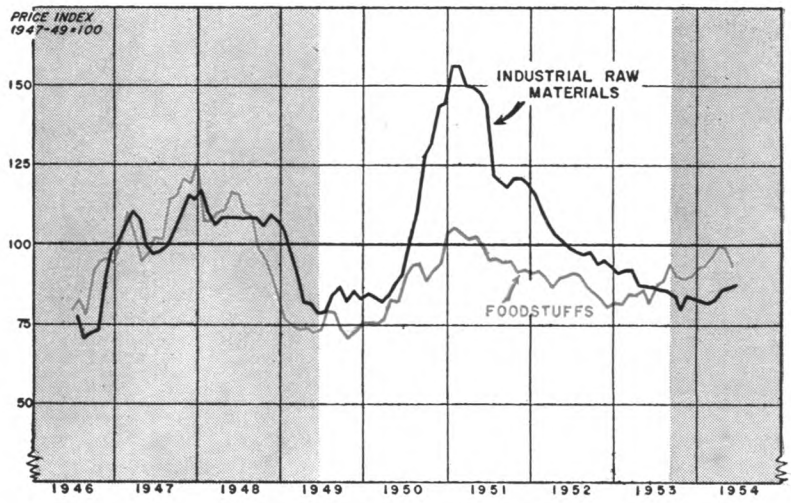
In contrast, the Korean price inflation of 1950-51 was heavily concentrated upon strategic industrial raw materials. In this connection it is important to note, as shown by another accompanying chart, that while the 1946-49 price cycle of industrial raw materials corresponded roughly with the trend of industrial activity (actually leading it somewhat) the 1950-53 price cycle showed little conformity to the curve of industrial production. The price peak, for example, was reached in February 1951, at a time when the industrial production index was in a level stretch about midway in height between its pre-Korean position and its 1953 high.

The Korean Price Cycle

Commodity prices, particularly industrial raw materials, by running counter to the rising trend of manufacturing and mining activity during such a period of dynamic change as the years 1951-53 point up very clearly the extent to which unusual factors were influencing world markets. The most significant characteristic of price fluctuations during this period was their domination by scare demand and its aftermath. From June 1950 until early 1953 basic commodity price movements bore little relation to immediate consumption. Military orders, strategic and civilian stockpiling all over the world, and later, sharp inventory reductions were the main factors influencing prices.

Price fluctuations were unusually violent during the Korean cycle because market decisions in such an "emergency period" tend to distort or exaggerate the responses traditionally ascribed to self-adjusting economic behavior. Supply shortages spur increases in demand regardless of price, while increasing supplies (incidentally lowering prices)

Swings of industrial raw material prices dominated the Korean price cycle.



only cause scare buying to subside. The result is shortage followed by glut. During the Korean War period this was, in fact, the story of most commodities which could be classified as raw materials for industry. Variation occurred mainly in the length of time necessary for the shortage-glut sequence to run its course.

Commodities Making Rapid Post-Korean Adjustments. Because of easy expansion of supplies or ready availability of satisfactory substitute materials, the prices of burlap, cottonseed oil, hides, print cloth, tallow, and wool went through a rapid readjustment during 1951 and the first few months of 1952.

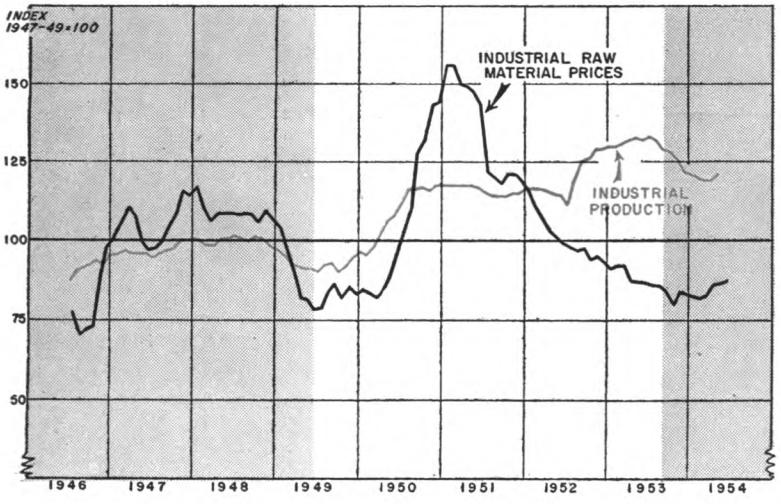
Burlap lost much of its market to competing types of bagging made from cotton, paper, and synthetic textile products. Synthetic fibers also displaced high-priced *wool* in many of its traditional markets, thus adding to the constrictions resulting from a severe reduction in United States military procurements of woolen-textile products during 1951 and early 1952. Prices of another textile, *print cloth,* crumbled under the impact of stepped-up production activity, which in less than a year unleashed a flood of material more than capable of satisfying any conceivable consumer demand.

A large cotton crop in 1951 ended any semblance of a "shortage" in *cottonseed oil.* Similarly, a steadily expanding rate of cattle slaughter proved to be more than adequate to meet the temporarily swollen demand for *tallow* and *hides;* at the same time, both of these commodities, or their end-products, continued to experience intense competition from synthetics. Thus, a losing battle was waged by soap against the new detergents, and by leather against rubber and composition soles for shoes.

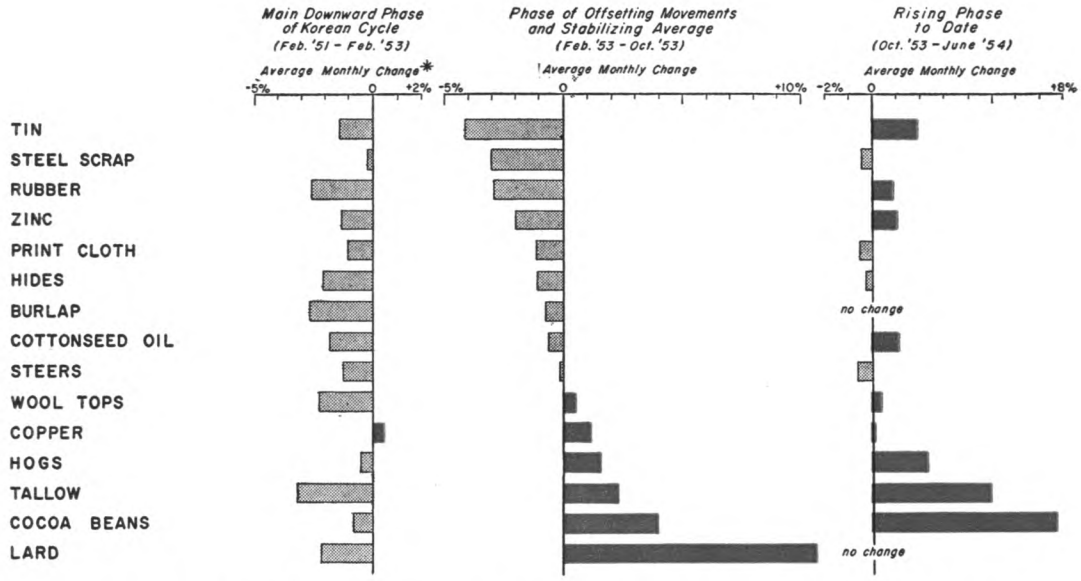
Commodities Adjusting More Slowly. In the case of rubber, tin, zinc, and lard, both demand and supply factors played prominent roles in the post-Korean price readjustment. The decline was slower and stretched out over a much longer period than was the case with the previously mentioned commodities. Both *rubber* and *tin* are commodities that are not produced in the United States or Western Europe, and are accordingly prime objects of strategic stockpiling for these two industrial areas. The immediate supply problem in rubber was eased during the Korean period by the great expansion of synthetic rubber production in the United States. Nevertheless, stockpiling continued (although at a decreasing pace) thus cushioning and stretching out natural rubber's price decline after the passing of the emergency. Stockpile manipulations also helped reduce the sharpness of price fluctuations in tin after early 1951. The United States used stockpiling operations and its position as the major world consumer of tin, first to pressure producing areas into price adjustments, and later to help counteract market weakness.

Prices of *zinc* gradually drifted downward, as rising production and a shift in consumer inventory policies turned shortages into surpluses, despite high rates of consumption.

For a considerable period during 1952-53, raw material prices and industrial production were moving in opposite directions.



In the downward phase of the Korean price cycle, 14 commodities played a leading role in the decline of the spot market index. Subsequently, many have moved upward.



* Percentage change from beginning to end of periods designated, divided by number of months elapsed; prices of terminal months are computed by averaging highest and lowest daily prices during the month.

The peak of a hog production cycle was reached in 1952, just as the demand for *lard* began to slacken appreciably. Lard prices declined steadily from early 1951 through June 1953, falling from 20.0¢ to 8.5¢ per pound.

Offsetting Movements in 1953

By early 1953 the general index of 22 sensitive commodities had just about returned to its pre-Korean level and showed signs of stabilizing. Such a development signaled a return to a stage where variations in supply, rather than demand, assumed the major role of influencing prices. Since supply changes tend to act less uniformly among commodities than changes in demand, price movements began to display more variety than before. (See the accompanying bar chart.) Spectacular price increases during 1953 in hogs, cocoa beans, lard, tallow and copper largely offset the weakness in steers and in a group of industrial raw materials, especially rubber, tin, zinc, and steel scrap; milder secondary setbacks occurred also in cottonseed oil, hides, and print cloth.

An unfavorable hog-corn ratio during 1952 and the ready availability of fixed government price-support loans on corn had induced farmers to make drastic cutbacks in pig production. Even when prices became favorable in the spring of 1953, farmers, evidently remembering the heavy losses of the previous year, refrained from expanding the supply. As a result, *hog* prices during most of 1953 and early 1954 were higher than any year since 1948. *Lard,* being a hog product, was subject to the same deficiency of supply. However, large storage stocks of lard had been built up during 1952, so it wasn't until July of 1953 that the supply situation tightened seriously. Thereupon, lard prices shot from under 10¢ to 21¢ per pound

in the space of a little over two months; they have remained at advanced levels up to latest reports.

Adverse weather conditions, a deadly plant disease, and local governmental policies combined to reduce severely the 1952-53 *cocoa* crop in the Gold Coast Colony (world's principal producer) at a time when world demand was taking a sharp spurt upward. The termination of cocoa rationing in Great Britain in the spring of 1953 sent that nation into intensive competition with the rest of Western Europe and the United States to obtain substantial portions of a dwindling supply. An almost unbroken rise in cocoa-bean prices followed, which by February 1954 was surpassing all previous records.

As was mentioned earlier, *tallow* prices had suffered greatly between 1951 and mid-1953 because of heavy cattle slaughters and the shrinking soap market. A nadir was reached in June 1953 when tallow sold for 3.5¢ per pound. However, at that price American tallow was by far the cheapest fat available on the world market. Exports began to siphon off large chunks of the U. S. surplus, and by the end of 1953 new domestic outlets, such as the use of tallow as a fortifier of animal feeds, gave promise of closing the gap between production and consumption. By February 1954 tallow prices had doubled, as compared with those of the previous June.

Steel scrap resisted any tendency to weaken seriously until the industrial slowdown of mid-1953 dropped mill operating rates below capacity in the late summer. Then, scrap prices tumbled from $43 per ton in August 1953 to $25 per ton in February 1954. The chief responsibility for the precipitous drop can be laid to a 30 percent contraction in mill operating rates, but other factors served to intensify the decline. Large scrap inventories, the tendency to reduce the ratio of scrap to pig iron in steel furnace charges, and an increased reliance on "home" scrap almost enabled the big mills to cease open-market purchases for several months.

An important exception to the weakness characterizing metals prices during 1953 is to be found in *copper*. After the removal of price controls in February 1953, copper prices rose sharply from 24¢ to 30¢ per pound, and then stabilized. (The early imposition of government restrictions on copper use and an attempt by domestic producers to hold the line on prices had prevented copper prices from rising as much as other metals before the General Ceiling Price Regulation went into effect in January 1951. Thus, domestic copper prices had been frozen far below the world level.) By early 1953 the condition of inadequate supply that had characterized the world copper market since 1950 had ended. However, prices remained firm, particularly because of a refusal by the Chilean government to allow the sale of that country's output at existing world market prices. Since Chile normally supplied the bulk of United States imports, its withdrawal from the market propped up prices.

It has been demonstrated how the driving forces behind the great Korean price cycle gradually became dissipated in a number of areas, until in 1953 offsetting price movements of a few specifically situated commodities were sufficient to create an appearance of stability in the all-commodity price index.

Such an appearance of stability was generally characteristic of the year 1953 in its entirety. However, when the experience of 1954 to date is added, it appears that, at least in a statistical sense, a rising trend has been in evidence since October 1953, as previously indicated.

The Current Situation

In today's commodity markets a number of forces are operating at cross purposes. The "Korean" price cycle, as such, has definitely run its course. But, as the circumstances of the past few months have again demonstrated, there is always the very real possibility that war will again send commodity prices skyward. International tension arising principally from developments in Indo-China helped create a short-lived boom-

let in several commodities during the month of April. War-sensitive raw materials had turned in the weakest price performance of any commodity group during 1953 and early 1954. When they suddenly strengthened, the composite 22-commodity index was greatly stimulated. During March and April, war talk, combined with drought fears and bullish seasonal factors, produced the most impressive advance in over three years.

However, except for the possibility of a new wave of scare buying or a defense-based industrial upsurge, the immediate price outlook for the majority of the 22-commodities is not especially strong. The original inflation of demand, which was the dominating factor in 1950-51 price surge, has now been completely eliminated from all the commodities making up the Bureau of Labor Statistics' Index. The curtailment of overexpanded supply which normally follows a severe price adjustment, such as has occurred since 1951, has been less complete. It was for this reason that commodities like rubber, hides, lead, zinc, tin, and steers suffered price declines during the first half of 1953 when demand was steady and strong. During the year the production of a number of these items was cut in response to low selling prices. An equilibrium might have been approached if the strong, steady demand of the first half of 1953 hadn't begun to recede as the economy of the United States turned the corner and slid into a mild recession. Secondary complications were avoided when industrial activity continued to expand overseas. By mid-1954 there was still no indication that the business downturn in this country was likely to become internationalized, and the domestic picture was looking better. Nevertheless, the 10 percent drop in domestic industrial production did set some deflationary forces to work in the nation's commodity markets, which, under different circumstances, might have had important price repercussions.

The Role of Government

Part of the reason why the business recession induced very little additional price weakness lies in the series of price-support programs carried on by the United States and other governments. Because of these support operations, the prices of a *majority* of the 22 sensitive commodities no longer fully reflect the fast-moving shifts of commercial supply and demand in their respective markets. It follows that, barring a major economic collapse capable of wrecking the governmental programs, political decisions regarding producer support measures will probably outweigh the implications of what appears to be a situation of somewhat overexpanded supply in a number of key commodity areas.

The accompanying table demonstrates how support programs tend to influence the prices making up the 22-commodity index. Current prices of almost all of the seven agricultural commodities that are supported outright at fixed prices have been hovering close to the support levels, and, with the possible exception of rosin, are maintained there only because of generous governmental assistance programs. The rise of cotton and cottonseed oil prices above the support price was possible only because large C.C.C. impoundings diminished the free-market supplies. Sugar prices are regulated by a tight quota system that is set up explicitly to maintain "reasonable prices." Little fluctuation from present levels can be expected. A protective tariff and a governmental loan program combine to bolster wool prices.

Lead and zinc prices have been strengthened by the recently announced stockpiling plan, under which the government is buying quantities of various materials for the national stockpile in an effort to "strengthen the domestic minerals industry." Copper will eventually benefit from the same program, but a more important immediate market stimulant was the recent direct government purchase of 100,000 tons of surplus Chilean copper that was hanging over the world market. Regulation of tin prices (and exports) will probably soon begin under the provisions of the recently drafted International Tin Agreement. While none of these

COMMODITIES WHOSE PRICES ARE INFLUENCED BY GOVERNMENT PROGRAMS

Commodity	Current[1] Price	Support Price	CCC Minimum Domestic Selling Price
Agricultural Products[2]			
Butter, lb	$ .570	$ .575	$ .605
Corn, bu	1.61	1.78[3]	2.04
Cotton, lb	.343	.33	105% of support price plus carrying charge
Cottonseed Oil, lb	.146	.128	.15
Rosin, 100 lbs	7.67[4]	7.52[4]	105% of support price plus carrying charge
Sugar, 100 lbs	6.11	5.45 to 6.80[5]	None
Wheat, bu	2.24	2.51[6]	2.87
Wool, lb	.543[7]	.532[8]	103% of support appraised value plus commission
Metals[2]			
Tin, lb	.938	To be supported by an international agency within a range of $.80 to $1.10 per pound.	
Copper, lead, and zinc		Indirectly supported by government stockpiling operations.	

(1) Average of high and low price during first half of June.
(2) Commodity specifications and markets are those used in the BLS 22-commodity index except as noted.
(3) Estimated terminal rate.
(4) At Savannah, Georgia.
(5) Range of prices 1950-53 under quota system.
(6) 1953 crop; the minimum loan rate for the 1954 crop has been set at approximately $2.51 per bushel. The effective loan rate will initially be about 12c less because of carrying charges.
(7) Received by farmers in May.
(8) National average support price.

Source of data: Commodity Credit Corporation and U. S. Bureau of Labor Statistics.

metals programs are yet in full operation, anticipation of their effects has already lent considerable strength to otherwise weak market situations.

Other commodities, such as hogs and print cloth, are indirectly affected by price support programs. Attempts to maintain minimum prices for the feed grains (especially corn) and for cotton strongly influence the prices of semi-finished products like hogs and cotton cloth, which consume large quantities of the supported primary commodities.

Because of such support factors affecting the commodity price structure, the 22-commodity index is perhaps becoming somewhat less useful as a sensitive economic indicator or harbinger of shifting general business conditions. For instance, the substantial rise in March that lifted the 22-commodity index a total of 4% was based in considerable part upon speculative buying of nonferrous metals in anticipation of the effects of the new government stockpiling program. The index registered a brief setback as April opened, chiefly because a change in government price-support policy lowered butter prices by 10 percent.

Although they dampen fluctuations, neither domestic government measures nor international stabilization programs offer ironclad barriers to price movements; prices can and sometimes do move out of the theoretically restricted range. Basic commodity price movements are still useful and important, but economic interpretations of their movements must now, more than ever, be tempered by a growing awareness of the non-economic factors influencing their behavior.

A New Approach to Cost Control

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

MAKING VAST QUANTITIES of goods available to the greatest number of people at the lowest possible cost has never been enough for the American manufacturer. He has also been greatly concerned about quality. A low-cost product, fortified with a high level of quality, has been the surest avenue to wide consumer acceptance. Mass demand, in turn, has been vital to support the huge capital investment required for mass production.

Quality still plays its traditional role in the American mass-production scheme. It is, however, taking on new significance to the American manufacturer. With labor, materials, and equipment costs remaining constant or rising, controlling product quality, at every stage of processing, is becoming an increasingly important means of lowering production costs. Such cost benefits, resulting from more efficient use of the relatively fixed cost factors of production, aid in keeping selling prices down and in promoting continued expansion of the mass market.

One of the outstanding examples of this production cost-control trend is nondestructive testing. It embraces all methods of detecting and measuring the properties or performance capabilities of materials, parts, assemblies, structures, and machines, without damaging their serviceability. This definition would naturally include strictly visual inspection which is still the most widely used form of nondestructive testing in industry. However, in current industrial usage, the term refers to nondestructive test methods that have been developed to inspect and evaluate materials where human observations fail or are inadequate. Such methods give us ways of measuring foils of metal thinner than the human hair, or of penetrating fifty feet of steel or concrete, to find hidden faults. They also provide the means for discovering surface flaws invisible to the naked eye.

When nondestructive testing was first introduced to industry, it was generally considered a routine operation necessary to satisfy inspection requirements. The turning point came when it was realized that nondestructive testing could also be an extremely important factor in production and maintenance costs, as well as in product design. Today, more and more industries are using nondestructive tests to insure not only the quality of the finished product, but also the quality of raw materials and components. Increasing numbers of nondestructive test installations are being made in the receiving departments of industrial plants. The use of such equipment at early stages of manufacture, or in product design, prevents the loss of invaluable man and machine hours on parts having defects that would otherwise show up only during final processing.

Nondestructive testing has now become an integral part of production and maintenance in a wide variety of industries. Foundries, railroads, engine builders, airplane manufacturers and operators, automotive industries, boiler makers, welders, steel fabricators, and many others are using nondestructive test methods to inspect millions and millions of dollars worth of materials, parts, and assemblies.

Research on nondestructive testing has contributed tremendously to its expanded use in recent years. Nondestructive test methods are now available to inspect and evaluate many types, sizes, and shapes of engineering materials, whether such be in the design laboratory, on the production line, or in service. This versatility is achieved by applying to the test object a "probing medium," such as X-rays, ultrasonics, penetrant fluids, radioisotopes, magnetism or electrical current. The probing medium then transmits information to a recording device, or reveals information to the human senses, that makes possible human or mechanical detection of defects.

Where standards of serviceability are well established and where extensive past experience exists, it sometimes becomes feasible to develop fully automatic nondestructive test devices. These may not only measure the significant properties of the test object but also determine whether or not it meets, or fails to meet, accepted standards.

Controlling product quality can be closely associated with safety. For this reason, nondestructive testing is used in all possible applications where failure of parts could result in danger to human lives, or could cause long and costly operating delays. Much of the country's defense production is subjected to nondestructive testing. It is used extensively by all of the public transportation systems for checking critical parts, both on original construction and on maintenance inspection. Rail cars specially equipped with nondestructive testing equipment have inspected over two million miles of track, and more than one million defective rails have been detected and removed from service. At the Indianapolis Speedway classic, not one accident has been caused by defective steering parts since nondestructive testing of these parts was made compulsory in 1936.

The country's economic progress is geared to the mass production of goods at lowest possible cost without loss of unit quality. Since nondestructive testing has become recognized as a quality and cost-control tool, it is taking on increasing importance as a fundamental processing operation in modern industrial production.

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.

Announcements

The Stebbins National Bank of Creston, Creston, Ohio, was admitted to the Federal Reserve System on June 28, 1954.

Dwight L. Allen was appointed Vice President of the Federal Reserve Bank of Cleveland, effective July 1, 1954. Mr. Allen will be the senior officer in charge of personnel administration of the bank.

Reduction in Reserve Requirements. On June 21, the Board of Governors of the Federal Reserve System announced a reduction in the reserve requirements of member banks on both demand and time deposits, to take effect gradually over a six week period.

When the reductions have been completed by August 1, the required reserve ratios will have been lowered as follows:

On net demand deposits—for central reserve city banks, from 22% to 20%, effective in two steps: on June 24, from 22% to 21%, and on July 29, from 21% to 20%; for reserve city banks, from 19% to 18%, effective July 29; and for country banks, from 13% to 12%, effective August 1.

On time deposits—for all member banks, from 6% to 5%. In the case of country banks, the reduction was made retroactive to June 16, and for other member banks it was effective on June 24.