economic review

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IN THIS ISSUE

FEDERAL RESERVE BANK OF CLEVELAND

INDUSTRIAL DEVELOPMENT IN OHIO--

State governments and commercial and trade associations have given increased attention to industrial development in recent years. Programs have been adopted to expand industrial activity and to retain industries located in the respective states. In addition, more advanced industrial development programs attempt to improve the economic climate of the particular states by attracting industries that are relatively immune to the influence of the business cycle. By attracting the more stable industries the respective states hope to reduce both direct and indirect costs associated with unemployment, and at the same time eliminate reductions in tax revenue that frequently accompany unemployment and declining personal income.

Recent developments in Ohio demonstrate the need for well planned programs of industrial development. Although Ohio ranks third in the United States in value added by manufacturers, it has experienced a relative decline in industrial activity. (Trends in manufacturing employment in Ohio and the U. S. are depicted in Chart 1.) Manufacturing employment in Ohio in 1963 was 4 percent below the 1957-59 average compared with a 3 percent gain in the U. S. In terms of actual numbers, manufacturing employment in Ohio averaged 53,000 less in 1963 than in 1957-59, with a little over two-thirds of the decline in durable goods manufacturing. Concern over this situation in Ohio has brought about many programs aimed at attracting more industry or realizing faster growth of industry currently operating in Ohio.

The economic problems of Ohio have been aggravated further by the fact that its industrial complex is composed of industries highly sensitive to the business cycle. As Table I shows, nearly two-thirds of manufacturing employment in Ohio is accounted for by six industries; namely, nonelectrical machinery, primary metals, transportation equipment, fabricated metals, electrical machinery, and rubber and plastics. In contrast, only 43 percent of the nation's manufacturing employment is accounted for by these six industries. Using the last recession (May 1960 to February 1961) to measure cyclical sensitivity, Table I shows that employment in five of these six industry groups dropped more than total manufacturing employment in the nation. For example, employment in primary metals in the U. S. declined 15 percent from May 1960 to February 1961 compared with a 5 percent drop in total manufacturing employment.

It is also significant that in each of the industry groups in Table I except printing and publishing, the decline in employment in Ohio exceeded the decline in the U. S. in the period under review. Employment in the primary metal in-

dustry, for example, dropped 18 percent in Ohio as compared with 15 percent in the nation.

The severity of employment declines in Ohio industries during recession periods is largely due to differences in the composition of the industry groups between Ohio and the U. S. For example, employment in the electrical machinery industry declined nationally only 2 percent in the last recession while in Ohio such employment dropped 10 percent. The relatively poor showing of Ohio is explained in large part by the fact that reduced demand for electrical machinery during this period was centered largely in household appliances, and that segment of the industry is heavily concentrated in Ohio.[1]

Concentration of industries that are particularly sensitive to swings in economic conditions plus a poorer performance by the components of these industries combined to bring about a 9 percent decline in manufacturing employment in Ohio during the last recession as compared with a 5 percent decline throughout the nation. The decline of manufacturing employment is significant because it has a direct influence on other economic activity, i.e., trade and services. The total income effect in the state, therefore, is even greater than is suggested by the importance of manufacturing alone.

-- THE FOOD PROCESSING INDUSTRY

One of the goals of industrial development in Ohio should be to attract or realize expansion of industries less sensitive to changes in general business conditions. Employment in many of the nondurable goods industries, for instance, has proven to be less susceptible to the business cycle. One area of nondurable goods manufacturing that might help meet Ohio's needs is the food processing industry. The expansion of food processing in Ohio might help provide both growth and stability for employment and income. The typical performance of food and related products manufacturing industry in a business recession can be noted in Table I. Employment in this industry declined only 1 percent throughout the nation in the last recession, and it is questionable whether economic conditions accounted for even that slight decline. A comparison of the composition of the food manufacturing industry with other industry groups is shown in Tables II and III.

A portrait of the food processing industry's performance in the last two recession periods is shown in Chart 2. It is apparent that output moved up steadily with little evidence of business cycle influence. Such performance is partly due to the nature of farm production,

[1] For a review of the performance of the machinery industry in the Fourth District see *Monthly Business Review*, Federal Reserve Bank of Cleveland, November 1963.

TABLE I

Distribution of Manufacturing Employment, Ohio and United States, 1962, With Percent Decline in 1960-61 Recession

	Percent Distribution		Percent Decline May '60-Feb. '61	
	Ohio	U. S.	Ohio	U. S.
Nonelectrical machinery	14.2%	8.8%	— 9%	— 6%
Primary metals	13.3	6.9	— 18	— 15
Transportation equipment	11.0	9.1	— 13	— 11
Fabricated metals	10.5	6.7	— 11	— 8
Electrical machinery	9.9	9.4	— 10	— 2
Rubber and plastics	7.0	2.4	— 11	— 6
Food and related products	6.9	10.4	— 2	— 1
Stone, clay, and glass	5.5	3.5	— 9	— 7
Printing and publishing	5.0	5.5	+ 1	0
Chemicals and allied	3.8	5.0	— 3	— 2
Other	12.9	32.3	—	—
Total Manufacturing	100.0%	100.0%	— 9%	— 5%

Source: Bureau of Labor Statistics, U. S. Department of Labor

i.e., the inflexibility of output in the short run. More importantly, such stability indicates that income levels in this country do not dip sufficiently in the recession periods to cause significant swings in outlays for food. It is reasonable to expect that among various food products the more convenient, higher priced items have a more elastic demand and may be influenced by moderate changes in economic conditions. Curtailed spending on these items, however, is partially offset by larger outlays for less expensive items.

In addition to stability, a steady growth in output is depicted in Chart 2. Such growth is not particularly surprising in view of the nation's expanding population and of increasing shipments of food products abroad. In addition, industry output has expanded because an increasing share of food consumed is being commercially processed. This is a continuation of the trend that has transferred tasks such as butter churning, baking, canning, and meat curing from the farm or home to commercial businesses.

Output data, however, probably understate the actual growth of the food processing industry as more intensive amounts of processing do not show in the figures. Consumer demands for a changing diet along with the ability to pay for convenience in food products have resulted in an increasing amount of processing between the farmer and consumer. Examples would include a shift from fresh to frozen fruit and vegetables and increased consumption of ready-to-eat items. Therefore, a better measure of growth—one that includes quality changes—is value added by manufacturers. From the 1957-59 period through 1962, value added by food manufacturers increased 19 percent while the physical output measure for the industry moved up only 13 percent. Thus, the food processing industry furnishes steady, though not spectacular, growth and has exhibited

near immunity to fluctuations in business activity.

It would appear that Ohio's importance as both an agricultural and an urban state would enhance the prospect of attracting more of the food processing industry. Ohio ranked twelfth in the U. S. in farm product sales in 1962. In addition, the productive agricultural areas of Michigan and Indiana that border western Ohio could serve as further sources of raw materials for the industry. At the same time, markets for food products are expanding in Ohio. Population growth from 1958 through 1962 totaled 666,000—fourth highest in the nation. These two aspects combined would seem to provide the ingredients for expansion of the food manufacturing industry.

Performance of this industry in Ohio, however, has not coincided with such expectations. For example, nearly half of the 15,000 decline in nondurable manufacturing employment in Ohio since 1957-59 occurred in food processing. Thus, food manufacturing alone accounted for 14 percent of the 53,000 decline in manufacturing employment in Ohio between the 1957-59 period and 1963. Furthermore, the performance of employment in Ohio food manufacturing contrasts to that for the nation as a whole, as can be seen in Chart 3. In 1963 such employment was 8 percent below 1957-59 while in the U. S. it had declined less than 3 percent.

The decline of food processing and other kinds of industries in Ohio has attracted the attention of many of those interested in industrial development. In attempting to determine the reason for the loss of important industries, several explanations have been offered. The more popular arguments submit that the cause of the relative decline in manufacturing employment in Ohio is a combination of wage rate patterns, business tax poli-

TABLE II

A Comparison of Food and Related Products Manufacturing With Other Industry Groups, 1962 (in millions)

Value Added		Employment		Payroll		Capital Expenditures	
Food and Related Products	$20,902.2	Food and Related Products	1.7	Transportation Equipment	$11,373.4	Chemicals and Allied	$1,276.2
Transportation Equipment	$20,898.8	Transportation Equipment	1.6	Nonelectrical Machinery	$ 9,218.0	Food and Related Products	$1,186.5
Nonelectrical Machinery	$16,116.7	Electrical Machinery	1.5	Food and Related Products	$ 8,577.9	Primary Metal industries	$1,143.5
Chemicals and Allied	$16,064.0	Nonelectrical Machinery	1.5	Electrical Machinery	$ 8,554.1	Transportation Equipment	$ 819.3

Source: 1962 Annual Survey of Manufacturers, Bureau of the Census.

The food processing industry is an important component of manufacturing activity in the U. S. Its economic importance is revealed by its position as number one in value added by manufacturing. Food manufacturers also top the list in number of employees. The industry's important role as an investor is illustrated in its second place ranking in capital expenditures; payrolls of food manufacturers are exceeded only by transportation equipment and machinery producers.

TABLE III

Distribution of Food Manufacturing Employment in the United States, 1962

Industry Group	Percent of Total	Major Areas of Activity
FOOD AND RELATED PRODUCTS	100%	
Meat Products . . . . . Meat packing plants (11)* Poultry dressing plants (4)	18	Animal slaughter, prepared meat products, and poultry dressing.
Dairy Products . . . . . Fluid milk (12)	16	Processing of milk for fluid use, ice cream, condensed and evaporated milk, butter, and cheese.
Canned and Frozen Foods . . . . Canned fruits and vegetables (6) Frozen fruits and vegetables (3)	14	Preservation of sea foods, fruits, vegetables, juices, and specialty products.
Grain Mill Products . . . . . Flour and meal (2) Prepared animal feeds (3)	7	Flour and meal milling and preparation, cereal preparation, and prepared animal feeds.
Bakery Products . . . . . Bread and related items (15) Biscuits and crackers (3)	18	Bread, cake and other perishable baked goods, biscuits, crackers, and pretzels.
Sugar	2	Sugar and syrup from sugar cane and sugar beets.
Candy and Related Products . . .	5	Candy and confectionery products, chocolate and cocoa products, and chewing gum.
Beverages . . . . . Malt liquors (4) Bottled and canned soft drinks (6)	12	Malt, distilled, rectified, and blended liquors; wines, brandy, and soft drinks.
Other	8%	Vegetable oils, shortening, margarine, fats, ice, macaroni, roasted coffee.

*Percent of total.

Source: 1962 Annual Survey of Manufacturers, Bureau of Census.

The food and related products grouping encompasses a diverse group of manufacturers. A major portion of such firms are engaged in manufacturing foods and beverages for human consumption or in producing related items such as ice and chewing gum. The grouping also includes firms producing items that are not for human consumption such as prepared animal feeds. Since establishments are classified according to their primary activity, overlapping of functions often occurs. For example, beverage manufacturers are often also engaged in distribution. Likewise, firms manufacturing food products but retailing the major part of their output on the premises, such as small bakeries, fall in the retail trade category.

cies, and the lack of financing aid.

The remainder of this article is devoted to the findings of a study of the principal factors that have contributed to the decline of the food processing industry in Ohio. The study was undertaken to determine the validity of the aforementioned explanations of the decline in manufacturing employment in Ohio, as well as whether the food processing industry may be expected to provide additional employment in Ohio in the near future.

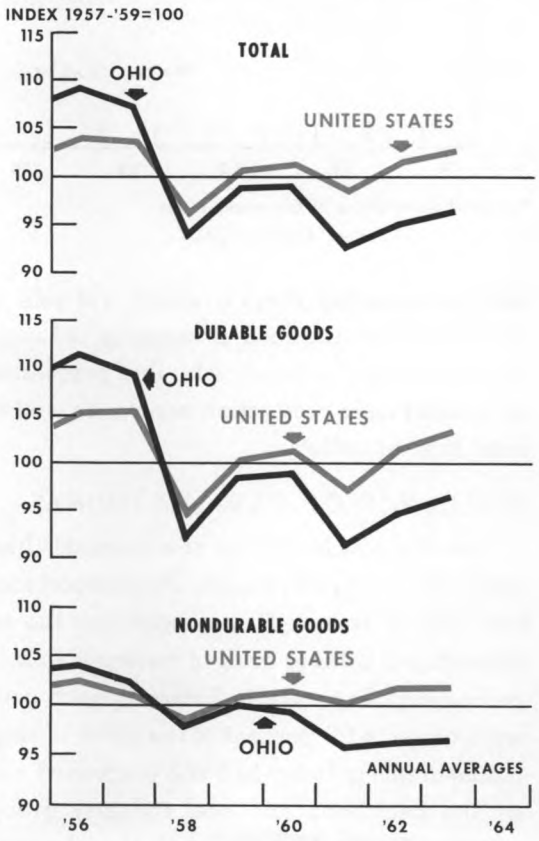
The principal conclusion of this study sug gests that the decline in employment in food manufacturing in Ohio cannot be solely attributed to wage rates, business taxes, or lack of financing aid. Rather, the decline appears to be the result of a combination of more complex factors that includes the influence of productivity gains on the components of the industry concentrated in Ohio, plant consolidations, closing of obsolete facilities, increased popularity of food items produced outside of Ohio, population shifts, geographic relocation of livestock production, and expansion of food processing facilities in other areas as a result of improved transportation facilities and technology.

DETERMINANTS OF LOCATION

The map on page 9 shows that food manufacturing is concentrated in the North Central and Northeastern parts of the United States as well as in portions of the South and West. Basic determinants of the location of firms in this industry are: availability and production costs of raw materials; transportation costs; and the necessity of maintaining product quality. Maintaining product quality is vital, of course, due to the perishable nature of many food products. The perishability of raw materials accounts for the processing of fruits, vegetables, sugar beets, and dairy products near production areas. At the same time, perishability of finished products, bread and other baked goods as well as fluid milk, requires processing within close proximity of consumers. It should be noted, however, that increased technology and improved transportation facilities and equipment have substantially broadened the market servicing area for producers in recent years. Neverthe-

1.

MANUFACTURING EMPLOYMENT - United States and Ohio



Source of data: Bureau of Labor Statistics, U.S. Department of Labor

2.

INDUSTRIAL PRODUCTION

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

less, perishability plays a significant role in the location of the food processing industry, and in some instances dictates that processing be located near production centers as well as near market outlets.

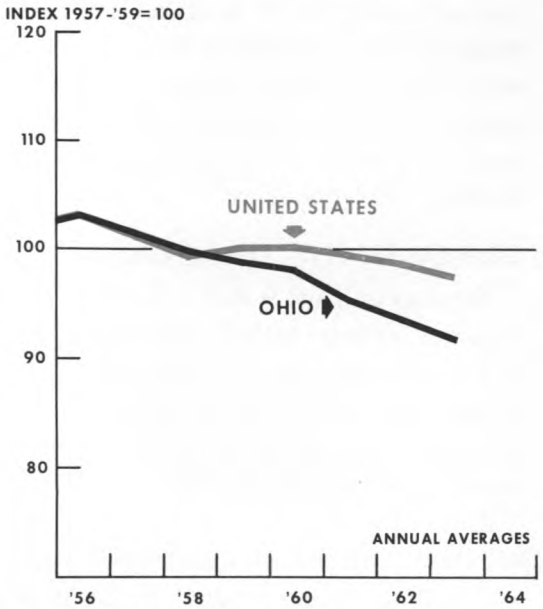
INFLUENCE OF RAW MATERIALS

Cost and availability or raw materials likewise play an important role. Their importance can best be revealed by considering the relationship of sales to costs of materials in food processing. As shown in Table IV, such costs were equal to 69 percent of the value of shipments in this industry in 1962 (exceeded only by the petroleum and coal industry group) compared with 45 percent in the electrical machinery industry. Table V shows the variation in the importance of material costs within the food processing industry. Meat processors, for example, pay out 83 cents of each sales dollar for materials. At the same time, costs of materials for manufacturers of bakery products and beverages account for less than half of their sales receipts.

Combined with the importance of raw materials in food processing is the fact that, in general, such materials are bulky and costly to move. At the same time, many of the raw materials lose considerable weight in processing; for example, beet sugar, fruits, vegetables, meat, and milk in the manufacture of cheese. This characteristic, coupled with the perishable nature of many of the products, strongly favors location near raw material

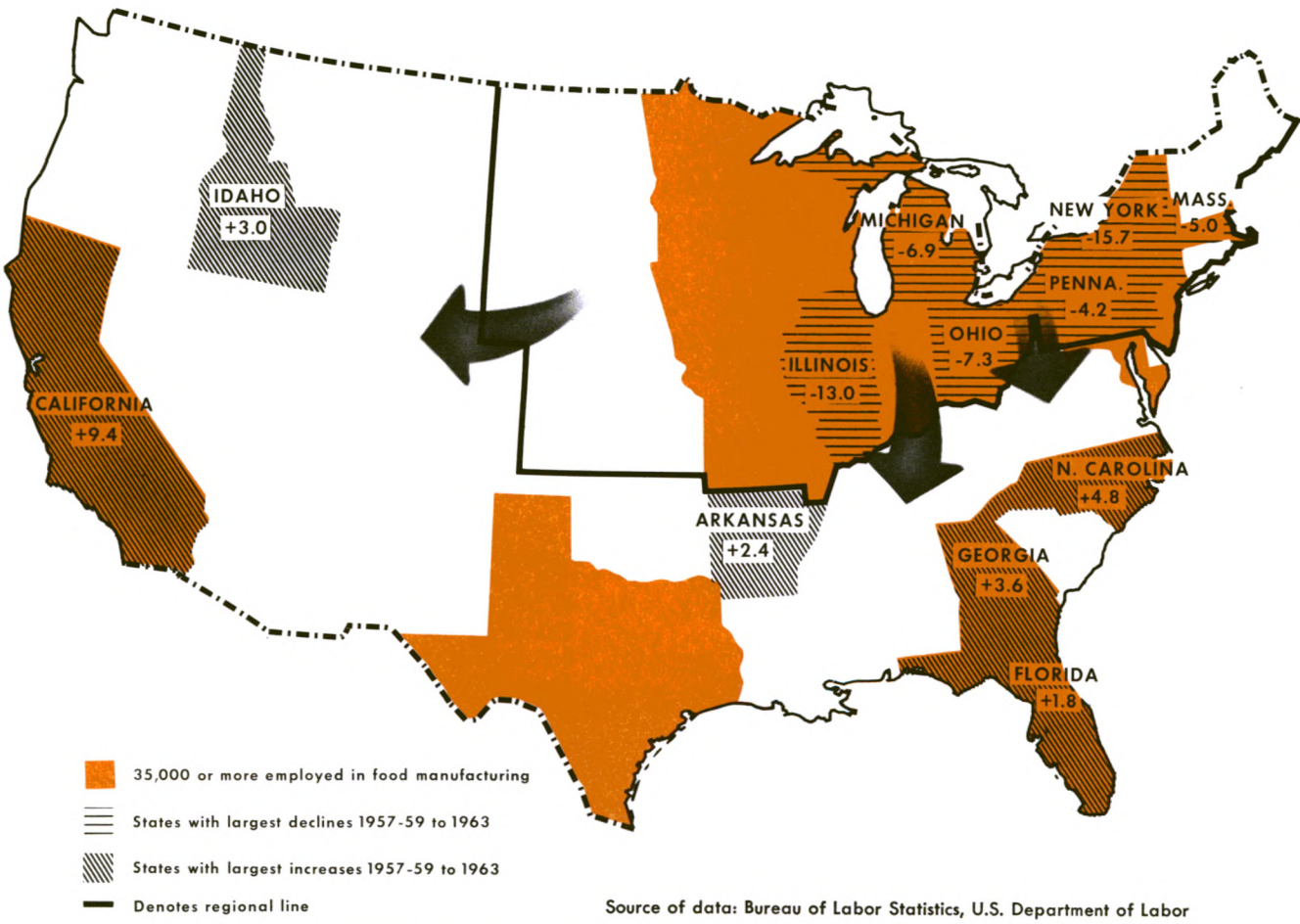
3.

EMPLOYMENT - Manufacturing Food and Related Products



Source of data: Bureau of Labor Statistics, U.S. Department of Labor

The location of the food processing industry is shifting away from a heavy concentration in the North Central and Northeast toward the southern and western portions of the United States.



Source of data: Bureau of Labor Statistics, U.S. Department of Labor

production centers. In that regard, production centers of these products are strongly influenced by soil, climate, and topography. Such factors, for example, explain the heavy dairy manufacturing centers in Wisconsin, the heavy beef and pork output in the Corn Belt, the citrus centers of the South, and California's dominant position in vegetable production.

MARKET PROXIMITY

Even after processing, many food products remain bulky or perishable so that market proximity is likewise an important cost consideration. Bakery products, ice cream, and soft drinks, for example, are more bulky finished products. Thus, market proximity plays a vital role in location from a cost standpoint as well as from the necessity of maintaining

TABLE IV

Importance of Material Costs Among Selected Industry Groups, 1962

	Material Costs as Percent of Value of Shipments
Petroleum and coal	80%
FOOD & RELATED PRODUCTS	69
Textile mills	60
Primary metals	59
Paper products	55
Rubber and plastics	50
Electrical machinery	45%

Source: 1962 Annual Survey of Manufacturers, U. S. Department of Commerce

TABLE V

Importance of Material Costs Among the Components of the Food Manufacturing Industry Group, 1962

	Material Costs as Percent of Value of Shipments
Food and related products	69%
Meat products	83
Grain mill products	73
Dairy products	70
Canned and frozen foods	64
Bakery products	47
Beverages	47%

Source: 1962 Annual Survey of Manufacturers, U. S. Department of Commerce

product quality. Importance of market outlets is evidenced by the fact that a strong correspondence exists between population and employment in food processing. Hence, of the 10 top states in food manufacturing employment, all but two (Minnesota and Wisconsin) also rank in the top 10 in terms of total population.

It is important to keep in mind that the influence of market proximity and raw material sources overlap in many instances. For example, much of the fertile land of the Midwest lies near heavily populated areas. Likewise, the attribute of climate offered by California is enhanced by a large population. Thus, in assessing the determinants of location, it appears that several factors are of equal importance rather than any one factor.

In general, the interplay of the above forces — finished product and raw materials, transportation costs to the processor and to market outlets, and transportation technology — determines location.

WAGES AND LOCATION

Obviously, other factors also play a role in determining location. One of the most frequently mentioned is the availability and cost

TABLE VI

Importance of Wages, Selected Industry Groups, 1962

	Wages as Percent of Value of Shipments
Petroleum and coal	6%
FOOD AND RELATED PRODUCTS	13
Chemicals	16
Primary metals	22
Fabricated metals	28
Electrical machinery	31%

Source: 1962 Annual Survey of Manufacturers, U. S. Department of Commerce

TABLE VII

Importance of Wages Among the Components of the Food Manufacturing Industry Group

	Wages as Percent of Value of Shipments
Food and related products	13%
Grain mill products	8
Meat products	10
Dairy products	12
Canned and frozen foods	13
Beverages	19
Bakery products	27%

Source: 1962 Annual Survey of Manufacturers, U. S. Department of Commerce

of labor. The role that wage costs may play in influencing location can be roughly measured by the importance of labor in the manufacturing process. As can be noted in Table VI, payroll expenses of food manufacturers constitute only 13 percent of the value of shipments as compared with 31 percent for producers of electrical machinery.

Furthermore, among the major components of the food manufacturing industry wage payments total substantially higher only for beverage and bakery products. (See Table VII.) In these two subindustries, however, market proximity tends to be the most dominant factor in plant location. Overall, it is apparent that wage payments represent a much smaller portion of total costs for food manufacturers than for most other industries; among food processors where wages do constitute an important segment of costs they may be overshadowed by other determinants of plant location.

PUBLIC POLICY AND LOCATION

Industry location is also influenced by public policy. For example, milk marketing order areas, which are administered by the U. S. Department of Agriculture, influence the amount of milk produced in certain areas and consequently influence the location and retention of milk processing plants. Likewise, the structure of transportation rates plays a role in determining grain mill processing sites, and more importantly is an influence on livestock production and poultry. For example, the phenomenal growth of the poultry industry in the Southeast has been aided by a favorable grain rate structure. Also, as with many industries, tradition and the residence of an original owner plays a part.

PATTERNS OF CHANGE

In the food manufacturing industry a net decline in employment of only 51,000 from 1957-59 to 1963 out of a total employed in an industry of 1.7 million seems insignificant. Considering, however, that the decline in employment in six states alone totaled 57,000, while employment in six other states registered a gain of 25,000, it is apparent that significant developments have occurred within the industry.

Six factors are primarily responsible for these developments. First, productivity gains have varied considerably among the various types of food manufacturers. Second, consumer preferences among food products have changed. Third, the degree of expansion in foreign markets has been an influencing factor on employment levels. Fourth, population movements have been an important influence. Fifth, geographical changes have occurred in the production of crops and livestock and the industry's raw materials. Finally, improved facilities and technology in transporting and processing food products have influenced the location of the industry.

CHANGES IN EMPLOYMENT

The relationship of increasing output, as shown in Chart 2, to the employment trend depicted in Chart 3 clearly indicates that output per worker has increased in this industry. Like other manufacturers, food processors are producing more per employee. Such developments stem from the joint effects of technological improvements, larger capital investment, and improved skills of the labor force and management. Economies of scale gained through consolidation of firms also

TABLE VIII

Percentage Changes in Employment, Output, and Output per Production Worker Manhour, Selected Groups, Food Processing Manufacturing 1957-59 to 1962

	Employment	Output	Output Per Production Worker Manhour*	Consumption Per Capita
Dairy	— 6%	10%	31%	— 7%
Meat	— 5	12	16	+ 7
Bakery	— 3	11	18	— 2**
Beverage	0	12	19	n.a.
Soft drinks	+ 13	19	15	+ 11
Malt liquors	— 11	6	16	0
Canned and Frozen	+ 1	37	33	+ 7
Miscellaneous	+ 2	13	15	n.a.
Total	— 3%	14%	19%	n.a.

*Estimated by Federal Reserve Bank of Cleveland using production worker manhours and output estimates

**Based on wheat flour consumption

n.a. not available

Sources: U. S. Departments of Labor, Commerce, and Agriculture; Board of Governors of the Federal Reserve System

play a part in the realization of increased output per worker. As mentioned earlier, achievements go beyond the quantity increase indicated here inasmuch as producers in many instances are turning out a higher quality product using modern processing methods.

VARIATION IN IMPACT

Inasmuch as segments of this industry are concentrated in various parts of the nation, consideration should be given to the variation in productivity gains throughout the food processing industry. As can be seen in Table VIII, output per production worker manhour advanced 19 percent from 1957-59 through 1962 for the entire industry. Among the components, however, the increase ranged from 33 percent in canned and frozen foods to 15 percent in miscellaneous food products.

The other variable involved in employment change is the gain in output. Variation in output of food products is chiefly a reflection of changes in consumer preference. Substantial gains in production ot some products has more than offset increases in output per manhour. For example, output of canned and frozen foods has expanded 37 percent since 1957-59. Thus, even though output per production manhour moved up sharply, employment in the industry registered a slight gain. The increase in output in this segment of the industry reflects a change in consumer preference. Total per capita consumption of fruits and vegetables has not changed to any extent in recent years. Because of the increased popularity of frozen and canned vegetables and juices, processed fruits and vegetables continue to replace fresh fruits and vegetables in American diets. Thus, a larger portion of the fruit and vegetable diet is processed, and employment in the industry expanded coincident with a sharp gain in output per production manhour.

In contrast, employment by dairy product processors fell 6 percent over the same period with approximately the same rate of gain in output per manhour as that of canned and frozen foods. Output increased only 10 percent in the same period reflecting a 7 percent drop in per capita consumption of dairy products.

The gain in output per manhour in the beverage, bakery, and meat industries advanced more rapidly than total output; in each instance the change in employment was different. In the beverage industry divergent trends are evident in the two major components—soft drinks and malt liquors production. Consumption of soft drinks has increased substantially since 1957-59 resulting in a 19 percent gain in output and a 13 percent increase in employment.[2] Malt liquor consumption per capita has been nearly stable so that output increased only 6 percent and employment declined. Employment data are not available for the distilled beverage industry, but since it is the major residual in this group the data suggest a significant reduction in employment.[3]

Output per production worker manhour also increased at a faster pace than output in the baked goods industry as per capita consumption has declined slightly. As a result, bakery employment fell 3 percent. Employment by meat processors declined 5 percent as the output per production manhour outpaced the gain in output. Significant developments occurred, however, in two components of that industry, meat packing and poultry processing. Employment by meat packers fell 11 percent, indicating a much sharper gain in productivity. In contrast, employment by poultry processors in 1962 was 15 percent above the 1957-59 period. The gain in employment in this area reflects a sharp increase in domestic consumption of chicken as well as substantial gains in foreign sales of poultry.

Employment in manufacturing of miscellaneous food products registered a gain. Included in this category are manufacturers of the frozen specialty items that have won widespread consumer approval. Manufacture of such products as margarine and shortening, which continue to experience gains in consumption, are also included.

Thus, substantial variation exists in the changes in employment among the components of the food manufacturing industry. This variation reflects differing rates of gain in output per manhour and total output. Such developments are significant in analyzing regional performance of this industry because of the concentration of various types of food manufacturing in certain areas.

CHANGES IN LOCATION

In general, as shown in the accompanying map, employment in food processing has expanded in the South and West but declined in the North Central and Northeast sections of the country. The "mix" of industries has played a major role in this development. For example, the North Central and Northeastern

[2] Employment in this industry includes a substantial portion of persons engaged in distribution where output per manhour probably has not increased as rapidly as in manufacturing alone.

[3] Distilled, rectified, and blended liquor manufacturing employment in Kentucky fell 13 percent from 1957-59 to account for the major part of a decline in employment in food product manufacturing in that state.

sections are centers of dairy production. As mentioned earlier, this industry has experienced a substantial reduction in employment as the increase in output of dairy products has not been sufficient to offset the increase in productivity. A similar situation has occurred in the baking, meat packing, and malt liquor industries, all important employers in the North Central and Northeastern states.

In contrast, the South and West are centers of output for items gaining in employment, e.g., frozen fruit and vegetables and poultry. Also, the areas reporting processing employment increases have, in many instances, experienced growth in production of farm products. This appears particularly true in the case of livestock and poultry. Although the livestock industry is still concentrated in the Middle West, the South and West have experienced gains in livestock production. These gains have stemmed in part from a desire of those sections to utilize available resources more fully to enhance farm income. At the same time, growth and expansion of the poultry industry due to economic and climatic advantages of the South has been a major factor in expanding employment in that area.

Growth in production of livestock in the above areas is also attributable to another important factor; namely, the customers of the industry are also relocating. Population growth varies considerably throughout the nation but, in general, the sharpest growth has occurred in the South and West with population increasing at a much slower rate in the North Central and Northeast.

Changes in transportation facilities and technology have also played a significant role in shifting the location of this industry. It is especially evident in the meat processing industry. With the advent of better roads and trucking, the locational advantage for meat packing firms shifted to the producing areas as opposed to the large terminal rail centers. Thus, the meat packing industry has gradually shifted operations from terminal concentrations to production centers. This may mean a shifting of facilities within a given area — for example, processing of meat products nearer production centers in the Corn Belt itself. At the same time, it means that investment in processing facilities now closely follows interregional production shifts. In that connection, it is important to note that changes in location based on technological improvements such as refrigeration or improved facilities such as highways, generally are delayed until the existing plant and equipment are more fully depreciated. Thus, for a specific area, recent employment losses may reflect adjustments to much earlier developments.

It appears that labor costs have only a minor influence on relocation. It is evident from Table IX that hourly wages in this industry do vary considerably throughout the U. S. As discussed above, however, labor costs make up a small percent of total cost for many food manufacturers. Thus, decisions concerning raw material sources, perishability, and transportation costs are probably more significant determinants of location. Furthermore, in considering the impact of wage rates, it is interesting to note that states gaining in employment witnessed a rate of advance in wage rates similar to that of the states that have had employment losses since

1950. The relative importance of wages is also illustrated by considering that in California, the state with the largest gain in food processing employment, hourly earnings for this industry are the highest in the nation.

SPECIFIC STATE EXPERIENCES IN EMPLOYMENT

In an attempt to relate the general forces influencing changing location in this industry to specific developments, the six states showing both the largest gains and losses in food manufacturing employment were selected. Such a comparison should be helpful in assessing developments in this industry in Ohio. Unfortunately, considerable variation exists in the availability of employment data by subgroups in these states. Of the six states registering the largest declines, Michigan and Massachusetts do not have data for the various subgroups. Developments in the remaining four states are shown in Table X. The four categories accounted for 88 percent of the total drop in employment in those states.

Although declines among the four groups varied considerably in the four states, the general forces mentioned earlier played a vital role. Loss of meat packing jobs played a major role in lowering employment in both Illinois and Ohio. The severity of the declines in both states reflects the closing of processing operations near terminal facilities. A reduction in employment by dairy product manufacturers was another major factor. In that category, however, employment in Ohio registered only a slight decline.

Ohio and New York experienced more substantial losses in bakery employment than did Illinois and Pennsylvania. The difference can be attributed to increased employment in the production of less perishable baked goods such as biscuits, crackers, and pretzels. Since these items are less perishable, production for a much broader market area than other baked goods is permitted. Likewise, economies of scale for such plants favor large volume operations. Therefore, employment changes in this portion of the baking industry have not been uniform among different states but have reflected the location or expansion of one or several key plants. This portion of the baking industry has also been helped by increased consumption in contrast to the downward trend for other baked goods.

Fewer jobs in beverage production has played a major role in reducing employment, with the exception of Illinois. Such declines

TABLE IX

Average Hourly Earnings of Production Workers and Food Manufacturing Firms, 1962 (by regions)

Pacific	$2.58
North Central	2.45
Middle Atlantic	2.42
Mountain	2.20
New England	2.18
South Central	1.83
South Atlantic	1.65

Source: "Employment and Earnings", Bureau of Labor Statistics

TABLE X

Percentage Decline in Food Manufacturing Employment by Subgroups, Selected States, 1958 to 1962

State	Total	Meat	Dairy	Bakery	Beverage
Illinois	—8%	—26%	— 7%	— 2%	+4%
New York	—7	— 7	—11	—10	—6
Ohio	—6	—14	— 2	— 7	—6
Pennsylvania	—3%	— 5%	— 5%	— 2%	—6%

Source: "Employment and Earnings", Bureau of Labor Statistics

largely represent consolidations, closing of obsolete malt liquor facilities, and the improvement of existing operations in these states. The number of breweries in operation in New York, Pennsylvania, and Illinois was reduced by one-half from 1951 through 1961; in Ohio, breweries in operation declined even more sharply, by 61 percent, over the same period. Increased employment in Illinois is the result of a reversal of the production trend after 1958. The substantial decline in malt liquor employment in these states has been more than sufficient to offset gains in employment by soft drink producers.

Among the states registering the largest gains the causes of increased employment are more widespread. A breakdown of employment changes such as in Table X is not possible because data are available only for North Carolina. The limited data available, along with information from the states, permits some comparisons to be made.

Increased population with concurrent growth in employment by dairy, bakery, and beverage firms has been an important factor, especially in California and Florida. Similarly, a growing regional market has benefited Georgia because producers of hard-baked goods have expanded facilities in that state. Growth in livestock production has also played a part as firms have expanded facilities to handle increased output of beef in most of the states. A phenomenal expansion in poultry production has been the most significant factor in meat processing employment gains in Georgia, North Carolina, and Arkansas.

Increased popularity of other food products is also evident. In Florida, for example, processing of frozen juices has been a major contributor to increased employment while in California it has been the processing of vegetables. California produces approximately one-third of all vegetables for processing and has benefited from the gain in popularity of frozen vegetables.

The substantial gain in employment in Idaho reflects a special situation. By far the major portion of increased employment in that state has resulted from gains in potato product processing. Such gains have followed sharp gains in output of potatoes in that state. Consumer acceptance of frozen potato products has, to a lesser extent, increased employment in other states and has reversed a downward trend in per capita potato consumption. Public policy may have played a part in Idaho's gain because a state law prohibits shipment of fresh bulk potatoes outside the state for processing.

In evaluating the influences behind the gains and losses, several factors stand out. The declining states have suffered reductions in employment as a result of the industry mix being concentrated in products where output has failed to keep pace with productivity. Population growth that has set off an expansion of facilities has reversed or counteracted such forces in areas of increases. In general, the gaining states are also centers of production of more popular food products, e.g., broilers, frozen juices, processed vegetables, and potato products.

PROSPECTS FOR OHIO

Thus, the extent of the decline in food manufacturing employment in Ohio does not seem unusual when viewed in light of national and regional trends for this industry.

Prospects for employment in the food processing industry in Ohio are mixed. Of the forces contributing to the recent decline, it appears that the sharp losses in employment in meat processing and beverages may be past; however, a small but steady erosion in employment in those industries as well as in bakeries may be expected to continue. Thus, for three of the major food processors in Ohio, the outlook for employment is at best a slower rate of decline.

Employment by dairy processors has been well maintained in Ohio; however, if plant improvement and consolidation has been delayed, it could ultimately mean substantial declines similar to those in New York or Illinois. Nearly one-fourth of food processing employment in Ohio is concentrated in dairy products.

Overall, against the background of the many and diverse factors influencing the location of the food processing industry, it does not seem realistic to anticipate future gains in employment by food processors in Ohio.

RECENT ECONOMIC DEVELOPMENTS IN SELECTED FOREIGN COUNTRIES

THIS ARTICLE briefly reviews recent economic developments in the major industrial nations of the world. Most major industrial countries have been enjoying economic prosperity for some time. Evidence of the economic growth of selected nations is reflected in Chart 1, which shows annual gross national product on a per capita basis, beginning in 1958. The GNP data are expressed in terms of current dollars.

Each of the six nations included in the chart has experienced a net increase in per capita GNP since 1958. In West Germany, France, and Italy, growth has been substantial and steady. In contrast, the United Kingdom and Japan have had interruptions in the rate of growth as a result of business recessions in 1962. Canada is the only nation of the group that has experienced any decline in per capita GNP during the period, as the total output of goods and services grew more slowly than the population of that country in 1960 and 1961. More recently, however, the Canadian economy has demonstrated a strong rate of growth.

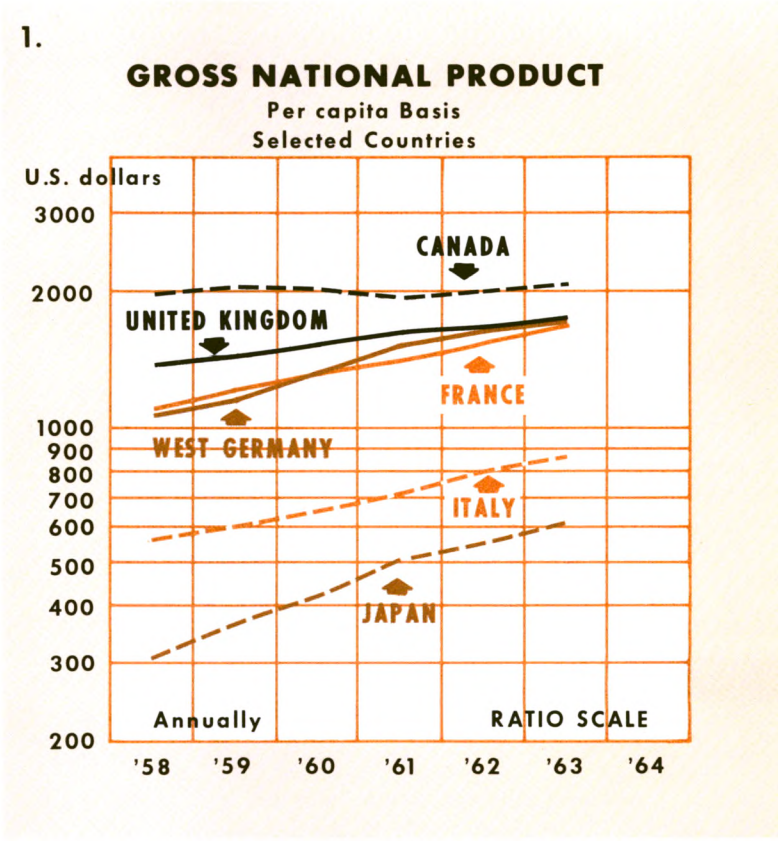
Economic expansion in these nations has been broadly based. Expansion in world trade has contributed, as has the high rate of domestic construction for both residential and commercial purposes. In some of the countries, increased economic activity has been supported primarily by large consumer demands. On the other hand, a surge in the discovery and use of natural resources has recently stimulated business in Canada and northern Europe.

The growth in total output in several nations has been accompanied by a rise in production and a more intensive use of the factors of production. The nature of economic

expansion is reflected, in part, in unemployment trends. Chart 2 shows estimates of seasonally adjusted rates of unemployment on a quarterly basis. (Only annual data are available for Italy.) The data have been adjusted to U. S. statistical definitions of unemployment but do not take into account different labor practices among the countries.

Two separate patterns are revealed by Chart 2. Since 1958 three nations have absorbed most of their available labor supply. In the case of West Germany and Japan this has resulted in reaching near-full employment. In the case of Italy, further declines in the rate of unemployment will depend upon education and training programs for individuals that are presently considered unemployable.

1.



Sources of data: Board of Governors of the Federal Reserve System; Central Statistical Office (Great Britain); Her Majesty's Treasury (Great Britain); International Monetary Fund; *Japan Economic Journal*; Organization for Economic Cooperation and Development; United Nations

In two of the nations shown in the chart, the unemployment pattern since 1958 has been one of sharp cyclical swings with little improvement on balance. British unemployment registered a net increase from 1958 through 1963. In fact, Great Britain is considered to be the only major European country with an excess labor supply. In Canada, the rate of unemployment was similar to that of the United States until 1963, when business activity improved enough to reduce significantly Canada's unemployment. Further diversification of the Canadian economy should aid employment materially by offsetting present dependence upon seasonal industries.

As might be expected, those industrial nations with sharp drops in unemployment also have experienced large increases in wages. Using 1958 as a base, Chart 3 shows that wages in France, Germany, and Japan have climbed sharply. The rise in wages was the result of several factors: gains in labor productivity, the declining margin of the labor force that was unemployed, and the pressure for higher earnings to compensate for increases in the cost of living. In the case

2.

Source of data: Federal Reserve Bank of Cleveland

of Italy, these factors did not have a major impact until 1962.

The measures shown in the chart conceal two factors. For one thing, the chart does not show the absolute level of foreign wages, and secondly, the lines do not reveal whether the changes in wages that have taken place were the result of planned government policies. Therefore, it should be added that, notwithstanding the sharp rises since 1958 in wages in Japan and Italy, those two nations still pay the lowest wage rates among the industrial nations. The relative level of Italian wages within Europe is one reason for the continuing pressure by labor groups in Italy for higher wages, including the demand for a 15 percent increase this year.

In Western Germany, where the situation is quite different, the level of wages is one of the highest in Europe. As a result, an increasing number of skilled workers from other nations are entering Germany. While such shifting helps to alleviate the labor shortage in Germany, it contributes to pressure for higher wages in neighboring nations, which are either competing for or attempting to retain skilled employees.

Wage pressures are expected to continue through 1964 in most industrial countries. Several of these nations have nearly exhausted their domestic supply of labor. European imports of foreign workers, from as far away as Turkey and North Africa, are reaching a limit. A remaining alternative is the further adoption in foreign nations of labor-saving machines and techniques, which may require time for implementation.

Prices also have been climbing in the industrial nations. It was mentioned earlier that wage rates had risen partly in response to changes in the cost of living; the nature of these changes is shown in Chart 4. It is apparent that since 1958 the relative increases in consumer prices have been largest in Japan and France. A recent rise in prices is also apparent in Italy, where two-thirds of the overall increase in the six-year period oc-

curred in 1962 and 1963.

One precaution should be observed in analyzing the price statistics of foreign nations. There is more government influence on prices abroad than in the United States, sometimes for the purpose of influencing official price indexes. In France, for example, a price ceiling has been imposed on basic items included in the cost of living index, e.g., bread, in order to prevent the index from reflecting actual consumer prices. The data shown in Chart 4 may understate the changes in consumer prices that have taken place in some of the industrial nations.

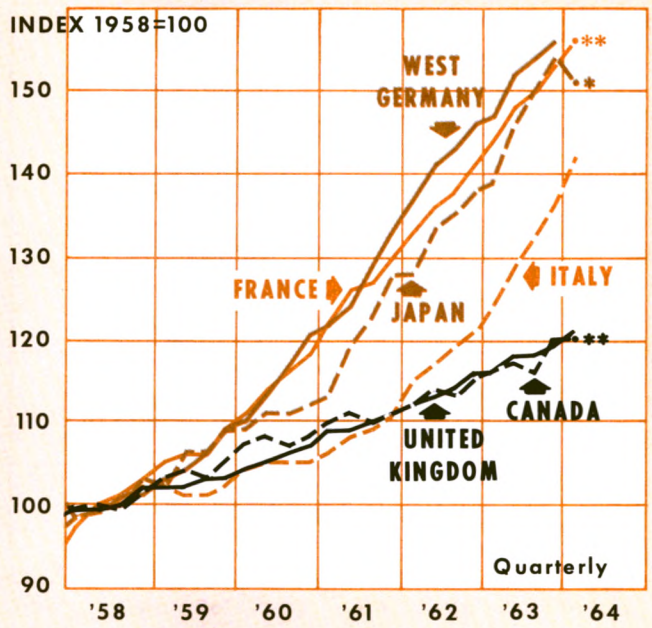
There has been a similar official influence on foreign wholesale prices, particularly on products important in export trade. Some of the larger trading nations of Europe have been able to maintain virtual stability in export prices since 1958 with the aid of special benefits such as tax refunds for exporters. General wholesale prices have not been as stable, although the net increase in such prices in the major nations in recent years has been less than in consumer prices. (See Chart 5.)

Although Japan has experienced a rapid rise in the cost of living, it has shown only a small increase in wholesale prices. German success in preventing inflation is apparent in their index for wholesale prices. On the other hand, France has a different situation, registering the largest increase in domestic wholesale prices for any of the six countries.

3.

WAGES

Selected Countries



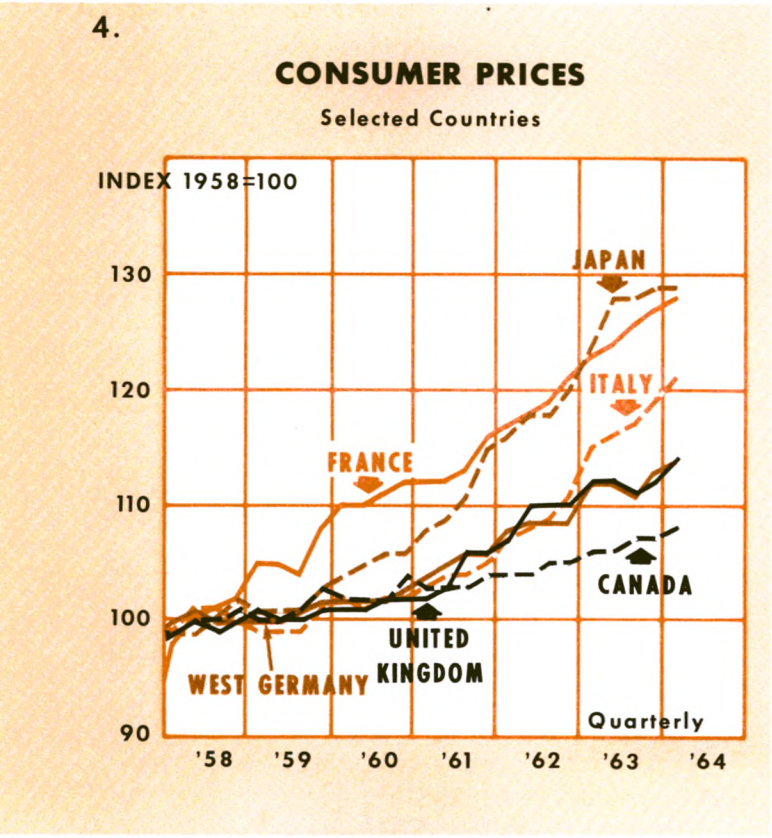
* based on one month 1964
** based on first two months 1964

Source of data: International Monetary Fund

In Italy, the loss of price stability in the last two years is noteworthy. An interesting comparison exists between France and Italy. As the charts show, price increases since 1958 have been larger in France than in Italy, and yet more international concern has been expressed over Italy.

Recent increases in wholesale prices in Canada may reflect the devaluation of that nation's currency in 1962, which led to a substantial climb in export trade and increased business activity. In the United Kingdom, the rise in wholesale prices since 1958 has been significant.

4.



Sources of data: Board of Governors of Federal Reserve System; International Monetary Fund; Organization for Economic Cooperation and Development; *Weekly Bond Buyer*

The interaction of the foregoing factors is reflected in holdings of gold and foreign exchange reserves. In effect, such holdings may be used as an indicator of the interaction of domestic and foreign activity. An increase in reserves generally indicates an excess of total receipts over total payments for international transactions and a general confidence in the currency of the specific country. Chart 6 supplements the evidence presented in the previous charts in that most of the foreign nations that have had a sharp rate of growth in per capita output and a drop in unemployment also have been able to build up their gold and foreign exchange holdings since 1958. This is particularly true for West Germany and France. The special and divergent developments among the industrial nations in the past twelve months also are apparent in Chart 6.

For example, a sharp rise in German reserves led to a revaluation of the mark in 1961. Again in 1963, however, a favorable balance of trade plus a large inflow of foreign capital rebuilt German reserves. National authorities were concerned that the resulting imbalance in financial liquidity could lead to an "imported inflation" and took steps to curb the inflow of foreign funds. The European Common Market Council has recommended that further measures be taken in Germany by reducing government-financed construction and postponing a tax cut scheduled for this year.

Many observers have urged France and Italy to come to grips with price inflation. The balance of payments positions of both countries—but especially of Italy—deteriorated in 1963 as imports from the rest of Europe rose sharply. Such imports were encouraged in France in order to control rising domestic prices on goods and foodstuffs and to discourage further wage pressures. Such measures, and other new French policies, apparently have slowed the rise in the gold and foreign exchange reserves of that country.

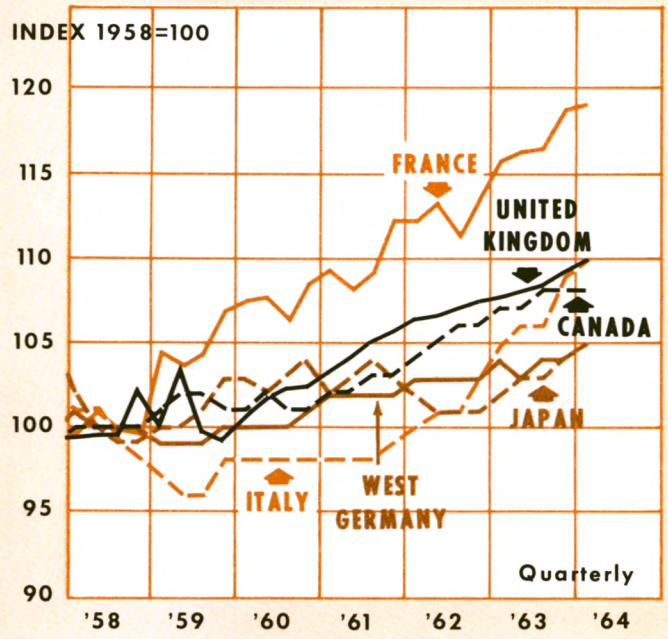
Sharp increases in prices and labor costs that have worsened the competitive position of Italian manufacturers have been accompanied by a profit squeeze. In addition, a huge increase in consumer spending led to a sharp rise in Italian imports in 1962 and 1963. Finally, there has been an outflow of investment capital to Switzerland and Germany. The net effect has been a recent substantial drop in Italian reserves. In March of this year the Italian government found it necessary to borrow more than $1 billion in reserves from the International Monetary Fund and several nations, including the United States.

The United Kingdom has incurred periodic drains on its international reserves, with no lasting increase since 1958. This, however, does represent success in preventing long-term erosion of reserves. Difficulties continue in that the rising level of business activity in the United Kingdom has led to larger imports and larger balance of payments deficits. Thus, the government has decided to maintain the current economic expansion with slightly firmer monetary and fiscal policies.

5.

WHOLESALE PRICES

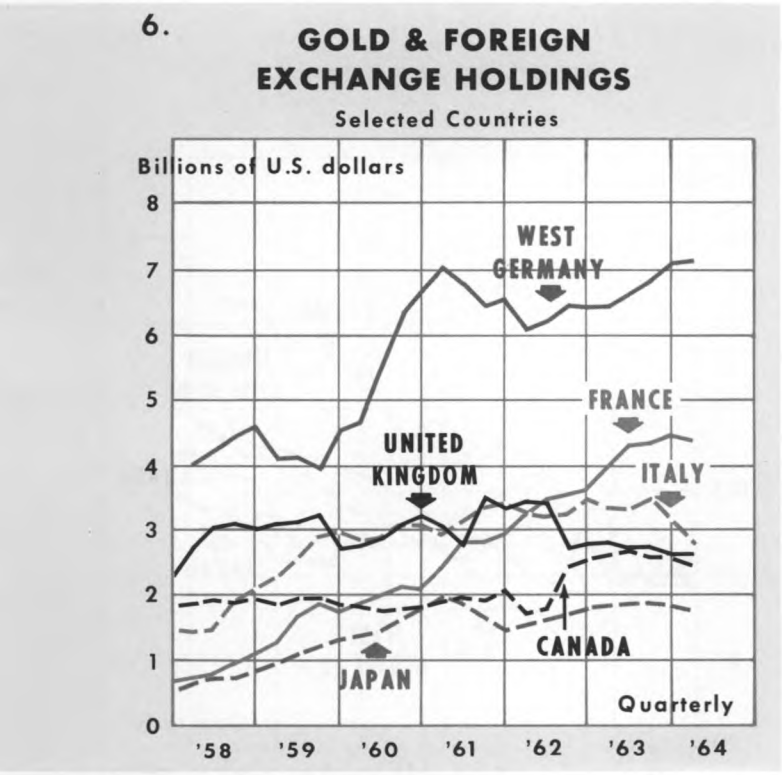
Selected Countries



Sources of data: Board of Governors of the Federal Reserve System; Her Majesty's Treasury (Great Britain); International Monetary Fund; Organization for Economic Cooperation and Development; *Weekly Bond Buyer*

The sharp increase in Canadian reserves in 1962 was due to the devaluation of the Canadian dollar. The Canadian balance of payments in 1964 is expected to be favorably affected by an unusually high volume of exports, particularly wheat shipments to Communist countries. It is noteworthy, however, that manufactured goods make up a growing proportion of Canadian exports.

Japan experienced a healthy gain in international reserves from 1958 into 1961, but an increasing need for more imports to support business expansion led to balance of payments difficulties in late 1961. Similar problems have appeared intermittently since then, with the national authorities resorting, whenever necessary, to increased monetary control. Japan's reserve position has become increasingly important this year, because in April the country accepted the responsi-



bilities of full currency convertibility under the International Monetary Fund. This has meant the removal of all exchange restrictions and the loss of some protection against short-term capital flows.

In summary, the recent developments in foreign nations have been: increasing wage-price pressures, often resulting in declining profit margins and loss of competitive position; growing demands, especially by consumers, that have contributed to changing trade patterns and balance of payments difficulties; and widespread concern with trends in gold and foreign exchange reserves.

Sources of data: International Monetary Fund; Organization for Economic Cooperation and Development; *Weekly Bond Buyer*

SPOTLIGHT ON SAVINGS FLOWS

Savings inflows constitute an important source of funds for commercial banks and savings and loan associations, as well as other types of financial institutions. The implications associated with savings flows—source, direction, rate, intensity, etc.—warrant a continuing review of the factors that influence such flows. This article examines some of these factors and attempts to relate them to the flow of personal savings in 11 Fourth District cities.[1]

Since 1961 Fourth District commercial banks have experienced substantial growth in time and savings deposits. A major part of the gain occurred after Regulation Q was liberalized at the start of 1962; this action increased the maximum rate payable on time and savings deposits by banks to 4 percent. Since 1961, savings and loan associations have also experienced a sizable gain in savings capital indicating that total personal savings in the District, as defined in this article, has increased substantially during the current period of business expansion.

While the growth in savings is easily documented statistically, the pattern of growth has by no means been uniform. In fact, the flow of total personal savings in recent years has varied widely from city to city. To better assess such patterns a set of three hypotheses has been formulated as a framework within which to examine variations in the growth patterns that have been evident in total personal savings, as well as the impact of competition on savings flows. The first two hypotheses are intended to serve as explanations for the varying rates of growth in personal savings among 11 Fourth District cities. The remaining hypothesis examines the in-

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[1] For the purpose of this article personal savings are defined as the total of savings deposits of individuals at commercial banks and savings in insured savings and loan associations in the 11 cities.

Monthly data on savings deposits of individuals at 44 banks in 12 Fourth District cities, as of the last Wednesday of each month, are collected and published by the Research Department of the Federal Reserve Bank of Cleveland. Savings deposits of individuals include deposits of eleemosynary organizations, Christmas savings and simliar thrift accounts, and time certificates of deposit of individuals. Based on a comparison with Call Report data for June 26, 1963, the volume of individuals' savings deposits reported to this bank represents an average of nearly two-thirds of the volume of total time and savings deposits in the 12 District cities. Data on savings and loan associations have been provided by the Federal Home Loan Banks of Cincinnati and Pittsburgh. Total assets were substituted for savings capital in all cities except Erie and Pittsburgh.

fluence of competition on the allocation of personal savings between commercial banks and savings and loan associations.

Hypothesis I: The rate of growth of personal savings is directly related to the size of the community.

Although the size of the population of a community has a strong bearing on the dollar volume of personal savings at commercial banks and savings and loan associations, Table I indicates that it does not necessarily determine the rate of inflow. This is true despite the fact that there were some centers where increases in savings did conform to the first hypothesis in 1961-63. For example, personal savings in Cincinnati (in the largest size group) recorded an above average rate of growth in the 1961-63 period while some of the cities in the smallest size category (Canton, Toledo, and Youngstown) revealed below average increases.

In marked contrast, several of the larger cities did not have correspondingly high growth rates while those in some smaller cities were among the highest reported. Savings in both Cleveland and Pittsburgh recorded slightly less than average growth in 1961-63 while savings in Akron, Columbus and Dayton, which fall into the medium-size category, registered relatively high growth rates. Erie and Lexington, two of the smaller cities reporting, experienced marked growth in personal savings.

Thus, the evidence indicates that the size of the population of a community does not play the determinant role in savings flows.

TABLE I

Total Personal Savings,* Selected Fourth District Centers as of Yearend

	(000 omitted) 1961	1963	Percent Change
Population: 1 million and over**			
Cincinnati	$ 829,965	$ 1,028,477	23.9%
Cleveland	3,002,156	3,631,829	21.0
Pittsburgh	1,921,871	2,318,962	20.7
500,000—999,999			
Akron	453,170	571,190	26.0
Columbus	601,554	767,165	27.5
Dayton	451,285	555,718	23.1
100,000—499,999			
Canton	283,567	339,268	19.6
Erie	131,732	167,757	27.3
Lexington	82,992	110,082	32.6
Toledo	494,663	584,552	18.3
Youngstown	288,828	315,286	9.2
Total	$8,541,183	$10,390,286	21.6%

*Includes the total of savings deposits of individuals at commercial banks and total assets at savings and loan associations. In Erie and Pittsburgh savings capital was substituted for total assets.

**Populations based on Standard Metropolitan Statistical Areas except Youngstown.

Sources: Federal Reserve Bank of Cleveland;
Federal Home Loan Banks of Cincinnati and Pittsburgh

Hypothesis II: Economic conditions determine the growth rate of savings.

General economic conditions appear to exert considerably more influence over savings growth than does the population size of the center. But, again, it is not the sole explanation of differences. Table II shows the annual rates of personal savings growth reported for each city during 1961, 1962 and 1963; the table also shows three broad measures of prevailing economic conditions in the respective cities (bank debits, rate of unemployment, and department store sales).

At opposite ends of the spectrum, developments in two centers (Lexington and Youngstown) reflect rather strong effects of economic conditions on savings growth. Savings in Lex-

TABLE II

Personal Savings and Economic Factors, Selected Fourth District Centers

Center	Percent Change in Personal Savings Outstanding (Yearend)			Percent Change in Bank Debits (Unadjusted Yearly Total)			Average Monthly Rate of Unemployment in SMSA (% of Civilian Labor Forces*)			Percent Change in Average Monthly Index of Department Store Sales		
	1961	1962	1963	1961	1962	1963	1961	1962	1963	1961	1962	1963
Akron	12.5	13.0	11.5	1.3	7.2	9.4	7.0	4.5	4.3	0.2	3.5	4.3
Canton	7.4	9.7	9.1	—2.8	5.1	6.8	8.8	6.8	5.9	—0.5	—0.3	3.5
Cincinnati	9.1	9.0	13.7	3.3	7.4	4.0	5.6	4.4	4.3	8.9	4.6	3.5
Cleveland	6.5	9.3	10.7	1.2	8.4	9.0	6.9	4.9	4.4	—0.9	—1.1	4.1
Columbus	10.6	12.3	13.5	6.4	6.4	7.1	4.3	3.3	3.4	4.2	5.7	4.1
Dayton	11.4	11.7	10.3	2.0	11.6	7.6	5.0	3.7	3.4	n.a.	n.a.	n.a.
Erie	n.a.	15.1	10.7	—1.2	9.3	6.2	10.3	7.7	7.2	—1.3	1.2	2.2
Lexington	12.0	15.3	15.0	3.5	15.2	11.4	n.a.	n.a.	n.a.	—0.3	3.6	5.8
Pittsburgh	n.a.	11.2	8.5	0.2	11.3	13.5	10.7	9.3	7.9	0.5	0.3	2.4
Toledo	10.3	8.3	9.3	5.0	17.8	1.0	8.6	6.7	4.8	2.9	3.4	2.6
Youngstown	5.3	4.3	4.7	—6.5	3.3	11.7	8.9	8.1	6.2	—4.8	—3.9	1.0

n.a.—not available

*Labor market information letters published by local offices of the State Employment Service Agencies in Ohio, Pennsylvania and West Virginia.

Source: Federal Reserve Bank of Cleveland

ington recorded increases of 15 percent in both 1962 and 1963, the highest rates of gain for any center. During those two years, economic conditions in Lexington, as measured by increases in the volume of bank debits and department store sales, showed considerable improvement. While bank debits showed the most consistently high percentage increase for any of the centers, department store sales also recorded substantial increases in 1962 and 1963.

By contrast, personal savings in Youngstown experienced relatively low rates of growth. This may not be surprising in view of the following: the performance of bank debits in Youngstown was well below average in two of the three years; department store sales recorded the poorest showing in the District; and the unemployment level in Youngstown was at a relatively high rate of more than 8 percent in both 1961 and 1962 with some improvement in 1963. In support of the hypothesis, therefore, these two centers are good examples of growth rates of savings being closely related to or affected by economic conditions.

In other centers the behavior of personal savings conforms to the hypothesis in varying degrees. Thus, Akron, Columbus and Dayton reported favorable economic conditions and strong growth in savings. Canton, Cleveland and Toledo reported more moderate increases in savings with generally less favorable economic conditions. In Pittsburgh where economic conditions were relatively among the poorest in the District, savings growth was somewhat above average in 1962 but below average in 1963.

On the other hand, in some of the centers the experience tends to refute the second hypothesis. For example, the record of savings growth in Cincinnati was below the av-

erage of the District in two of the three years; but the unemployment rate was among the lowest reported, and department store sales made a consistently good showing even though the rate of annual increases has been declining. The situation in Erie was reversed, with a high savings growth rate in 1962 and 1963 coupled with relatively unfavorable economic circumstances.

Thus, with only two exceptions, savings growth rates do appear responsive to local economic conditions. But this is, in fact, quite logical, for in the long run the economic climate is the principal determinant of differences among centers.

In addition to the varying pattern of savings flows among District centers, there are also differences in the pattern of flows at deposit-type institutions within individual centers. These differences are better understood when the probable causes are considered. To examine these causes, a third hypothesis is tested as an explanation for the shifting flow of personal savings at commercial banks and savings and loan associations in 11 District centers.

Hypothesis III: Interest rate competition determines the allocation of individuals' savings.

Tables III, IV and V show the interest rate pattern at banks and savings and loans in the 11 District centers during recent years and the shifting allocation of individuals' savings between these institutions. Table III shows prevailing rates of interest paid on savings at banks and savings and loans in the 11 centers as of each yearend since 1960. Table IV shows the distribution of annual savings inflows between banks and savings and loan associations. Table V shows the yearend distribution of savings outstanding in the various centers.

TABLE III

Prevailing Interest Rates on Savings, Selected Fourth District Centers

	1960		1961		1962		1963	
Center	Commercial Banks	Savings and Loans	Commercial Banks	Savings and Loans	Commercial Banks	Savings and Loans	Commercial Banks	Savings and Loans
*Akron	3%	3½%	3%	4%	4%	4%	4%	4%
*Canton	3	4	3	4	4	4	4	4
Cincinnati	3	4	3	4	3	4	3	4 to 4½
*Cleveland	3	4	3	4	4	4½	4	4¼
Columbus	3	3½	3	4	3	4	3	4
Dayton	2½	4	2½	4	3	4	3	4
Erie	3	3½	3	3½	3	4	3	4
*Lexington	3	4	3	4	4	4	4	4
*Pittsburgh	3	4	3	4	3½-4	4	3½-4	4
Toledo	3	4	3	4	3	4	3	4
Youngstown	2½%	3½%	2½%	3½%	2½%	4%	2½%	3½%

*Banks in these cities raised rates on time deposits to the 4% ceiling in 1962. Banks in Dayton also raised rates, but not to the ceiling.

Sources: Federal Reserve Bank of Cleveland; Federal Home Loan Banks of Cincinnati and Pittsburgh

TABLE IV

Annual Savings Flows, Selected Fourth District Centers

Center	1961 Total $ Increase in Personal Savings	1961 % at Commercial Banks	1961 % at Savings & Loans	1962 Total $ Increase in Personal Savings	1962 % at Commercial Banks	1962 % at Savings & Loans	1963 Total $ Increase in Personal Savings	1963 % at Commercial Banks	1963 % at Savings & Loans
*Akron	50,266	21.0	79.0	58,994	51.4	48.6	59,026	63.3	36.7
*Canton	19,527	0.8	99.2	27,478	55.8	44.2	28,223	36.7	63.3
Cincinnati	69,118	19.9	80.1	74,490	11.3	88.7	124,022	7.0	93.0
*Cleveland	182,656	10.2	89.8	279,782	58.3	41.7	349,891	31.2	68.8
Columbus	57,546	18.8	81.2	74,260	11.7	88.3	91,351	27.3	72.7
Dayton	46,039	4.4	95.6	52,659	26.0	74.0	51,774	20.5	79.5
Erie	n.a.	n.a.	n.a.	19,854	15.7	84.3	16,171	13.5	86.5
*Lexington	8,874	30.2	69.8	12,709	72.6	27.4	14,381	72.5	27.5
*Pittsburgh	n.a.	n.a.	n.a.	214,695	54.6	45.4	182,396	47.2	52.8
Toledo	46,055	12.9	87.1	40,874	21.8	78.2	49,615	27.6	72.4
Youngstown	14,637	14.3	85.7	12,408	18.1	81.9	14,050	9.8	90.2

*Banks in these cities raised rates on time deposits to the 4% ceiling in 1962. Banks in Dayton also raised rates, but not to the ceiling.

Sources: Federal Reserve Bank of Cleveland; Federal Home Loan Banks of Cincinnati and Pittsburgh

TABLE V

Distribution of Personal Savings, Selected Fourth District Centers

Center	1960 Out-standing	1960 % at Com'l Banks	1960 % at Svgs. & Loans	1961 Out-standing	1961 % at Com'l Banks	1961 % at Svgs. & Loans	1962 Out-standing	1962 % at Com'l Banks	1962 % at Svgs. & Loans	1963 Out-standing	1963 % at Com'l Banks	1963 % at Svgs. & Loans
*Akron	402,904	43.0	57.0	453,170	40.5	59.5	512,164	41.8	58.2	571,190	44.0	56.0
*Canton	264,040	27.3	72.7	283,567	25.4	74.6	311,045	28.1	71.9	339,268	28.8	71.2
Cincinnati	760,847	26.7	73.3	829,965	26.1	73.9	904,455	24.9	75.1	1,028,477	22.7	77.3
*Cleveland	2,819,500	41.2	58.8	3,002,156	40.7	59.3	3,281,938	42.2	57.8	3,631,829	41.2	58.8
Columbus	544,008	22.0	78.0	601,554	21.7	78.3	675,814	20.6	79.4	767,165	21.4	78.6
Dayton	405,246	16.3	83.7	451,285	16.3	83.7	503,944	17.3	82.7	585,718	17.6	82.4
Erie	—	n.a.	—	131,732	52.2	47.8	151,586	47.5	52.5	167,757	44.2	55.8
*Lexington	74,118	43.8	56.2	82,992	42.4	57.6	95,701	46.4	53.6	110,082	49.8	50.2
*Pittsburgh	—	n.a.	—	1,921,871	45.6	54.4	2,136,566	46.5	53.5	2,318,962	46.6	53.4
Toledo	448,008	35.7	64.3	494,063	33.6	66.4	534,937	32.7	67.3	584,552	32.3	67.7
Youngstown	274,191	35.0	65.0	288,828	33.9	66.1	301,236	33.3	66.7	315,286	32.2	67.8

*Banks in these cities raised rates on time deposits to the 4% ceiling in 1962. Banks in Dayton also raised rates, but not to the ceiling.

Sources: Federal Reserve Bank of Cleveland; Federal Home Loan Banks of Cincinnati and Pittsburgh

Based on the record of the 1961-63 period, the flow of individuals' savings within centers is strongly influenced by the rates of interest paid by competing savings institutions. For example, the tables confirm the supposition that savings flows at banks in an individual center are heavily dependent on the banks' competitive position vis-a-vis other savings institutions.

The impact of rate competition on savings flows can be seen by comparing the experience in cities where banks raised the rate paid on savings deposits in 1962 with the record in cities where banks did not raise the rate. Without exception, banks that offered a more competitive rate to savers experienced substantial growth in individuals' savings. More importantly, however, part of the growth was at the expense of competing savings and loans. In cities where banks raised rates to the allowable ceiling (cities designated by an asterisk), banks attracted a substantially larger share of the savings flow in 1962 than they had in the preceding year. Whereas banks in these cities had attracted an average of 15.6 percent of the personal savings growth in 1961, the average share in 1962 was 58.5 percent of a larger volume of savings.[2] Canton banks registered the most marked year-to-year improvement, gaining more than one-half of the savings inflow in 1962 compared with less than one percent in 1961. Lexington banks increased their share of the savings inflow in that city to the highest proportion reported by banks in any of the centers in 1962.

In Dayton, where banks raised rates in 1962 but not to the permissible maximum, banks improved their position but not by as large a margin as in cities where rates moved up to the ceiling.

As a result of the sharply higher share of savings flowing to the banks in those cities, the banks also increased their share of total personal savings. (See Table V.)

While the effect of the increase in rates paid on savings deposits was invariably favorable to banks in 1962, most of the banks did not maintain the same advantage through 1963. Banks in all centers, with the exception of Akron, experienced some decline in their share of the savings growth in 1963 although the amount of total savings inflow in 1963 exceeded that in 1962. Despite this erosion, however, the banks continued to attract a significantly larger share of savings than in 1961.

In Cleveland, where savings and loans responded to the higher savings rate at banks with an increase in their own dividend rate, the advantage that banks enjoyed in 1962 was more noticeably reduced in 1963 than in any other city. In contrast, banks in Akron widened their competitive advantage in 1963, and Lexington banks maintained the substantial advantage achieved a year earlier. All of these patterns tend to confirm the hypothesis that interest rate competition determines the allocation of individuals' savings.

In the remaining cities, where interest rates on savings deposits at banks remained unchanged, the pattern was not as clearly defined. It is generally true, however, that banks in these cities did not uniformly improve their competitive position vis-à-vis savings and

[2] Pittsburgh was excluded from the average in 1961 because of the lack of data.

loans as did banks that instituted rate increases. The average share of annual savings growth going to banks in Cincinnati, Columbus, Erie, Toledo and Youngstown displayed little change for three years, averaging 16.5 percent in 1961, 15.7 percent in 1962, and 17.0 percent in 1963.[3] In Cincinnati the competitive position of banks declined more than in other centers despite substantial growth in the volume of personal savings in Cincinnati. The Cincinnati banks attracted a progressively smaller share of savings growth in face of competition from an unusually large number of savings and loans in the area. In addition, some savings and loans in Cincinnati raised their dividend rates in 1963, thereby widening an already sizable spread over the rate paid by the banks.

In the other four centers conformity to the hypothesis is not as precise as in Cincinnati but lack of conformity is not sufficiently prevalent to invalidate the hypothesis. In Toledo the banks increased their share of the annual savings flow in each of the past three years despite a constant spread of one percent between interest rates at banks and savings and loans in that city. Youngstown banks gained a larger share of savings in 1962 but lost ground in 1963. In Columbus the situation was reversed as the banks lost ground in 1962 but attracted a substantially larger share of the savings growth in 1963. In Erie, where data for only two years are available, the banks made little progress in attracting a larger share of savings.

Despite the variations in the pattern of annual savings flows in this group of centers, the proportion of savings outstanding at banks in these centers has declined (almost without exception) in each year since 1960. (See Table V.) In centers where banks did not raise interest rates in 1962, the banks' share of savings outstanding declined from an average of 33.5 percent at yearend 1961 to 30.6 percent in 1963. In contrast, in centers where banks did raise rates in 1962, the banks' share of savings outstanding increased to an average of 42.1 percent at yearend 1963 from 38.9 percent in 1961. These divergent patterns lend further support to the third hypothesis, indicating the importance of rate competition in determining relative shares of a local personal savings market.

[3] Erie was excluded from the average in 1961 because of the lack of data.

50 YEARS
FEDERAL RESERVE
SYSTEM

Fourth Federal Reserve District