

*federal reserve  
bank  
of cleveland*

# **ECONOMIC REVIEW**

*june 1970*



**Additional copies of the ECONOMIC REVIEW may be obtained from the Research Department, Federal Reserve Bank of Cleveland, P. O. Box 6387, Cleveland, Ohio 44101. Permission is granted to reproduce any material in this publication providing credit is given.**

# THE ST. LAWRENCE SEAWAY AND THE FOURTH DISTRICT

The opening of the St. Lawrence Seaway in 1959 provided Ohio and other midwestern states with direct access to ocean shipping. Although use of the Seaway has grown rapidly since its opening, competition from other modes of transportation and from other ports may limit further expansion. The Seaway has contributed to economic growth in the Fourth District by providing raw materials as well as the least costly movement of finished goods to and from foreign markets. Future growth of the Seaway is, therefore, directly related to continued economic expansion of the area it serves.

This article discusses the historical context of the development of the St. Lawrence Seaway and the types of cargo shipped through the Seaway and reviews the Fourth District ports on the Seaway and the various cargoes handled by each port. Competition from other modes of transportation, competition from other ports, and problems experienced with the Seaway are also examined.

## IN THIS ISSUE

The St. Lawrence Seaway  
and the Fourth District . 3

Capital Spending in Major  
Metropolitan Areas of  
the Fourth District . . . .17

## ST. LAWRENCE SEAWAY

For the past 300 years attempts have been made to develop the Great Lakes and the St. Lawrence River into a viable transportation system for intra- and international commerce. As early as the seventeenth century, the French tried to construct canals around the rapids near Montreal. The first canal on the St. Lawrence River was built in the mid-eighteenth century to enable flat-bottomed boats to bypass the Lachine Rapids near Montreal. In 1808, Secretary of the Treasury Albert Gallatin suggested the construction of a canal that would connect Lake Ontario and Lake Erie. However, it was not until 1825 that the Erie Canal was completed to provide access to the East Coast. The Erie Canal, which ran between Buffalo and the Hudson River, allowed barge traffic to move to New York City from as far west as Toledo and Detroit. The Welland Canal, which was dedicated in 1829, was built to bypass Niagara Falls; it was extended four years later to connect Lake Ontario and Lake Erie. Although the Welland Canal was originally feared as competition to the Erie Canal, it served as a complementary means of transportation, and both canals prospered.

The present St. Lawrence Seaway is an extension of and improvement on these early attempts to provide a navigable passage between the Great Lakes and the ocean. Plans for the present Seaway were introduced in 1951, when Canada announced that it would construct a seaway by itself if the United States would not join in an international effort. A year later, the Canadian Parliament formed the St. Lawrence Seaway Authority. In 1954, after several years of discussion, the United States Congress approved the creation of the Saint Lawrence Seaway Development Corporation to work jointly with the Canadian Authority to plan the Seaway. The United States Government

wholly owns the Corporation, which is under an administrator appointed by the President and approved by the Senate. The United States share of the St. Lawrence Seaway project was financed by the sale of \$135 million in interest-bearing bonds to the U. S. Treasury.

A joint agreement was reached between the two nations on tolls and navigation rules. All tolls are divided, with Canada receiving 71 percent and the United States 29 percent of all receipts. This division was based on the share of costs incurred by the two government corporations; Canada receives the largest portion because most of the Seaway locks are in Canada.

**Description.** The St. Lawrence Seaway extends from Montreal on the St. Lawrence River through the Great Lakes to Duluth, Minnesota, at the western end of Lake Superior (see Map 1). The 1,000 miles from the Atlantic Ocean to Montreal are open water maintained by the Canadian government at a navigable depth of 35 feet. Over this distance, there is a gradual rise to 20 feet above sea level at Montreal. Between Montreal and Lake Ontario, the Seaway consists of several man-made lakes and seven locks that lift an incoming vessel an additional 225 feet above sea level (see Map 2). Ships with maximum dimensions of 715 feet in length, 72 feet in width, and 27 feet in depth can pass through these locks.

Crossing Lake Ontario presents few problems because many rock shoals were removed when the Seaway was built and there are no rapids. The Welland Canal between Lake Ontario and Lake Erie consists of eight locks that lift a ship more than 325 feet from Lake Ontario to Lake Erie. The Welland Canal is currently being "twinning" to permit ships to pass in both directions in the locks. This improvement is expected to be completed in 1972 and will substantially reduce the time neces-



sary to move ships through this section of the Seaway. The final locks in the Seaway are the Sault Ste. Marie (Soo) Locks, which lift ships the remaining 23.5 feet from Lake Huron to Lake Superior. The Soo Locks are the largest on the Seaway and can lift boats 1,000 feet long and 87.5 feet wide. Nearly all Seaway ports and channels are now dredged to 27 feet, the standard depth throughout the waterway.

**Initial Goals.** An economist with the St. Lawrence Seaway Authority testified before a Senate Subcommittee in 1964 that the Seaway authority had established four major goals before the Seaway opened. These goals were:

1. To stimulate growth in the "mid-continent" and national economies.
2. To facilitate the unification of the "midcontinent" economy through direct foreign trade.
3. To aid in future joint programs with Canada for development of Great Lakes water resources and increased border reciprocity.

4. To liquidate all Seaway debt through revenue from tolls.<sup>1</sup>

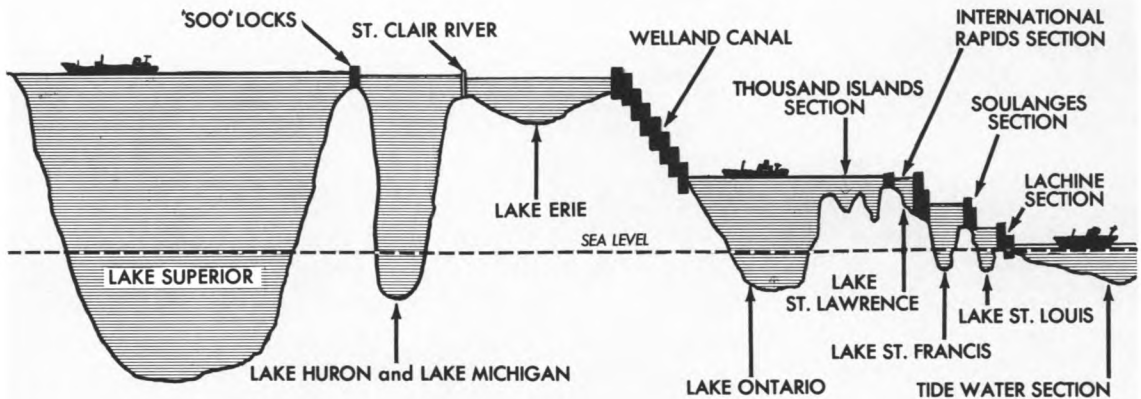
As noted before the subcommittee, the goals were not fully realized. The United States mid-continent economy is no more unified than it was when the Seaway opened, nor has it been particularly stimulated by the increased opportunities for direct international trade. In addition, the Seaway's debt to the U. S. Treasury has increased. Although the Saint Lawrence Seaway Corporation's share of Seaway revenues has been sufficient to cover the operating expenses of the Seaway, it has been unable to repay the Treasury either the interest or the principal of the money borrowed for construction.<sup>2</sup>

<sup>1</sup> U. S. Congress, Senate, Subcommittee of the Committee on Commerce. *Hearings, in Connection with a Study of Transportation on the Great Lakes—St. Lawrence Seaway*, 88th Cong., 2nd Sess., 1964, pp. 177-8.

<sup>2</sup> The rest of this article will discuss only the United States portion of the St. Lawrence Seaway.

Map 2.

## PROFILE VIEW of GREAT LAKES and ST. LAWRENCE SEAWAY



Source: Saint Lawrence Seaway Development Corporation

The initial traffic goals of the Seaway Corporation were more realistic than some of its other goals, although traffic in the first several seasons was far lower than originally anticipated. The original estimate of Seaway traffic in 1968 was for 50 million cargo tons.<sup>3</sup> The Corporation reported that, in 1968, 48 million cargo tons passed through the Montreal-Lake Ontario section; with the addition of the Welland Canal, Seaway traffic amounted to 66.4 million cargo tons in 1968.<sup>4</sup>

**Types of Shipping.** Two types of shipping are transferred through the St. Lawrence Seaway: bulk and general cargo. The most important in terms of tonnage is bulk shipping, which includes coal, iron ore, and farm products, particularly grain. However, a large amount of bulk shipping is

<sup>3</sup>U. S. Congress, *op. cit.*, p. 178.

<sup>4</sup>The St. Lawrence Seaway Authority and the Saint Lawrence Seaway Development Corporation, *Traffic Report of the St. Lawrence Seaway, 1968*, (Ottawa, Queen's Printer, 1969), p. 12, p. 2.

carried out within the Great Lakes and does not reach the St. Lawrence River. For example, iron ore is shipped between Minnesota and Cleveland, and coal goes from Toledo to power plants in Michigan and Canada. Moreover, a large share of bulk shipping is done on specialized boats that cannot leave the Great Lakes because they are not ocean worthy or because they are too large to pass through the Welland Canal.

Although it is sometimes difficult to differentiate general cargo from bulk shipping, general cargo usually includes all items that can be lifted into ships as a unit or in some type of container, such as a box or barrel. General cargo includes such diversified items as automobiles and automobile parts, glassware, and iron and steel products. (Iron and steel products are the most important general cargo items shipped through Fourth District ports.) The value per ton is usually much higher on general cargo than on bulk shipping, and a major share of general cargo tends to be destined for international ports.

## FOURTH DISTRICT PORTS

There are nine Great Lakes ports in the Fourth Federal Reserve District: Ashtabula, Cleveland, Conneaut, Fairport Harbor, Huron, Lorain, Sandusky, and Toledo, Ohio, and Erie, Pennsylvania (see Map 1). Cleveland and Toledo are the largest ports in terms of tonnage, while Erie, Fairport Harbor, and Huron are the smallest.

**Cleveland.** The Port of Cleveland is primarily a bulk cargo port, although in recent years the proportion of general cargo has increased. Iron ore, stone, limestone, and sand and gravel are the major bulk commodities shipped through the Port of Cleveland. All of these bulk goods, except stone, are imported from other ports on the Great Lakes. Iron ore is the most important commodity.

The docks for bulk cargo extend down the Cuyahoga River, and most are privately owned by the industries that use these materials. The major hazard in the Port of Cleveland for ships moving bulk goods is the Cuyahoga River, which is only 21 feet deep and has many sharp bends that prohibit the passage of ships more than 600 feet long. A planned bridge widening will permit ships 625 feet long to pass; however, new ore boats under construction that are 800 to 1,000 feet long will not be able to use the Cuyahoga River even with this improvement. If the steel companies anticipate using these longer ore boats, it would seem that some method of unloading the ore at the lakefront and transporting it to the mills will have to be devised. (A conveyor system has been suggested.) The alternate solution of straightening the Cuyahoga River appears to be virtually impossible.

Cleveland's general cargo docks are on the lakefront east of the Cuyahoga River. Nearly all of the docks for general cargo are owned by the Cleveland-Cuyahoga County Port Authority and

TABLE I

Tonnage Through the Port of Cleveland  
1965-1969

	Tons		
	Total	Overseas	Canadian
1965	21,960,213	536,484	4,300,517
1966	24,020,820	581,783	4,951,215
1967	20,685,918	631,596	4,459,281
1968	21,700,000 <sup>e</sup>	1,034,234	n.a.
1969	21,450,000 <sup>e</sup>	984,353	n.a.

<sup>e</sup> Estimated.

n.a. Not available.

Sources: U. S. Army, Corps of Engineers and Cleveland-Cuyahoga County Port Authority

are leased to operating firms. The facilities at the individual docks vary; they currently include the largest crane on the Great Lakes (with a capacity to lift up to 200 tons) as well as more than a dozen smaller cranes. In addition, there are approximately 1,725,000 square feet of open storage and 426,500 square feet of closed storage facilities. The Port Authority plans to spend more than \$668,000 during the 1970 season to increase the closed storage facilities at one dock. At the same time, the Port Authority is attempting to acquire additional land to increase dock space and storage facilities to expand the capacity for general cargo shipping. Although container ships can be handled at the Port of Cleveland, only a few container ships are operating out of Cleveland at present.

Although total tonnage through the Port of Cleveland has shown little change since 1965, overseas tonnage has nearly doubled (see Table I). The demand for bulk cargo, which accounts for most of the tonnage in Cleveland, largely depends on the demand for the products that use these bulk commodities as raw materials. However, future growth of bulk cargo shipments may not be as rapid as the growth in production, particularly steel production. Because of a new process that



## ECONOMIC REVIEW

removes much of the extraneous materials from iron ore at the mines, the ore that is shipped is of a higher grade and more steel can be produced per ton of ore.

The Port of Cleveland has actively sought new markets for general cargo in the past few years, and as a result, most of the recent expansion in the volume of shipping at Cleveland has been due to general cargo. The growth in general cargo traffic continued through 1968 but declined in 1969, reflecting the overall decline in Seaway traffic in 1969.

As shown in Table II, the major *import* into the Port of Cleveland in 1969 was iron ore from the Quebec-Labrador range in Canada; an additional small amount of ore came from Liberia and Chile. (However, imported ore accounts for only a small portion of the iron ore coming through the Port of Cleveland; most ore is shipped from the Mesabi range in Minnesota. Data are not shown in Table II.)

The volume of iron and steel products imported during 1969 was 476,000 tons, compared with 855,000 tons in 1968. The decline in imports of iron and steel products at the Port of Cleveland reflects the overall decline in imports of such products to the United States. Iron and steel products accounted for 10.3 percent of imports at the Port in 1969. Six commodity groups accounted for nearly 97 percent of all imports from foreign countries, although more than 100 different commodities were imported through Cleveland.

*Exports* through Cleveland to foreign countries increased by more than 200 percent between 1968 and 1969, with most of the growth coming in iron and steel products. Exports of iron and steel products rose from 6,000 tons in 1968 to 219,000 tons in 1969. This sharp and sudden increase was caused by a substantial rise in the demand for

these products in western Europe. The other leading exports through the Port of Cleveland were all bulk commodities: crude materials (primarily limestone); coal, coke, and briquets; stone, sand, and gravel; and petroleum and byproducts. In previous years, shipments of bulk commodities to Canada accounted for most of the exports from Cleveland. In 1969, however, shipments of general cargo to western Europe surpassed bulk cargo shipments to Canada in both dollar value and tonnage.

**Toledo.** The Port of Toledo is located on the Maumee River and has a channel depth of 28 feet, allowing the largest lake boats to be docked. The Port of Toledo is the largest bulk cargo port on Lake Erie. The major bulk commodities that are moved through this port include coal, iron ore, agricultural products, and petroleum products, while the general cargoes include iron and steel products and automobiles.

The bulk docks are privately owned and include specialized docks for coal, petroleum, and grain. The coal docks have automatic loaders that can fill lake boats at the rate of 6,000 tons an hour. Seven oil companies maintain refineries at the Port of Toledo, where crude oil that is piped in from Texas and Oklahoma oilfields is refined into gasoline and shipped by tanker to other Great Lakes ports. Four large grain elevators at the Port, as well as back-up elevators within railroad switching distance, have a capacity of 37.5 million bushels of grain.

Nearly all of the general cargo docks are owned by the Toledo-Lucas County Port Authority and are leased to private stevedoring companies. Storage space, which has been increased by 25 percent in the past five years, consists of 4.3 million square feet of open storage space (2.5 times more than in Cleveland) and 270,000 square feet of closed



TABLE II

Overseas and Canadian Waterborne Traffic  
 Port of Cleveland  
 1969\*

Imports			Exports		
	Tons	Percent of Total		Tons	Percent of Total
Iron ore	2,876,080	62.6%	Iron and steel primary forms	144,726	31.4%
Stone, sand, and gravel	1,003,217	21.8	Crude materials, not elsewhere classified	136,103	29.5
Iron and steel plates and sheets	285,368	6.2	Iron and steel plates and sheets	58,237	12.6
Iron and steel bars, rods, angles, and shapes	152,672	3.3	Coal, coke, and briquets	30,131	6.5
Crude materials, not elsewhere classified	74,679	1.6	Iron and steel hoop and strip	13,365	2.9
Paper, paperboard, and wood pulp	56,348	1.2	Stone, sand, and gravel	11,762	2.6
All other commodities	148,398	3.3	Petroleum and byproducts	9,796	2.1
			Animal oils	8,988	1.9
TOTAL	4,596,762	100.0%	All other commodities	47,918	10.5
			TOTAL	461,026	100.0%

\* First 11 months.

Source: U. S. Department of Commerce, Bureau of the Census, Foreign Trade  
 Division

TABLE III

Tonnage Through the Port of Toledo  
1965–1969

	Tons		
	Total	Overseas	Canadian
1965	45,016,077	1,307,085	6,998,961
1966	43,932,128	1,424,703	6,946,496
1967	38,830,236	1,212,996	6,050,293
1968p	34,068,247	1,480,432	n.a.
1969p	30,305,604	1,184,265	n.a.

p Preliminary.

n.a. Not available.

Sources: U. S. Army, Corps of Engineers and Toledo-Lucas County Port Authority

storage space, as well as 250,000 square feet of closed storage in the Foreign Trade Zone. Toledo is the only port on the Great Lakes with a Foreign Trade Zone where commodities are held duty free until they are removed or reexported to another destination. Although Toledo has only a limited number of cranes for general cargo use, the large cranes (with capacity to lift 110 tons and 72 1/2 tons) are very mobile. No increases in storage facilities are planned in the immediate future.

Total tonnage at the Port of Toledo declined by one-third between 1965 and 1969 (see Table III). Most of the decline is the result of reduced coal shipments, particularly to other United States ports. In addition, the Canadian market for coal, which is smaller than the United States market, declined. Total coal exported from Toledo to both United States and Canadian ports dropped from 35 million tons in 1965 to approximately 21 million tons in 1969. This decline in coal shipments was due to the increased use of unit trains by the railroads that deliver coal directly to the final destination by rail instead of by joint rail-water movement.

As shown in Table IV, overseas and Canadian exports from Toledo were of much greater importance than imports in 1969. Canada is the major

recipient of all foreign shipments from Toledo, accounting for 85 percent of exports. Coal shipped to Canada dominates the export market. The Toledo export picture is, therefore, uncertain because of declining coal shipments. Coal, agricultural products, and petroleum products account for 98.4 percent of the commodities exported from Toledo. Most of the important agricultural products, including soybeans, corn, and wheat from the Ohio and Indiana farm belt, are shipped to Canada. In addition to the decline in shipments of coal, shipments of most agricultural products and petroleum products declined between 1968 and 1969.

Imports from overseas and Canada to the Port of Toledo are more diversified than exports. Iron ore—the primary import—is shipped through Toledo to steel mills in Middletown and Portsmouth, Ohio, and Ashland, Kentucky. Iron and steel products accounted for 189,000 tons, or 25 percent of foreign imports in 1969. Manufactured fertilizers and crude materials (primarily potash) were imported for use as fertilizer and complement the export of agricultural products. One other important commodity imported through Toledo is foreign automobiles—more than 40,000 vehicles were received in 1969.

In 1969, Canada shipped 62.6 percent of the tonnage volume of imports arriving through Toledo, but only 9.0 percent of the dollar value. In contrast, West Germany accounted for only 8.8 percent of the tonnage volume of imports to Toledo, but 54.7 percent of the dollar value. This apparent disparity can be explained by the types of shipments involved; Canada shipped bulk cargoes to Toledo, and West Germany shipped general cargoes, primarily automobiles. Approximately two-thirds of the iron and steel products imported in 1969 were from Japan.

TABLE IV

Overseas and Canadian Waterborne Traffic  
 Port of Toledo  
 1969\*

Imports			Exports		
	<u>Tons</u>	<u>Percent of Total</u>		<u>Tons</u>	<u>Percent of Total</u>
Iron ore	330,703	43.0%	Coal, coke, and briquets	3,052,914	56.9%
Iron and steel plates and sheets	84,793	11.0	Oilseeds, oil nuts, and oil kernels	1,150,702	21.5
Iron and steel bars, rods, angles, and shapes	63,651	8.3	Unmilled corn	866,944	16.2
Stone, sand, and gravel	61,473	8.0	Petroleum products	162,612	3.0
Manufactured fertilizers	39,822	5.2	Unmilled wheat	69,191	1.3
Road motor vehicles and vehicle parts	39,082	5.1	All other commodities	59,064	1.1
Crude materials, not elsewhere classified	25,314	3.3			
Paper, paperboard, and wood pulp	24,905	3.2	TOTAL	5,361,427	100.0%
Pig iron and ferro alloys	23,589	3.1			
All other commodities	75,699	9.8			
TOTAL	769,031	100.0%			

\* First 11 months.

Source: U. S. Department of Commerce, Bureau of the Census, Foreign Trade Division

**Other Ports.** Other Great Lakes ports in the Fourth District are Ashtabula, Conneaut, Fairport Harbor, Huron, Lorain, and Sandusky, Ohio, and Erie, Pennsylvania. Although several of these ports have limited amounts of general cargo shipping, the most important commodities are iron ore, coal, sand and gravel, and limestone. Generally, these ports bring iron ore, sand and gravel, and limestone into Lake Erie from other Great Lakes ports and send coal back to Canadian and United States lake ports.

Ashtabula is one of two of these smaller ports that has some overseas traffic. Although the overseas traffic is very small in relation to inter-lake traffic (including Canadian), the commodities shipped, particularly crude and synthetic rubber and manganese and nonferrous ores, are very important to economic activity in the Fourth District. The major import through Ashtabula is iron ore—more than 5.6 million tons were imported in 1968 (latest year for which complete data are available). In return, 1.6 million tons of coal were shipped from Ashtabula, a 25-percent increase over the volume shipped in 1967. Other important commodities moving through Ashtabula include limestone and sand and gravel as well as a small amount of iron and steel products.

Conneaut, which is the third largest Great Lakes port in the Fourth District in terms of tonnage, deals essentially in three commodities: iron ore, coal, and limestone. In 1968, 6.99 million tons of iron ore and 827,000 tons of limestone were imported, up from 6.88 million and 690,000 tons, respectively, in 1967. At the same time, 6.54 million tons of coal were exported, up from 6.44 million tons the previous year. Nearly all of the coal was shipped to Canada.

Erie is the second of the smaller District ports that engages in some overseas traffic, primarily the

export of iron and steel primary forms and iron and steel scrap. Far more important to the total tonnage that moves through the port, however, are shipments of limestone and petroleum products from other United States ports on the Great Lakes and imports of nonmetallic minerals from Lake ports in the United States and Canada. Shipping at Erie rose slightly in 1968, after declining for ten years. Excluding local tonnage, traffic in 1968 amounted to 37 percent of the 1963 level and only 20 percent of the 1958 level. Most of this decline occurred because of the loss of coal shipments to other ports—2.4 million tons were moved through Erie in 1958, in contrast to 520,000 tons in 1968.

Traffic at Fairport Harbor had also dropped in recent years, as shipments of coal and sand and gravel declined. This decline was, however, reversed in 1968. More than 21,000 tons of coal were exported in 1966, but no coal was shipped in 1967 or 1968. Sand, gravel, and crushed rock cargoes rose from 232,000 tons in 1967 to 341,000 tons in 1968. Limestone imports remained high in 1968 (1.67 million tons).

In Huron, iron ore imports totaled 2.18 million tons in 1968, an increase of more than 50 percent over the volume in 1967. Shipments of limestone into Huron also increased by more than 50 percent, rising from 227,000 tons in 1967 to 358,000 tons in 1968. Huron had no exports.

The major commodity imported at Lorain is iron ore (4.03 million tons in 1968, up from 3.00 million tons in 1967), and the major commodity exported is coal. Following several years of declines in coal shipments, new storage facilities were built and coal shipments rose from 1.39 million tons in 1967 to 5.15 million tons in 1968. Lorain also imported small amounts of limestone and sand and gravel.

Sandusky exports coal to ports in Canada and the United States and imports some sand and gravel. Coal exports rose from 5.70 million tons in 1967 to 6.83 million tons in 1968. Only 11,000 tons of sand and gravel were received in 1968, down from 82,000 tons in 1967.

Five of these seven small ports suffered declines in traffic between 1966 and 1967, but all had an increase in traffic between 1967 and 1968. Increased coal traffic contributed to the gains in traffic in 1968. Most of these small ports installed special loading devices and increased their storage space. As a result, the railroads could bring coal in throughout the winter for shipment during the summer to Canada. Surprisingly, the unit train has not been detrimental to these ports, because unit trains can also ship coal to the ports. Toledo is the only port on Lake Erie that is losing large amounts of coal traffic. These smaller ports are very dependent upon coal traffic, and any shift in the method of shipping would have an important impact on the volume of traffic through these ports.

## FACTORS INFLUENCING THE SEAWAY

Four factors have a major influence on traffic on the St. Lawrence Seaway: (1) the age of the boats that are used; (2) competing forms of transportation; (3) the competition offered by other ports; and (4) a new form of ocean shipping (containers) that the Seaway ports have not been able to utilize effectively. A brief look at these factors may help to clarify some unresolved questions.

**Equipment.** Most of the bulk cargo boats in the United States fleet that operate on the Great Lakes are very old and do not have the most modern equipment. Moreover, the boats are

smaller than optimum size. This problem has been temporarily met by adding radar equipment to aid in docking these boats and by cutting the boats apart to add an extra section in the middle.

New boats are expensive to build, and current common carrier shipping rates do not include an allowance for depreciation. One alternative is, of course, to raise the rates to cover depreciation costs. Such an action could, however, have an adverse effect on the volume of traffic relative to competing modes of transportation.

Two new ore boats now under construction will be 800 feet and 1,000 feet long. These boats will be able to pass through the Soo locks, but will be too large to go through the Welland Canal. The size of these new boats will not be a problem, however, because ore is usually shipped between the mines in Lake Superior and the steel mills in cities located on Lake Michigan and Lake Erie. Both of these boats are owned by steel companies.

The general cargo fleet is much larger and more diversified than the bulk fleet because it is not limited to the Seaway. These ocean-going ships use many ports around the world, only occasionally utilizing the Seaway. Any generalizations about the age or condition of the ships are, therefore, impossible, because too many different ships of too many countries are included.

**Competing Forms of Transportation.** Because waterborne commerce is generally concentrated in high bulk, low value commodities, the primary competitive mode of transportation is the railroads, which also carry such commodities. The use of unit coal trains has increased rapidly in recent years. In addition, larger coal cars and longer trains allow large quantities of coal to be shipped directly from the mine to the final user (or to a port) in a short period of time at rates that are

competitive with joint rail-water costs.<sup>5</sup> Because shippers have no reason to prefer a specific port or mode of transportation and because the railroads usually provide the coal loading facilities at the docks, the railroads generally determine which port to use in joint rail-water movement of coal.

Like coal, grain is often hauled several hundred miles to a lake port for shipment. Most grain shipped through the Great Lakes ports is exported to foreign ports. A large amount of the grain for domestic users is already being moved by railroads, and the use of unit trains to move grain to East Coast and Gulf ports is increasing.

The other major bulk commodities are primarily shipped by water with little joint rail-water movement. At present, it does not appear that the use of unit trains for other bulk commodities will have a substantial effect on Seaway traffic. Toledo and Chicago would be affected most in terms of tonnage if the use of unit coal and grain trains were to continue to increase. However, the smaller, less diversified ports in the Fourth District could feel the relative loss more sharply, particularly with respect to coal shipments.<sup>6</sup>

**Other Ports.** There are two major influences on the competitive position of the Seaway relative to other major ports in the United States. In view of the distances involved, it would seem that most of

the bulk and general cargo originating in the region supporting the Seaway could be shipped at the lowest cost via the Seaway. There are, however, other factors that must be considered, such as the pricing practices of other competing forms of transportation. Common carrier rates are regulated, and it is possible that other common carriers may be able to charge lower rates to other ports because of certain economies of scale.

The second influence on the competitive position of the Seaway is the length of the shipping season on the St. Lawrence Seaway. The shipping season extends roughly from the first of April until the middle of December, depending on weather conditions. Therefore, customers who normally use the Seaway must either anticipate their off-season needs and stockpile goods during the season or turn to alternative modes of transportation during the winter. The short shipping season discourages potential shippers who would prefer to use one means of transportation year-round. Although there have been proposals to extend the season by two to six weeks through the increased use of icebreakers, the St. Lawrence Seaway Authority has not indicated whether such a plan will take effect in the near future.

Another factor that is discouraging to Seaway shippers, particularly general cargo shippers, is the irregularity of ship arrivals. A ship will not stop at a lake port unless there is sufficient cargo to warrant the expense; therefore, general cargo destined for the Seaway may have to wait several weeks at the dock before it is loaded on a ship bound for the correct destination. By sending cargo to an East Coast or Gulf port with ships that stop regularly, a shipper is more assured of quicker overseas delivery. At the same time, ocean ships are always available because these ports are open year-round.

---

<sup>5</sup>A more complete discussion of regulatory decisions and regulations on rate structure is beyond the scope of this article.

---

<sup>6</sup>Preliminary data indicate that coal shipped out of Toledo dropped from 24 million tons in 1968 to 21 million tons in 1969; in Lorain, tonnage dropped from 5.1 million tons in 1968 to 3.3 million tons in 1969; but in Ashtabula, tonnage rose from 1.6 million tons to 3.4 million tons in 1969. Other coal shipping ports showed little change.



**Container Competition.** One of the most important trends in transportation in the past decade has been the growing use of container shipping. Containers simplify handling procedures at the initial loading point, at the docks, and at the final destination by requiring only one standard size container to be loaded instead of many smaller packages. General cargo has historically been more difficult to load than bulk cargo, because it is packaged in many different sizes and shapes. International general cargo shipping is becoming increasingly containerized, as specialized ships are built to hold containers and specialized docks are constructed to provide storage space.

In the United States, container shipping is used primarily on the East and West Coasts, with very little container traffic on the St. Lawrence Seaway. Two reasons for the limited use of containers on the Seaway are the number of ports on the Seaway and the relatively small volume of general cargo shipped. The most expensive part of water shipping is docking the ships; therefore, stopping at many ports to load containers is not economically feasible. At present, no Seaway port generates enough container traffic to fill a container ship. One transportation expert has, however, suggested that a barge that stopped at many ports and took containers to one central point, perhaps Montreal, would increase the economic feasibility, and as a result lead to increased use of containers on the Seaway.<sup>7</sup> The relatively small volume of general cargo shipping, compared with bulk cargo, however, would seem to impede initiation of this service.

## FUTURE OF THE SEAWAY

Although the St. Lawrence Seaway has become an important and integral part of the transportation picture in the United States, it has not lived up to the glowing forecasts of a "fourth coast" that were made at the opening of the Seaway in 1959. Discussions are currently under way between the United States and Canada about the possibility of increasing Seaway tolls in the 1971 season. The increased tolls would be used in part to repay the indebtedness of the Seaway Development Corporation to the U. S. Treasury. A study made by the Upper Great Lakes Regional Commission, however, contends that increased tolls would discourage overseas traffic on the Seaway and have the final effect of increasing rather than decreasing the Corporation's indebtedness. Changes in tolls would have little effect on bulk traffic because most bulk cargo is moved within the Great Lakes. General cargo is the fastest growing type of traffic, however, and a decline in such traffic would hinder the growth of the large Seaway ports.

Recently, a bill was introduced in the United States Senate that would cancel all debt of the Corporation and return all revenues remaining after operating and maintenance expenses to the U. S. Treasury. No other modern interstate waterway in the United States has had to pay for itself by means of tolls. Eliminating the need to repay the Treasury might influence the current discussions on raising Seaway tolls, or even provide for the possibility of lowering tolls in the future. The Seaway would then be more comparable to other inland waterways that do not require users' charges.

**Future Prospects for Seaway Traffic.** Total traffic through the Seaway declined from 48 million cargo tons in 1968 to 41 million cargo tons

<sup>7</sup>Lecture by Carl Snavely, Project Director of Transportation Studies, EBS Management Consultants, Inc., April 24, 1969.

in 1969, a drop of 14.5 percent.<sup>8</sup> A large share of the decline was caused by a four-month strike of iron ore workers in Labrador that limited shipments of this commodity. More importantly, overseas traffic through the Montreal-Lake Ontario section declined by 3.3 percent to nearly 15 million tons in 1969.<sup>9</sup> These losses were reflected in lessened activity at the Fourth District ports. Although Lake Superior iron ore shipments counteracted most of the losses from Labrador and iron and steel exports rose last season, total traffic dropped.

The Lake Erie ports with large trade in coal may be adversely affected if unit train usage increases. Because the coal, limestone, and iron ore traffic has traditionally helped to subsidize each other by providing complementary backhaul

---

<sup>8</sup>Charles F. Davis, "Cargo Moved Through Seaway Declines in 1969," *Journal of Commerce*, April 14, 1970.

---

<sup>9</sup>*Ibid.*

traffic, the loss of coal traffic could force an increase in rates on iron ore and limestone movements. However, because water transport is the least expensive way of shipping these commodities, a further loss of traffic in these goods is not expected.

A recent study indicated that physical improvements to the Seaway would not attract new shippers; however, a longer shipping season could increase tonnage because present shippers could use the Seaway for a longer period each year.<sup>10</sup> The growth of the general economy in the regions served by the Seaway could also have a positive effect on traffic. Although the future of the St. Lawrence Seaway is somewhat uncertain at present, several very important decisions that will apparently be made within the next six months, particularly concerning tolls, could exert a strong influence on the future growth of the Seaway.

---

<sup>10</sup>EBS Management Consultants, Inc., *An Economic Analysis of Improvement Alternatives to the St. Lawrence Seaway System*, Washington, D. C., 1969.

# CAPITAL SPENDING IN MAJOR METROPOLITAN AREAS OF THE FOURTH DISTRICT

The most recent semiannual survey of capital spending plans of manufacturing and selected other business concerns in the Cleveland, Pittsburgh, and Cincinnati metropolitan areas that was conducted in the spring of 1970 by the Federal Reserve Bank of Cleveland showed different patterns of spending among the three areas.<sup>1</sup> In the Cleveland and Cincinnati areas, spending for new plant and equipment by manufacturing firms in 1970 is expected to be less than actual outlays in 1969, while in the Pittsburgh area such spending is expected to exceed the actual level of spending in 1969. For the Cincinnati area, the overall results of the most recent survey confirm the findings of the fall 1969 survey. In the case of the Cleveland and Pittsburgh areas, however, the latest survey revealed that spending plans have been revised since the fall of 1969.

## CLEVELAND AREA

More than one-half of the manufacturing concerns that participated in the spring survey of capital spending in the four-county Cleveland metropolitan area currently plan to spend less for

new plant and equipment in 1970 than they spent in 1969. As a result, capital spending in 1970 by the entire group of manufacturing firms is expected to be 21 percent below the level of actual spending in 1969 (see Table I). This exceeds the 15-percent reduction in capital spending plans for 1970 indicated in a similar survey in the fall of 1969. Less than one-half of the firms participating in both surveys actually scaled down their spending plans for 1970 between the two survey dates; however, the downward revisions outweighed the upward revisions.

All but one of the manufacturing industries listed in Table I plan to reduce their capital spending in 1970; reductions are greater among the durable goods manufacturers than among the nondurable goods manufacturers. Firms in the electrical machinery industry, the sole exception to the general pattern of reductions in Cleveland, are planning to increase capital spending by a small margin. The substantial cuts planned in the primary metal and transportation equipment industries—the two industries which account for well over one-half of the capital spending by all manufacturers in the Cleveland area—were major factors in determining the size of the reduction in planned capital expenditures for both the durable goods group and for all manufacturing industries combined.

<sup>1</sup>The survey in Cincinnati was undertaken with the cooperation of the Greater Cincinnati Chamber of Commerce; the Pittsburgh survey was conducted for the Federal Reserve Bank of Cleveland by the University of Pittsburgh.

TABLE I

Capital Spending by Cleveland Area Firms  
(Spring 1970 Survey)

## Year-to-Year Percent Changes

	1969 (actual) to 1970 (planned)	1970 (planned) to 1971 (planned)
MANUFACTURING	-21%	-17%
Durable goods*	-22	-17
Primary metals	-30	-11
Fabricated metals	-17	+21
Machinery	-14	-30
Electrical equipment	+ 2	-13
Transportation equipment	-25	-34
Nondurable goods*	-13	-18
Printing and publishing	-36	-35
Chemicals	-15	- 4
Rubber and plastics	-30	-16
PUBLIC UTILITIES	+15	- 4
TOTAL	-12%	-12%

\* Includes smaller industries not listed separately.

Source: Federal Reserve Bank of Cleveland

An additional 17-percent cut in capital spending is planned by manufacturers in the Cleveland area for 1971, with virtually no difference between the durable goods group and the nondurable goods group. As in the case of spending plans for 1970, only one industry plans to increase spending in 1971; namely, fabricated metals. Six of the eight industries listed in the table indicate back-to-back reductions in total outlays in 1970 and 1971. However, individual responses indicate that consecutive spending cuts for both years are anticipated by only one out of every six manufacturing firms participating in the survey. One firm out of every nine plans to increase capital investment in both 1970 and 1971.

In contrast to the spending plans of the participating manufacturing firms, expected 1970

outlays for plant and equipment by public utilities in the Cleveland area exceed actual 1969 outlays by 15 percent. Furthermore, the planned increase in capital expenditures by the public utilities that was reported in the most recent survey is slightly larger than indicated in the fall 1969 survey. In 1971, however, capital spending by the utilities is expected to fall 4 percent short of the level of such spending in 1970. As a result, there would be a net gain of 11 percent in capital expenditures by the public utilities over the two-year period, reflecting an anticipation of continued increases in demand for the various services of the utilities in the near future.

The survey results also provide some indications of the division of planned capital spending by Cleveland area manufacturing firms and public utilities between structures and equipment and between modernization and expansion. Only 14 percent of the spending planned for 1970 by manufacturers is earmarked for structures, compared with 22 percent in 1969 (see Table II). The cutback in spending for structures had already been indicated in the fall 1969 survey. All durable goods industries listed in the table and all but one of the nondurable goods industries show a smaller share of total spending for structures in 1970 than in 1969, with unusually small shares in the primary metal, fabricated metal, and electrical equipment industries. The exception is the rubber and plastics group, where spending for structures is expected to rise appreciably. Very few individual firms in any industry plan to spend as much as \$1 million for structures in 1970. Although neither the number nor the dollar total of construction projects of at least \$1 million is expected to increase in 1971, the share of spending allocated for construction in 1971 should increase because of the anticipated reduction in the amount of total

TABLE II

Capital Spending by Cleveland Area Firms  
(Spring 1970 Survey)  
Percent Distribution of Total Spending by Type\*  
(Between Structures and Equipment and  
Between Expansion and Modernization)

	Structures†			Expansion‡		
	1969	1970	1971	1969	1970	1971
MANUFACTURING	22%	14%	18%	53%	54%	46%
Durable goods §	21	12	17	51	52	44
Primary metals	9	4	3	73	65	62
Fabricated metals	52	1	34	14	15	22
Machinery	39	23	29	59	60	44
Electrical equipment	31	9	10	68	45	35
Transportation equipment	23	19	27	23	50	54
Nondurable goods §	28	30	23	59	63	58
Printing and publishing	28	25	14	26	50	26
Chemicals	39	33	29	77	69	57
Rubber and plastics	11	21	25	28	41	39
PUBLIC UTILITIES	22	28	30	73	86	81
TOTAL	22%	19%	23%	57%	63%	59%

\* Based only upon returns in which these breakdowns were supplied.

† Spending for equipment equals 100 percent less the percent shown for structures.

‡ Spending for modernization equals 100 percent less the percent shown for expansion.

§ Includes smaller industries not listed separately.

Source: Federal Reserve Bank of Cleveland

capital spending for the year. The public utilities plan to spend a larger share of their total—increased—investment for structures in 1970 than in 1969 and expect a small further increase in that share in 1971.

More than one-half of the capital spending by manufacturing firms in the Cleveland area in 1970 will be used for expansion of production capacity, while slightly less than one-half will be used to modernize present facilities (see Table II). Although those proportions are virtually the same as

they were in 1969, they represent a smaller share for expansion than indicated by the fall 1969 survey. For 1971, the proportions of spending for expansion and for modernization will be reversed, with the larger share designated for modernization. Public utilities in the Cleveland area also expect a rise in the share of spending for expansion in 1970, to be followed by a decline in 1971. In both years, outlays designated for expansion are substantially higher among public utilities than among manufacturing firms.

Firms participating in the spring 1970 survey also provided some judgment about the current adequacy of their production facilities: 66 percent of the responding manufacturing firms reported "adequate" facilities, compared with 60 percent in the fall 1969 survey. "Less than adequate" capacity was indicated in only 14 percent of the reports, down from 20 percent last fall. This shift appears to be in line with the recent nationwide decline in capacity utilization rates.

Manufacturing concerns that supplied information on methods of financing their capital investments indicated that they expect to finance about 85 percent of their spending in 1970 and 1971 from internal sources. This proportion is the same as for actual spending in 1969, but somewhat less than had been expected for 1970 in the fall 1969 survey. About three out of every four firms plan to rely solely on internal sources of funds to finance capital investments in both 1970 and 1971, the same proportion as in 1969.

## CINCINNATI AREA

The spring 1970 survey indicated that plant and equipment spending by manufacturing concerns in the seven-county Cincinnati metropolitan area should be 14 percent lower in 1970 than it was in 1969 (see Table III). This overall figure, which

## ECONOMIC REVIEW

TABLE III

Capital Spending by Cincinnati Area Firms  
(Spring 1970 Survey)

Year-to-Year Percent Changes

	1969 (actual) to 1970 (planned)	1970 (planned) to 1971 (planned)
MANUFACTURING	-14%	- 1%
Durable goods*	-24	+ 1
Primary and fabricated metals†	+30	+40
Machinery	-37	-23
Electrical equipment	-17	+32
Transportation equipment	-44	- 5
Nondurable goods*	-0-	- 3
Food	+ 2	-12
Paper	-25	+75
Printing and publishing	-50	+55
Chemicals	+20	- 4
PUBLIC UTILITIES	+20	+20
TOTAL	- 1%	+ 9%

\* Includes smaller industries not listed separately.

† Combined in order to preclude disclosure of individual establishment data.

Source: Federal Reserve Bank of Cleveland

reflects reduced spending in 1970 by exactly one-half of the firms participating in the survey, is virtually unchanged from the 15-percent reduction in spending indicated in the fall 1969 survey. However, there were changes in the spending plans of the component groups. In the spring 1970 survey, durable goods manufacturers expected a 24-percent reduction in spending in 1970, while in the fall 1969 survey they had expected an 18-percent reduction. Nondurable goods manufacturers, on balance, currently plan to spend the same amount for capital goods in 1970 as they spent in 1969. In the fall survey, nondurable goods manufacturers had expected to reduce their spending by 10 percent in 1970.

Spending plans for 1970 of the four largest manufacturing industries in the Cincinnati area move in opposite directions. Firms in the machinery and transportation equipment industries indicate a substantial reduction in plant and equipment spending in 1970; on the other hand, the chemical industry expects a sizable increase, and the food industry expects a moderate increase. The planned reduction in plant and equipment spending by the transportation equipment industry will follow the very substantial increase in such spending that occurred in 1969, while the expected rise in spending in the chemical industry comes after a severely reduced level of actual spending in 1969.

A further small decline in capital spending by manufacturing industries in the Cincinnati area is expected for 1971, although less than one-half of the firms participating in the survey plan to spend less for new plant and equipment in 1971 than they expect to spend in 1970. Despite the small relative size of the change in total spending expected by the manufacturing group, substantial changes are indicated for individual industries, frequently with the direction of change reversed from that of the preceding year. For example, manufacturers in the electrical equipment industry plan to spend 17 percent less in 1970 than they actually spent in 1969, while they expect to increase their capital spending by 32 percent in 1971. On the other hand, firms in the chemical industry expect to increase 1970 capital spending by 20 percent over 1969 outlays and expect a moderate reduction in spending in 1971. Spending changes in the same direction for both 1970 and 1971, however, are expected in the primary and fabricated metal industries (increases) and in the machinery and transportation equipment industries (reductions).



The Cincinnati area public utilities, which had expected a small reduction in spending for 1970 at the time of the fall 1969 survey, now plan to spend 20 percent more in 1970 than in 1969 and to increase capital outlays by an additional 20 percent in 1971.

The spring 1970 survey results also indicate that manufacturers' outlays for structures in the Cincinnati area will be sharply reduced in 1970 and 1971, compared with 1969 (see Table IV). This reflects the fact that the total number of individual manufacturing firms reporting spending plans for construction in the amount of \$1 million or more for either 1970 or 1971 is smaller than the number of firms whose actual outlays in 1969 included at least \$1 million for structures. Consequently, manufacturers' spending for structures will account for 18 percent of total spending in 1970, compared with 37 percent in 1969. Manufacturers' spending for structures will increase only insignificantly in 1971. All of the industries listed in the table, except the chemical industry, plan substantial reductions in the share of spending allocated for structures in 1970. The public utilities, in contrast to the manufacturing industries, plan to raise the proportion of spending allocated for structures in 1970, with further increases anticipated in 1971.

Spending for structures is frequently a sign of an expansion program that is planned or in progress. The expected sharp drop in spending for structures by Cincinnati area manufacturers in 1970 and 1971, however, is not accompanied in either year by a decline in the share of spending planned for expansion of facilities below the 1969 level (see Table IV). A large proportion of the total dollar amounts to be spent for machinery and equipment in 1970 and 1971 is earmarked for expansion. (Individual firms, however, are evenly

TABLE IV

Capital Spending by Cincinnati Area Firms (Spring 1970 Survey)  
Percent Distribution of Total Spending by Type\* (Between Structures and Equipment and Between Expansion and Modernization)

	Structures†			Expansion‡		
	1969	1970	1971	1969	1970	1971
MANUFACTURING	37%	18%	20%	64%	69%	66%
Durable goods §	41	18	19	59	65	65
Primary and fabricated metals#	22	7	11	20	9	3
Machinery	53	22	11	45	65	46
Electrical equipment	45	15	49	65	46	62
Transportation equipment	46	27	31	69	62	60
Nondurable goods §	31	18	20	69	73	67
Food	33	19	6	44	46	31
Paper	12	5	28	40	43	49
Printing and publishing	47	12	1	61	53	45
Chemicals	21	19	26	87	87	83
PUBLIC UTILITIES	26	33	36	76	75	67
TOTAL	35%	22%	24%	67%	71%	66%

\* Based only upon returns in which these breakdowns were supplied.

† Spending for equipment equals 100 percent less the percent shown for structures.

‡ Spending for modernization equals 100 percent less the percent shown for expansion.

§ Includes smaller industries not listed separately.

# Combined in order to preclude disclosure of individual establishment data.

Source: Federal Reserve Bank of Cleveland

divided between those planning to use more than half of their total outlays for modernization and those expecting to use more than half of their total spending for expansion.) The public utilities expect to continue to use about three-fourths of their total spending for expansion in 1970, but plan to reduce the share to two-thirds in 1971.

More than 60 percent of the manufacturing firms in the Cincinnati area that replied to the question concerning present manufacturing capac-

ity reported "adequate" facilities, while more than 20 percent considered their facilities "less than adequate." These are virtually the same proportions reported in the fall 1969 survey.

Among manufacturers reporting on methods of financing their capital investments, more than eight out of every ten expect to use only internal sources of funds to finance capital spending in 1970 and 1971, which is slightly more than the proportion of those who actually relied entirely on internal sources of funds in 1969. Almost 90 percent of the amount that all responding manufacturing firms in the Cincinnati area plan to spend on capital goods in 1970, and an even larger share of the 1971 total, is scheduled to be financed with internally generated funds, compared with just over 80 percent of total spending that was financed from internal sources in 1969.

### PITTSBURGH AREA

In contrast to firms in the Cleveland and Cincinnati metropolitan areas, manufacturing firms participating in the spring 1970 survey of capital spending in the four-county Pittsburgh metropolitan area expect to spend 4 percent more for new plant and equipment in 1970 than in 1969 (see Table V). Firms in selected nonmanufacturing industries (transportation, public utilities, and retail trade) plan to spend almost twice as much in 1970 as in 1969. For both the manufacturing and the nonmanufacturing group, the results of the spring survey represent an upgrading of spending plans for 1970 reported in a similar survey conducted in the fall of 1969. At that time, surveyed nonmanufacturing firms expected to spend only 5 percent more in 1970 than in 1969, while manufacturing firms anticipated a 6-percent reduction in spending from 1969 to 1970.

Plans for 1971 indicate a sharp reduction in capital spending below the expected level of

TABLE V

### Capital Spending by Pittsburgh Area Firms (Spring 1970 Survey)

Year-to-Year Percent Changes

	1969 (actual) to 1970 (planned)	1970 (planned) to 1971 (planned)
<b>MANUFACTURING</b>	+ 4%	-35%
Durable goods*	†	-37
Stone, clay, and glass	+41	-39
Primary metals	-20	-52
Fabricated metals	+83	-51
Machinery	- 4	-19
Electrical equipment	- 7	+59
Nondurable goods*	+43	-26
Chemicals	+88	-33
<b>NONMANUFACTURING‡</b>	+98	-64
Public utilities	+ 8	-18
<b>TOTAL</b>	+55%	-55%

\* Includes smaller industries not listed separately.

† Less than 1 percent.

‡ Includes data for transportation and retail trade, in addition to public utilities.

Sources: University of Pittsburgh and Federal Reserve Bank of Cleveland

spending in 1970. Manufacturing firms in the Pittsburgh area plan to reduce their spending in 1971 by 35 percent, while nonmanufacturing firms expect to spend 64 percent less. As a result, the amount of spending in 1971 should be one-fourth lower than the amount actually spent in 1969 by each of the two groups of firms.

In the manufacturing group, the nondurable goods industries expect to increase their capital spending by 43 percent in 1970, while firms in the durable goods industries only plan to match the amount spent in 1969. There are, however, marked differences among the spending plans of the component industries. Much of the additional

spending by the nondurable goods industries in the Pittsburgh area in 1970 reflects capital investments in the chemical industry, where the level of capital spending is expected to be substantially higher than the severely reduced level of actual spending in 1969. In the durable goods group, the fabricated metal and the stone, clay, and glass industries indicate that spending in 1970 will be much higher than in 1969. Those increases will be offset, however, by a sizable reduction in spending in the primary metal industries and by moderate cutbacks in spending planned by firms in the machinery and electrical equipment industries.

In 1971, capital spending is expected to decline by 37 percent in the durable goods industries and by 26 percent in the nondurable goods industries in the Pittsburgh area. Sizable reductions in outlays for new plant and equipment are indicated in all but one of the major industries in both the durable and the nondurable goods sector of manufacturing. Only the electrical equipment industry indicates increased spending for 1971. One electrical equipment manufacturer's multi-million dollar expansion project is expected to more than outweigh spending cuts planned by other firms in the industry. In the primary metal and the machinery industries, reductions in capital outlays are expected in both 1970 and 1971.

Spending plans of nonmanufacturing industries represented in the survey reflect extreme fluctuations from year to year. The substantial increase in capital spending that is planned by firms in the transportation industry<sup>2</sup> in 1970 largely accounts for the near doubling in spending by nonmanufacturing industries between 1969 and 1970. However, the public utilities, which account for

the largest total amount of new capital investment by any industry in the area, plan to raise their total outlays in 1970 by only 8 percent.

The steep drop in the amount nonmanufacturing firms plan to spend in 1971 again shows the effect of extreme shifts in spending by firms in the transportation industry in the Pittsburgh area. The indicated 64-percent reduction in outlays combines an 18-percent cut in capital spending by the public utilities and almost no anticipated spending by the transportation firms in 1971.

One out of every five dollars that manufacturing industries plan to invest in 1970, and almost the same proportion in 1971, is earmarked for new structures (see Table VI). The increase from the smaller proportion shown for 1969 reflects sizable construction projects scheduled in the fabricated metal and the chemical industries in 1970 and in the electrical equipment industry in 1971. Among the nonmanufacturing industries, the public utilities report that a fairly consistent proportion of total capital spending will be used for structures (between one-fourth and one-fifth) in both 1970 and 1971. For the entire nonmanufacturing group, however, the proportion of spending for structures is expected to dip sharply in 1970, because only a small portion of the greatly increased amount of total spending planned by the transportation industry in 1970 will be used for structures.

Almost 40 percent of expected total capital outlays by manufacturing firms in the Pittsburgh area in 1970 is designated for expansion of present facilities (see Table VI). This represents a substantial increase in 1970 in the share of spending for expansion that is distributed among most of the manufacturing industries. The machinery and electrical equipment industries are particular exceptions. Slightly more than one-half of total

<sup>2</sup>Not shown separately in Table V in order to preclude disclosure.

## ECONOMIC REVIEW

TABLE VI

Capital Spending by Pittsburgh Area Firms  
(Spring 1970 Survey)  
Percent Distribution of Total Spending by Type\*  
(Between Structures and Equipment and  
Between Expansion and Modernization)

	Structures†			Expansion‡		
	1969	1970	1971	1969	1970	1971
MANUFACTURING	15%	20%	19%	29%	39%	36%
Durable goods §	16	21	21	30	38	37
Stone, clay, and glass	5	1	0	22	39	4
Primary metals	13	14	21	19	24	53
Fabricated metals	53	59	24	62	83	33
Machinery	9	6	3	55	40	46
Electrical equipment	14	13	38	52	26	25
Nondurable goods §	1	17	8	18	45	32
Chemicals	1	22	11	23	57	40
NONMANUFACTURING#	22	13	24	31	10	52
Public utilities	22	22	24	55	53	52
TOTAL	19%	15%	22%	30%	21%	41%

\* Based only upon returns in which these breakdowns were supplied.

† Spending for equipment equals 100 percent less the percent shown for structures.

‡ Spending for modernization equals 100 percent less the percent shown for expansion.

§ Includes smaller industries not listed separately.

# Includes data for transportation and retail trade, in addition to public utilities.

Sources: University of Pittsburgh and Federal Reserve Bank of Cleveland

outlays planned for 1970 and 1971 by the public utilities is allocated for expansion. In contrast, virtually the entire amount that transportation firms plan to spend for capital outlays in 1970 is to be used for modernization of existing facilities; as a result, there is a large decline in spending for expansion in the combined data for the nonmanufacturing group.

Almost 70 percent of all firms reporting on the status of their present facilities indicated

“adequate” capacity, with no difference between manufacturing and nonmanufacturing firms. Although this is nearly the same relative number of firms that reported “adequate” facilities in the preceding survey, the proportion of responses indicating “too much” capacity has increased from 12 percent to 17 percent since last fall.

Manufacturing firms in the Pittsburgh area expect to finance more than 80 percent of their capital spending in 1970 and over 90 percent of next year’s capital spending from internal sources. In 1970, more than three out of every four responding manufacturing firms plan to rely entirely on internal sources of financing, while in 1971, almost nine out of every ten firms plan to rely solely on internally generated funds. In 1969, less than three-fourths of the responding firms actually used internal sources of financing only.

## CONCLUDING COMMENTS

The findings of the surveys of capital spending plans in the three areas agree in some aspects and disagree in others with the pattern of capital spending plans in the nation in 1970 revealed by the Commerce-SEC survey conducted in April and May 1970.

The national survey showed that the spending plans of all manufacturing industries in 1970 were revised downward and would exceed actual spending in 1969 by only 3.7 percent, rather than by 9.9 percent as the preceding quarterly Commerce-SEC survey had indicated. Similar downward revisions in spending plans for 1970 were made by manufacturing concerns in the Cleveland area, although not in the Pittsburgh and Cincinnati areas. The revisions took the form of larger reductions in spending for 1970 than had been planned in the fall of 1969. The surveys conducted for the three areas agree with the national survey

in that they anticipate further sizable increases in capital investments by the public utilities in 1971.

On the other hand, the area surveys depart from the national pattern by indicating a decline

in capital outlays of manufacturing industries for 1970 in two of the three areas, while the national survey expects a continued, if small, increase in such investments in the nation in 1970.

---

### SPECIAL ANNOUNCEMENT

A limited number of reprints are available of the three-part article "The Eurodollar Market," which appeared in the March, April, and May 1970 issues of *Economic Review*. Requests for copies should be directed to the Research Department, Federal Reserve Bank of Cleveland, P. O. Box 6387, Cleveland, Ohio 44101.





RECENTLY PUBLISHED ECONOMIC COMMENTARIES  
OF THE FEDERAL RESERVE BANK OF CLEVELAND

**“Unemployment on the Rise”**

**May 25, 1970**

**“A Re-Examination of the Outlook for 1970”**

**June 1, 1970**

**“Dimensions of Recent Economic Activity”**

**June 8, 1970**

**“Whither Bank Commercial Paper?”**

**June 15, 1970**

**“Bank Credit – 1970”**

**June 22, 1970**

*Economic Commentary* is published weekly and is available without charge. Requests to be added to the mailing list or for additional copies of any issue should be sent to the Research Department, Federal Reserve Bank of Cleveland, P. O. Box 6387, Cleveland, Ohio 44101.