economic review

MAY 1968

IN THIS ISSUE

FEDERAL RESERVE BANK OF CLEVELAND

FEDERAL RESERVE OPEN MARKET OPERATIONS: MATCHED SALE-PURCHASES

Use of the technique known as matched sale-purchases is a recent innovation (July 1966) in Federal Reserve open market operations.[1] Although up to now not relied on to the same extent as the other more familiar techniques used in open market operations (outright purchases and sales and repurchase agreements), matched sale-purchase transactions have inherent advantages that will probably encourage further use of this technique. The purpose of this article is to discuss the mechanics of matched sale-purchase transactions, to review pertinent considerations, and to present relevant data.

MECHANICS OF MATCHED SALE-PURCHASES

Similar to other types of open market operations, matched sale-purchase transactions are initiated and executed by the Securities Department of the Federal Reserve Bank of New York — commonly known as the Trading Desk. The Desk is responsible for managing the Federal Reserve System's Open Market Account under the instructions of the Federal Open Market Committee. A matched sale-purchase contract involves the sale of U. S. Government securities from the System's portfolio with a commitment on the part of the buyer to sell back the same issues to the Trading Desk at specified prices on a certain future date. Thus, the matched sale-purchase is essentially a reverse repurchase agreement that absorbs bank reserves initially, rather than providing them, as in the case of a repurchase agreement. Both types of transaction are undertaken by the Trading Desk, and both involve a contract with a fixed time dimension. It is only in the procedures of executing the two types of transactions that some differences are found. Matched sale-purchase transactions, for example, are consummated with bank as well as nonbank dealers, in contrast to repurchase agreements, which are contracted only with nonbank dealers.

Matched sale-purchase operations are arranged through a technique called a "go-around." In a typical go-around, Desk traders contact the Government securities dealers to inform the dealers that the Desk is selling Treasury bill issues at specified prices under matched sale-purchase contracts. The information is given by telephone to all dealers at the same time and is generally restricted to the following points: the maturity date of the issue or issues for sale, the selling price, the duration of the matched sale-purchase contract, and the time interval — usually 10-15 minutes or so — within which the dealers must submit the amount and terms of the transactions that they are prepared to conclude. Because at present only Treasury bills are traded in matched sale-purchases, the selling and re-offering bids are quoted on a discount basis.

[1] For a description of the mechanics of open market operations, see "The Dealer Market for U. S. Government Securities and Monetary Policy," *Economic Review*, Federal Reserve Bank of Cleveland, December 1967, pp. 3-12.

As an example, consider a matched sale-purchase transaction for one day involving a Treasury bill issue maturing in 23 days. Initially, the Securities Department at the Federal Reserve Bank of New York sets a particular rate of discount — say, 4.50 percent — at which the Desk is prepared to sell the bills. (Normally, the rate set corresponds roughly to that prevailing in the market for a 23-day bill.) The dealer is asked to bid at this rate and re-offer the same bills for delivery one day later at a rate in competition with other dealers. The Desk compares the dealer re-offering rates and selects those carrying the highest rates up to the total of the transactions the Desk wishes to do. Thus, a dealer re-offering rate of 4.50 percent would be chosen before a rate of 4.49 percent, since the higher rate implies a lower price for the block of bills to be purchased.[2]

Dealer re-offering rates will vary according to the individual firm's evaluation of the prospective transaction (in fact, some firms may decline to participate). In the case of bank dealers, the fundamental consideration is whether the return on the matched sale-purchase transaction is at least competitive with alternative investments for the bank's short-term funds. It is primarily this consideration that determines what re-offering rates bank dealers will present to the Desk. In the case of nonbank dealers whose bill purchases are mainly financed through borrowed funds, the crucial consideration concerns the amount of financing costs incurred during the period for which dealers must hold the Treasury bills involved. Re-offering rates submitted by nonbank dealers must cover the interest costs on funds borrowed to finance the bills, clearing costs, and an allowance for dealer profit.[3]

The procedures used by bank and nonbank dealers to pay for securities acquired in a matched sale-purchase operation differ only in details; the effects of such payments on bank reserves are identical. Bank dealers

[2] For example, assume that the Desk accepts both bids, each involving a $1 million block of 23-day bills. To yield the dealer 4.50 percent, a block of bills with a maturity value — 23 days later — of $1 million must be sold to the dealer for $997,125. When the bills are re-sold to the Desk the next day, their maturity will be one day shorter; in order to yield 4.50 percent, each $1 million in bills would have to carry a selling price of $997,250. For the 4.49 percent bid, however, the price of $1 million in 22-day bills would be $997,256.

The return on the dealer's investment is the difference between the amount received when the bills are re-sold to the Desk and the amount originally paid to the Desk. In the case where both the offering and re-offering bid was 4.50 percent, the return would be $125 per $1 million in bills. An income of $125 on a one-day investment of $997,125 means an annual rate of interest (bond equivalent) of 4.58 percent ($\frac{125}{997,125} \times 365 \text{ days} = .0458$). Treasury bills are discounted on the basis of a 360-day year rather than the 365-day year used for bond yields, which accounts for the discrepancy between the rate quoted to the dealer and his actual (bond equivalent) rate of return.

[3] It is also possible for nonbank, as well as bank, dealers to "reverse" a matched sale-purchase with their customers. That is, dealers can arrange to have the bills sold to a customer on the same day that they are acquired from the Desk and simultaneously to enter an agreement providing for the dealer to buy the bills back at the time when the bills must be re-delivered to the Desk. This is essentially the same procedure as when the dealer borrows money from a customer using the bills as collateral, except that the title to the securities in the latter case remains with the dealer. For an extensive discussion of dealer financing methods, see Louise Freeman Ahearn "The Financing of Government Securities Dealers," Federal Reserve Bank of New York, *Essays in Money and Credit*, pp. 32-41.

can draw on their reserve balances with the Federal Reserve Bank in payment for the securities, and member bank reserves are reduced accordingly. Nonbank dealers, of course, pay by debit to their clearing bank's account, also reducing reserves immediately.

When the matched sale-purchase contract expires and the securities are returned to the Desk, both bank and nonbank dealers are paid with Federal funds, and bank reserves are immediately increased by the relevant amount.

HISTORY AND RATIONALE

Matched sale-purchase transactions were first undertaken by the System on July 13, 1966. The particular conditions that gave rise to this development were the result of a strike against five domestic airlines that began on July 8 and did not end until August 19, 1966. Because of the strike, check clearance among banks was seriously delayed, and Federal Reserve float, which directly affects member bank reserves, increased far beyond normal levels. The Federal Reserve System found it necessary to offset the effects of this unanticipated increase in float by absorbing reserves in a manner that would not contribute further to the already considerable impact of monetary restraint on the money market. Reserve absorption could, in theory, have been accomplished through outright sales of Government securities in the open market. However, the absorption of a large amount of reserves through outright sales presented two serious difficulties: "Treasury bill rates were rising sharply at the time . . . [consequently] the market was not expected to be receptive to large outright sales of bills . . . [and] any such sales might have had to be followed quickly by large outright purchases, if the strike were suddenly settled."[4]

Under such circumstances, the Management of the Federal Open Market Account proposed that matched sale-purchases be used rather than outright sales. The proposal was discussed by the Federal Open Market Committee in a special telephone conference on Monday, July 11, 1966. The new technique was initiated on the following Wednesday (July 13) in the wake of a sharp increase in float on Tuesday to an amount about $1 billion greater than normal for that particular day of the year. By the end of July, five more matched sale-purchase transactions had been executed. Since then, such operations have continued and have been used to deal with temporary reserve gluts from time to time.

From the viewpoint of monetary policy, the advantage of matched sale-purchases over outright transactions of the same effect on reserves, i.e., sales followed by purchases, stems largely from the differential impact that the latter are likely to have on security yields. Strictly on the basis of supply-demand relationships, a System open market sale, by increasing the supply of outstanding securities, would be expected to depress prices (raise yields). The dealer in buying outright assumes the risk that security prices may fall in the future, resulting in capital losses on his inventory stock unless, of course, he can immediately sell the securities he acquired to a customer. In sale-purchase contracts, however, such a risk is not present

[4] Board of Governors of the Federal Reserve System, *Fifty-Third Annual Report* (1966), p. 241.

Federal Reserve System Matched Sale-Purchase Transactions
Par Value
(millions of dollars)
1966-1968

Month:	1966			1967			1968*		
	Number of Contracts	Total Amount	Total Number of Days	Number of Contracts	Total Amount	Total Number of Days	Number of Contracts	Total Amount	Total Number of Days
January				2	$ 495.0	3	4	$1,005.0	8
February									
March									
April									
May									
June									
July	6	$1,953.5	21	1	295.0	3			
August	3	882.0	5	2	340.0	5			
September	3	925.5	7	1	170.0	1			
October	2	295.0	3						
November									
December									
Total	14	$4,056.0	36	6	$1,300.0	12			

* Last entry: January 1968.

Source: Federal Reserve Bank of New York

since the price of the security for future delivery is fixed. Considering then the risk of capital losses, a dealer may at times be less willing to acquire securities in outright sales than under sale-purchase contracts, and his reluctance may be expressed in his bid for higher yields in an outright transaction. Therefore, outright sales could have a greater upward influence on market yields than matched sale-purchases.

Moreover, market participants are not in a position to know whether a reserve absorption precipitated by an outright System sale will soon be reversed — unlike the case of matched sale-purchase operations where the temporary nature of the reserve absorption is apparent from the start. Thus, it is conceivable that market expectations regarding the effects of monetary policy that follow an outright sale may be different from those resulting from a matched sale-purchase contract.

In short, the matched sale-purchase technique may often be more appropriate than outright sales when monetary and market conditions call for temporary absorption of bank reserves. It has the added advantage that its use usually exerts a minimum effect on yields and market expectations. For this reason, the technique is particularly useful as a means of absorbing reserves when market conditions are unsettled and dealers are reluctant bidders for bills.

THE RECORD SINCE 1966

Matched sale-purchase transactions have been used rather sparingly since their initiation in 1966. Nevertheless, the flexibility of matched sale-purchase transactions has made them a useful addition to the kit of tools with which the System conducts open market operations. As the table shows, 14

different matched sale-purchase contracts, involving over $4.0 billion of Treasury bills, were undertaken during the second half of 1966. The bulk of these transactions took place in July and August — the period in which the airline strike was in progress. The sale-purchase contracts covered a period of 36 days during 1966, implying an average duration of 2.5 days for each contract.

As monetary conditions changed in 1967, sale-purchase contracts were used on only six occasions. Most of the sale-purchase contracts arose during the third quarter, a period generally characterized by declining securities prices and changing expectations about the future course of financial developments. During that period, there were a number of instances (days) when bank reserves were larger than expected, and as a result, rates on Federal funds fell below desired levels. In such instances, matched sale-purchase contracts were quite suitable for temporarily withdrawing bank reserves with minimum influence on the money market.

During January 1968, a total of $1,005 million of matched sale-purchases were contracted by the Manager of the Open Market Account in four separate transactions. As in previous cases, these contracts were generally prompted by the need to reduce excess reserves that arose from unexpected changes in certain market factors, i.e., an increase in float, or a redistribution of reserves from country to money market banks.

From July 1966 to January 1968, 24 separate sale-purchase contracts were completed covering a total of 56 days and involving $6,361 million in Treasury bills. On this basis, the average volume of each contract amounted to $265 million, and the average duration amounted to 2.3 days.

On the basis of volume, matched sale-purchase transactions clearly rank below outright sales in the open market. During the second half of 1966, for example, System outright sales of Treasury bills amounted to $6,293 million, while matched sale-purchases totaled $4,056 million; in 1967, the comparable figures were $3,582 million and $1,300 million, respectively.

APPENDIX

SYSTEM MATCHED SALE-PURCHASE TRANSACTIONS

	Date of System Commitment to Sell	Amount (Par value mil. $)	Duration of the Contract (Days)
1966	July 13	$205.5	2
	14	440.0	5
	15	382.0	5
	19	411.0	3
	22	326.0	4
	26	189.0	2
	Aug. 16	247.0	2
	23	260.0	2
	31	375.0	1
	Sept. 14	312.5	5
	21	321.0	1
	28	292.0	1
	Oct. 18	195.0	2
	19	100.0	1
1967	Jan. 17	270.0	2
	31	225.0	1
	July 17	295.0	3
	Aug. 25	205.0	3
	29	135.0	2
	Sept. 13	170.0	1
1968	Jan. 10	460.0	1
	15	145.0	3
	29	170.0	3
	30	230.0	1

Source: Federal Reserve Bank of New York

AN ECONOMIC PROFILE OF YOUNGSTOWN-WARREN

Youngstown-Warren, the seventh largest metropolitan area (SMSA) in Ohio,[1] is located halfway between the industrial centers of Pittsburgh and Cleveland. The area is a part of the nation's heavy industrial complex extending from the middle Atlantic coast to the Chicago area. The Youngstown-Warren SMSA is the heart of an important steel producing district, ranking fourth among the eleven steel producing districts in the United States.[2] Approximately one-third of the nation's steel is produced today within the steel belt of the Pittsburgh-Youngstown-Cleveland area.

Although steel production is the major economic activity in the Youngstown-Warren SMSA, recent developments have changed the composition of the manufacturing sector. In particular, important steel consuming industries, such as transportation equipment and nonelectrical machinery, have begun or expanded operations in the area.

[1] The Youngstown-Warren Standard Metropolitan Statistical Area includes Mahoning and Trumbull Counties.

[2] The Youngstown steel district is defined by the American Iron and Steel Institute to include plants in New Castle and Farrell, Pennsylvania, and Canton and Massillon, Ohio.

HISTORY AND POPULATION

Youngstown became an iron producing center in the early part of the nineteenth century when the first blast furnace in Ohio was opened. Nearby pockets of iron ore, limestone deposits, and extensive reserves of the famous Brier Hill coal encouraged the development of Youngstown's iron industry and subsequently its steel industry. The opening of the Sault Ste. Marie Canal in 1855 made the rich iron ores of the upper Great Lakes available to Youngstown because of its proximity to water transportation. By 1900, one-fourth of the nation's steel was being produced in the Youngstown district. During the first thirty years of the twentieth century, the steel industry in both Youngstown and the nation expanded rapidly.

Between 1900 and 1930, population in the Youngstown-Warren area more than tripled, as large numbers of immigrants were attracted by job opportunities in the steel mills. Of the eight major metropolitan areas in Ohio,[3] only Akron grew at a faster rate

[3] Major Standard Metropolitan Statistical Areas in Ohio are those having more than 40,000 employed in manufacturing or a population of at least 500,000.

TABLE I
Population
Youngstown-Warren SMSA, Other Selected SMSAs in Ohio, State of Ohio, and United States
1900-1965

	Population (thousands of persons)				Percent Increase		
	1900	1930	1960	1965	1900-1930	1930-1960	1960-1965
United States	76,212	123,203	179,323	193,795	+ 62%	+46%	+ 8.1%
Ohio	4,158	6,647	9,706	10,241	+ 60	+46	+ 5.5
Total 8 SMSAs	2,114	4,346	6,746	7,171	+106	+55	+ 6.3
Akron	101	387	605	650	+283	+56	+ 7.4
Canton	95	222	340	356	+134	+53	+ 4.5
Cincinnati	618	844	1,269	1,347	+ 37	+50	+ 6.2
Cleveland	498	1,288	1,910	2,000	+159	+48	+ 4.7
Columbus	218	414	755	847	+ 90	+82	+12.1
Dayton	229	381	727	791	+ 66	+91	+ 8.8
Toledo	238	451	631	657	+ 90	+40	+ 4.2
Youngstown-Warren	117	359	509	523	+207	+42	+ 2.7

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

during 1900-1930. Between 1930 and 1960, however, population growth slowed considerably in the Youngstown-Warren area, with only the Toledo SMSA growing at a slower rate during the period (see Table I). From 1960 to 1965, population in the Youngstown-Warren SMSA recorded the smallest increase among Ohio's major metropolitan areas (2.7 percent), due in large part to a net outmigration of 15,000 people from the area.

In terms of population distribution, the Youngstown-Warren SMSA is less oriented towards a single population center than are most metropolitan areas in Ohio. In 1965, Youngstown and Warren, the two largest cities in the SMSA, accounted for 30 percent and 13 percent, respectively, of the population. More than half of the population in the Youngstown-Warren SMSA is distributed among four other cities: Niles, Campbell, Struthers, and Girard, Ohio.

EMPLOYMENT DISTRIBUTION

The Youngstown-Warren area has a remarkably high share of its total nonagricultural employment concentrated in manufacturing — almost every other worker (see Table II).[4] At the same time, the area's share of employment in some nonmanufacturing sectors is low, due to the fact that certain economic activities, such as wholesale trade, finance, and nonlocal government employment, are much more important in Cleveland, which is only 65 miles northwest of Youngstown. For example, the second most important employment category in the Youngstown-Warren area, wholesale and retail trade, ranks next to last in relative importance among Ohio's major SMSAs — mainly

[4] Nineteen hundred and sixty-six is a more representative year for employment distribution than 1967, inasmuch as employment in the manufacturing sector in many areas of the United States was depressed during much of 1967.

TABLE II
Percent Distribution of Total Nonagricultural Employment
Seven Major Employment Categories
Youngstown-Warren SMSA, Other Selected SMSAs in Ohio, State of Ohio, and United States
1966 Annual Average

Manufacturing		Wholesale and Retail Trade		Services		Government	
Canton	49.4%	Toledo	21.3%	United States	15.0%	Columbus	20.8%
Youngstown-Warren	47.5	Columbus	20.7	Columbus	15.0	Dayton	17.6
Akron	42.9	United States	20.7	Toledo	14.2	United States	17.0
Dayton	41.9	Cincinnati	20.4	Cleveland	13.9	Ohio	13.7
Ohio	39.6	Cleveland	20.1	Cincinnati	13.9	Cincinnati	13.0
Cleveland	39.2	Akron	19.7	Youngstown-Warren	13.1	Akron	12.6
Toledo	36.6	Ohio	19.2	Ohio	12.8	Toledo	12.5
Cincinnati	35.6	Canton	17.8	Dayton	12.4	Cleveland	11.8
United States	29.9	Youngstown-Warren	17.7	Akron	12.3	Youngstown-Warren	9.2
Columbus	26.2	Dayton	17.4	Canton	11.8	Canton	8.7

Transportation and Public Utilities		Contract Construction		Finance, Insurance, and Real Estate	
Cincinnati	7.5%	United States	5.1%	Columbus	6.1%
Toledo	7.3	Columbus	5.1	Cincinnati	5.1
United States	6.5	Toledo	4.7	United States	4.8
Akron	6.3	Ohio	4.4	Cleveland	4.6
Cleveland	6.2	Cincinnati	4.4	Ohio	3.8
Columbus	6.0	Youngstown-Warren	4.3	Canton	3.3
Ohio	5.9	Cleveland	4.2	Toledo	3.2
Youngstown-Warren	5.4	Dayton	4.1	Akron	2.7
Canton	5.0	Canton	3.8	Dayton	2.7
Dayton	3.8	Akron	3.5	Youngstown-Warren	2.6

Sources: U. S. Department of Labor and Division of Research and Statistics, Ohio Bureau of Employment Services

because Cleveland is the major wholesaling center for northeastern Ohio. For every 100 workers in retail trade, wholesale trade claims only 22 employees in the Youngstown-Warren area, compared with 46 employees in the Cleveland area.

Similarly, the fact that Cleveland is the financial center of northeastern Ohio helps to explain the Youngstown-Warren area's relatively low share of employment in the finance, insurance, and real estate category. On a per capita basis, employment in the financial sector is twice as large in Cleveland as in the Youngstown-Warren area.

Government employment in the Youngstown-Warren SMSA is relatively low, mainly because Federal and state government employment is low. Local government employment is in line with the relationships in other metropolitan areas in Ohio. For example, local government employment per 1,000 persons is 26 in Youngstown-Warren, 27 in Dayton, and 27 in Columbus. Dayton and Columbus have high shares of Federal and state government employment.

The proportions of nonagricultural employment in services, transportation and public utilities, and contract construction in the Youngstown-Warren SMSA are about the average proportions prevailing in Ohio's other major SMSAs.

EMPLOYMENT TRENDS

1940-1950. As measured by trends in employment, economic growth in the Youngstown-Warren SMSA was more rapid during the 1940's than in the 1950's. During the 1940-1950 period, total employment increased by 34 percent in the metropolitan area, compared with a gain of 25 percent in the United States (see Table III). Employment in both manufacturing and nonmanufacturing in the Youngstown-Warren SMSA grew at roughly the same pace during the period, and as a result, the 50-50 employment distribution was unchanged at the end of the period.[5] When compared with increases in the State of Ohio and the United States, however, manufacturing employment in the Youngstown-Warren SMSA grew at a slower rate than nonmanufacturing employment. The faster growth in employment in nonmanufacturing was due to larger employment gains in industries such as services, construction, trade, and transportation.

1950-1960. Following the period of rapid employment growth during 1940-1950, between 1950 and 1960 total employment in the Youngstown-Warren SMSA grew only 9 percent, compared with 15 percent in both the United States and the State of Ohio (see Table III).

While manufacturing employment grew at sharply reduced rates in both the United States and the State of Ohio during the 1950-1960 period, there was no net growth in the Youngstown-Warren area.[6] In contrast, the gain in nonmanufacturing employment was relatively greater in the Youngstown-Warren SMSA than in the United States and State of Ohio because of larger employment gains in finance and construction (see Table III). The transportation and public utilities industries, which had provided much stimulus to employment growth from 1940 to 1950, registered a net decline in the Youngstown-Warren SMSA from 1950 to 1960. As was the case in the nation as a whole, that decline was attributable in large part to employment losses in the railroad industry.

5 Manufacturing Employment (percent of total employment)*

	Youngstown-Warren SMSA	Ohio	United States
April 1940	50%	34%	24%
April 1950	50	37	26
April 1960	45	37	27

* Excluding Armed Forces.

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

6 The 1950 Census was conducted just before the beginning of the Korean War, which stimulated manufacturing employment in the Youngstown-Warren SMSA; the 1960 Census was taken in the early stages of a recession year, when manufacturing employment declined sharply.

TABLE III

Percent Change in Employment by Industry
Youngstown-Warren SMSA, State of Ohio, and United States
1940-1950 and 1950-1960

	1940-1950			1950-1960		
	Youngstown-Warren SMSA	Ohio	United States	Youngstown-Warren SMSA	Ohio	United States
Total employment*	+34%	+31%	+25%	+ 9%	+15%	+15%
Manufacturing	+34	+43	+38	-0-	+15	+19
Nonmanufacturing	+33	+25	+21	+19	+14	+13
Finance, insurance, and real estate	+30	+28	+31	+46	+36	+40
Services†	+21	+17	+17	+33	+34	+34
Contract construction	+77	+57	+67	+25	+12	+10
Public administration	+68	+76	+69	+16	+19	+27
Trade	+47	+37	+40	+ 7	+ 9	+11
Transportation and public utilities	+49	+40	+42	— 4	— 5	-0-
Agriculture	—28	—18	—18	—35	—39	—39

* Excluding Armed Forces.

† Including education.

NOTE: Percent change based on employment, by place of residence, month of April during each decennial Census.

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

TABLE IV

Nonagricultural Employment
Seven Major Employment Categories
Youngstown-Warren SMSA, State of Ohio, and United States
1967 and Percent Change 1961-1967

	Employment (thousands of persons)			Percent Change 1961-1967		
	Youngstown-Warren SMSA	Ohio	United States	Youngstown-Warren SMSA	Ohio	United States
Total nonagricultural employment	184	3,612	66,063	+ 18%	+19%	+22%
Manufacturing	86	1,399	19,339	+ 21	+18	+19
Primary metals	44	178	1,301	+ 11	+11	+14
Transportation equipment	10	152	1,927	+178	+21	+33
Fabricated metal products	9	153	1,355	+ 31	+24	+25
Nonelectrical machinery	6	225	1,971	+ 27	+36	+39
Electrical machinery	4	146	1,915	+ 13	+28	+30
Wholesale and retail trade	33	699	13,672	+ 18	+16	+21
Services	25	486	10,071	+ 32	+30	+31
Government	17	508	11,616	+ 10	+23	+35
Transportation and public utilities	10	210	4,262	+ 20	+ 6	+ 9
Contract construction	7	153	3,264	— 14	+13	+16
Finance, insurance, and real estate	5	139	3,228	+ 11	+13	+18

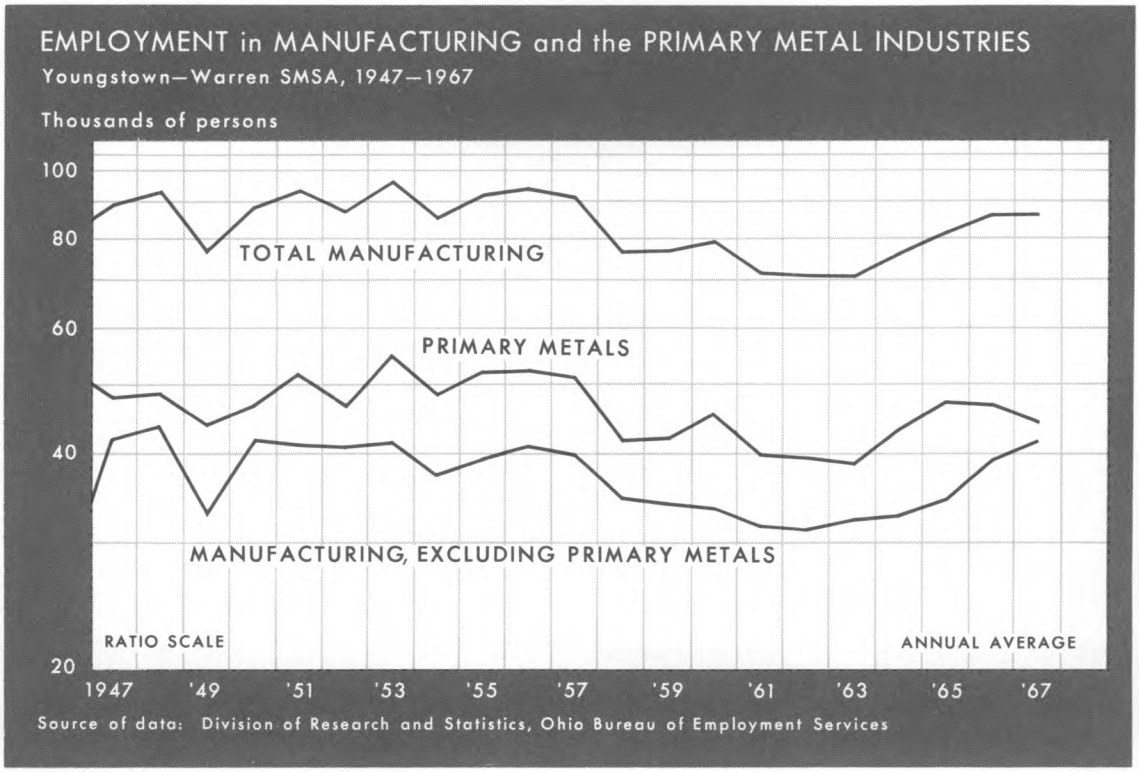
Sources: U. S. Department of Labor and Division of Research and Statistics, Ohio Bureau of Employment Services

1961-1967. Between 1961 and 1967, years of accelerated economic activity in the nation as a whole, total nonagricultural employment in the Youngstown-Warren SMSA rose 18 percent, only slightly below the increases in both the State of Ohio and the United States (see Table IV). On the other hand, manufacturing employment rose relatively more in the Youngstown-Warren SMSA, despite the fact that economic recovery in the area did not begin until 1964. Gains in manufacturing employment in Youngstown-Warren during the 1961-1967 period largely reflect growth in the transportation equipment industry (automobiles), as well as a recovery in employment in the fabricated metal products industry. During 1961-1967, employment in both the nonelectrical and electrical machinery industries of Youngstown-Warren showed net growth, but the percent gains fell short of gains in the State of Ohio and the United States. Within the nonmanufacturing sector, employment gains in the Youngstown-Warren SMSA in services, transportation and public utilities, and trade exceeded gains in the State of Ohio.

Cyclical Patterns. Employment patterns in manufacturing and the primary metal industries in the Youngstown-Warren SMSA are shown in Chart 1. As is typical of an area dominated by heavy industry, sharp cyclical fluctuations are readily apparent. During each of the four post World War II recessions, manufacturing employment declined relatively more in the Youngstown-Warren SMSA than in the State of Ohio and the United States. In three of those recessions, the percent decline in the Youngstown-Warren SMSA was more than twice as severe as in the nation. Unfortunately, employment in manufacturing in the Youngstown-Warren SMSA has never fully recouped all of its losses since 1953. Despite a large rebound beginning in 1964, manufacturing employment in the Youngstown-Warren area in 1967 was still about 10,000 below the post World War II peak attained in 1953.

Chart 1 clearly portrays the dominance of the primary metal industries (mostly basic steel) in total manufacturing employment in the Youngstown-Warren SMSA. During the past three recessions, employment in the area's primary metal industries declined (in absolute as well as in percent terms) more than did employment in all other manufacturing industries. Moreover, employment in the area's primary metal industries as of 1967 was well below its previous peak, while employment in all other manufacturing industries approached its previous peak. Until recent years, the relatively poor performance of Youngstown-Warren's primary metal industries reflected the problems of the nation's steel industry, but in a more pronounced manner. In the early development of the steel industry, Youngstown (and Pittsburgh) had important advantages for plant location because iron ore and coal could be brought together most economically in those areas. During the period following World War II, however, markets for steel products moved to the West and to the South; in addition, technological developments lessened the need for coal and iron ore. Consequently, new steel capacity tended to move away from the older centers such as Youngstown and Pittsburgh, and production in those areas

Chart 1.



Last entry: 1967

Employment in Manufacturing

Percent Change

Recession Periods	Youngstown-Warren SMSA	Ohio	United States
1948 — 1949	—17.0%	— 9.5%	— 7.3%
1953 — 1954	—11.1	— 9.2	— 7.0
1957 — 1958	—16.6	—12.6	— 7.2
1960 — 1961	— 9.4	— 6.5	— 2.8
Recovery Periods			
1949 — 1953	+25.8	+26.7	+21.5
1954 — 1957	+ 6.9	+ 4.3	+ 5.3
1958 — 1960	+ 3.8	+ 5.5	+ 5.3
1961 — 1967	+20.6	+18.4	+18.5

Sources: U. S. Department of Labor and Division of Research and Statistics, Ohio Bureau of Employment Services

declined.[7] Only two of the nation's eleven steel-producing districts, Youngstown and Pittsburgh, failed to have a positive growth rate in steel output between 1947 and 1965. In fact, the average annual rate of decline was more severe in the Youngstown district (-1.5 percent) than in Pittsburgh (-0.3 percent).[8]

[7] See *Pertinent Characteristics of the Iron and Steel Industry as related to Area Redevelopment*, U. S. Department of Commerce, November 1964.

[8] For a more detailed discussion of long-term trends in steel output in Youngstown and the various steel-producing regions in the nation, see "Regional Trends in Steel Production," *Economic Review*, Federal Reserve Bank of Cleveland, Cleveland, Ohio, November, 1966.

Because of a slowdown in expenditures for plant and equipment and consumer durables during the late 1950's and early 1960's, the steel industry in the Youngstown-Warren SMSA (and in the nation as well) suffered the effects of a sharp reduction in steel demand. The steel industry in the Youngstown-Warren SMSA was more adversely affected than in the rest of the nation, largely because of the industry's product mix in the area.

During the six-year period, 1958 through 1963, total domestic steel ingot output was 8.5 percent less than the volume of the previous six-year period. Much greater declines in output between those two periods were registered by certain product categories[9] in which steel mills in the Youngstown-Warren SMSA had relatively large shares of the nation's productive capacity.

Steel output has also been influenced by substitution of other materials for steel, as well as by the sharp rise in imports since 1959. Steel imports increased from less than 3 percent of total domestic consumption in 1958 to 12 percent in 1967.

OTHER MEASURES OF ECONOMIC ACTIVITY

Value Added. The best dollar figure available for comparing the relative economic importance of manufacturing among geographic areas is value added by manufacture, a measure of the net contribution of the manufacturing process. According to that measure, the Youngstown-Warren SMSA was the sixth most important manufacturing center among Ohio's SMSAs in 1965. The earlier period of sluggishness in the area's manufacturing sector is evidenced by the fact that, of the eight major SMSAs in Ohio, the Youngstown-Warren SMSA had the smallest gain in value added by manufacture between 1958 and 1963 (see Table V). In 1964, a turnaround in economic activity occurred in the Youngstown-Warren SMSA. In that year, value added by manufacture rose sharply and, for the first time, exceeded $1 billion. The relatively large gain in value added in the Youngstown-Warren area from 1963 to 1965 (the most recent year for which data are available) was topped only by the gain in the neighboring Canton SMSA (see Table V).

New Capital Expenditures. Spending for new plant and equipment by manufacturers also reflects the improved economic climate of the Youngstown-Warren SMSA in recent years. After having been at a relatively low

[9] For example: hot-rolled strip, down 48 percent; cold-rolled strip, down 16 percent; pipe and tubing, down 25 percent; and skelp, down 30 percent.

TABLE V
Value Added by Manufacture
Youngstown-Warren SMSA, Other Selected SMSAs in Ohio, State of Ohio, and United States
1965 and Percent Change 1958-1963 and 1963-1965

	(mil. $) 1965	Percent Change 1958-1963	Percent Change 1963-1965
United States	$225,366	+36%	+17%
Ohio	18,352	+35	+18
Akron	1,192	+25	+18
Canton	826	+48	+24
Cincinnati	2,357	+32	+15
Cleveland	3,989	+32	+18
Columbus	1,112	+41	+16
Dayton	1,581	+45	+20
Toledo	1,088	+27	+19
Youngstown-Warren	1,108	+24	+23

Source: U. S. Department of Commerce

TABLE VI
Capital Expenditures (New) by Manufacturers Youngstown-Warren SMSA, State of Ohio, and United States
(million of dollars)

	Youngstown-Warren SMSA	Ohio	United States
1958 to 1961* . .	$ 86	$ 755	$ 9,244
1962	38	777	10,424
1963	57	848	11,228
1964	107	1,061	13,262
1965	192	1,382	16,605

* Annual average.

Source: U. S. Department of Commerce

level in 1962 and 1963, new capital expenditures in the Youngstown-Warren area increased sharply in 1964, rose to a record high in 1965, and are estimated to have risen further in 1966 (see Table VI).[10]

Capital spending in the Youngstown-Warren SMSA is, of course, dominated by the metalworking industries. From 1958 to 1963, the primary metal industries alone accounted for more than four-fifths of new capital expenditures by manufacturers in the area. Although Youngstown-Warren's primary metal industries began to step up new capital outlays in 1964 and 1965, their share of the total dropped to less than one-half during the two-year period. The most impressive rise in the area's new investment during 1964 and 1965 was registered by machinery and motor vehicle companies.

Average Hourly Earnings in Manufacturing. Because of the industrial composition of the Youngstown-Warren area, average hourly earnings by production workers in manufacturing are relatively high. Among the major metropolitan areas in Ohio, production workers in the Youngstown-Warren area in 1961 received the highest hourly earnings (see Table VII). Between 1961 and 1967, however, the wage differential in the Youngstown-Warren SMSA narrowed, as the area recorded the smallest percent increase in average hourly earnings among the major metropolitan areas in Ohio. Despite the narrowing of the wage differential, production workers in Youngstown-Warren manufacturing sector were still among the highest paid in Ohio during 1967 and received wages considerably above the national average.[11]

Unemployment. Additional evidence of economic progress in the Youngstown-Warren area during recent years is disclosed by the behavior of the unemployment rate (see Table VIII). From 1960 to 1963, the unemployment rate was consistently greater in the Youngstown-Warren SMSA than in the other major SMSAs in the State of Ohio, as well as the United States as a whole. In 1961, unemployment in the Youngstown-Warren SMSA rose to such a dismal level (averaging almost

[10] According to the Development Department, State of Ohio, announced new capital expenditures by manufacturers in the Youngstown-Warren SMSA totaled more than $200 million in 1966.

[11] Computations by this Bank, based on detailed industry data in the *1963 Census of Manufacturers*, reveal that approximately 90 percent of Youngstown-Warren's wage differential over the national average can be explained by the area's industry mix. The remaining 10 percent of the wage differential in the SMSA is attributed to the tendency of average hourly earnings in any given industry to be higher in the Youngstown-Warren SMSA than in the United States, a situation otherwise known as a favorable area effect. See Frederick W. Bell, "The Relation of the Region, Industrial Mix, and Production Function to Metropolitan Wage Levels," *Review of Economics and Statistics*, August 1967.

10 percent during the year) that workers began to move to other areas to find jobs. Accordingly, during 1961-1963, the area's labor force declined 8.5 percent; total employment declined 7.6 percent; and the unemployment rate improved somewhat. In 1964, the labor force and employment began to grow once again. In addition, the unemployment rate declined significantly, not because workers were leaving, but because the unemployed were being rehired and new jobs were being created. Since 1965, the unemployment rate in the Youngstown-Warren SMSA has averaged less than 4 percent.

TABLE VII
Average Hourly Earnings in Manufacturing
Youngstown-Warren SMSA,
Other Selected SMSAs in Ohio,
State of Ohio, and United States
1961 and 1967 and Percent Change
1961-1967

	1961	1967	Percent Change 1961-1967
United States	$2.32	$2.83	+22%
Ohio	2.68	3.19	+19
Akron	2.95	3.48	+18
Canton	2.73	3.17	+16
Cincinnati	2.52	2.97	+18
Cleveland	2.73	3.24	+19
Columbus	2.54	3.08	+21
Dayton	2.83	3.52	+24
Toledo	2.77	3.35	+21
Youngstown-Warren	3.01	3.42	+14

Sources: U. S. Department of Labor and Division of Research and Statistics, Ohio Bureau of Employment Services

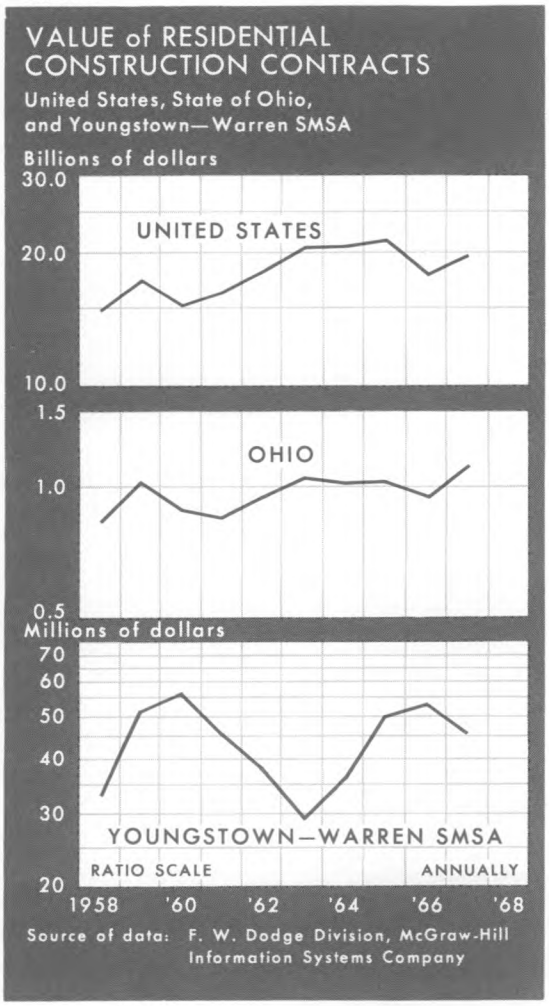
Residential Construction. A glance at the performance of residential construction contracts (Chart 2) reveals much about changing economic conditions in the Youngstown-Warren SMSA. During the 1961-1963 period when out-migration occurred in the area, the value of residential construction contracts dropped by almost 50 percent. That decline is all the more striking, when compared with the increases in residential building in the State of Ohio and in the United States during the period. Similarly, the reinvigoration of Youngstown-Warren's economy was reflected in the sharp rebound of new residential

TABLE VIII
Rate of Unemployment as Percent of Civilian Labor Force
Youngstown-Warren SMSA, Other Selected SMSAs in Ohio, State of Ohio, and United States
1960-1967

	1960	1961	1962	1963	1964	1965	1966	1967
United States	5.5%	6.7%	5.5%	5.7%	5.2%	4.5%	3.8%	3.8%
Ohio	5.3	7.4	5.7	5.1	4.3	3.6	3.0	3.2
Akron	4.6	7.4	4.9	4.7	4.2	3.2	2.7	2.8
Canton	5.9	8.9	7.0	6.3	4.4	3.5	3.0	3.1
Cincinnati	4.0	5.5	4.4	4.2	4.8	4.0	3.1	3.1
Cleveland	4.8	7.0	5.2	4.4	3.6	3.1	2.6	2.8
Columbus	3.8	4.3	3.3	3.3	3.3	2.8	2.6	2.5
Dayton	3.6	5.1	3.9	3.7	3.0	2.8	2.5	2.3
Toledo	5.0	8.4	6.2	5.1	4.4	3.7	3.3	3.5
Youngstown-Warren	7.4	9.9	8.3	6.5	4.2	3.9	3.6	3.8

Sources: U. S. Department of Labor and Division of Research and Statistics, Ohio Bureau of Employment Services

Chart 2.



Last entry: 1967

construction between 1963 and 1966 — a period when residential construction showed no net growth in either the State of Ohio or the nation.

Banking Activity. The depressed level of economic activity in the Youngstown-Warren area during 1961-1963 moderated the growth of various banking measures (see Table IX). Nevertheless, between 1961 and 1967, bank debits[12] had almost the same percent increase in Youngstown-Warren as in nearby Cleveland, which is not surprising since both SMSAs experienced similar gains in employment. Among the major Ohio cities, Youngstown had the smallest increase in savings deposits of individuals at commercial banks between 1961 and 1967. On the other hand, from yearend 1960 to mid-1967, the rise in bank loans in the Youngstown-Warren area was in line with the gains in other major cities in the State of Ohio, with the exception of the very large increase in Columbus. As was true for bank debits, Youngstown's gains in savings deposits and in bank loans were only slightly below gains in Cleveland.

CONCLUDING COMMENTS

The Youngstown-Warren SMSA experienced more than its share of problems when the nation's steel industry was operating at depressed rates, due in part to the fact that the area is one of the oldest steel centers in the United States. In 1963, employment in the Youngstown-Warren area had sunk to the lowest level of the past two decades. The outmigration of unemployed workers from the SMSA during the early 1960's caused an artificial improvement in the area's unemployment rate — from 9.9 percent of the civilian labor force in 1961 to 6.5 percent in 1963. Since 1963, however, the reduction in Youngstown-Warren's unemployment rate has been real, as the area's economy rebounded vigor-

[12] Bank debits are charges against demand deposits at commercial banks that represent check payments and account for the preponderance of money transactions (including payrolls as well as spending).

TABLE IX

Bank Debits, Savings Deposits of Individuals, and Loans Outstanding
Youngstown-Warren and Other Selected Cities in Ohio
1967

	Bank Debits (annual total)		Savings Deposits of Individuals (annual average)		Loans Outstanding	
	(mil. $) 1967	Percent Change 1961-1967	(mil. $) 1967	Percent Change 1961-1967	(mil. $) mid-1967	Percent Change Yearend 1960 to mid-1967
Akron	$12,939	+113%	$ 332	+ 87%	$ 507	+ 76%
Canton	4,180	+ 75	142	+ 97	251	+ 62
Cincinnati	34,494	+ 56	442	+108	1,159*	+ 50
Cleveland	77,080	+ 64	1,967	+ 62	3,434	+ 74
Columbus	30,882	+116	398	+218	831	+126
Dayton	11,652	+ 81	179	+144	512	+ 66
Toledo	12,268	+ 35	307	+ 87	449†	+ 58
Youngstown-Warren	6,434	+ 60	149‡	+ 54	348	+ 62

* Excludes Dearborn County, Indiana.

† Excludes Monroe County, Michigan.

‡ Youngstown only.

NOTE: Bank debits and savings deposits data are for reporting banks (member and nonmember) in selected centers, which are reported monthly to the Federal Reserve Bank of Cleveland. Savings deposits at reporting banks (member and nonmember) represent chiefly savings deposits of individuals and eleemosynary organizations, Christmas savings and similar thrift accounts, and time certificates of deposit of individuals. Loan data are from call reports of all insured commercial banks in the SMSAs.

Source: Federal Reserve Bank of Cleveland

ously with a 20-percent gain in nonagricultural employment. Among the eight major metropolitan areas in Ohio, only Dayton had a gain in employment of that magnitude between 1963 and early 1968. In recent years, the area's steel mills have invested heavily to modernize older plants and to add new steel-making capacity. Substantial new investment programs by the machinery and transportation equipment industries (important steel consumers) also augur well for the future of the Youngstown-Warren SMSA.

RECENTLY PUBLISHED ECONOMIC COMMENTARIES OF THE FEDERAL RESERVE BANK OF CLEVELAND

"Recent Patterns in Resource Utilization"
April 13, 1968

"Inventory Cycle in Steel"
April 20, 1968

"Patterns of Manpower Utilization — Part I"
April 27, 1968

"Patterns of Manpower Utilization — Part II"
May 4, 1968

"Food Price Trends"
May 11, 1968

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.

Fourth Federal Reserve District