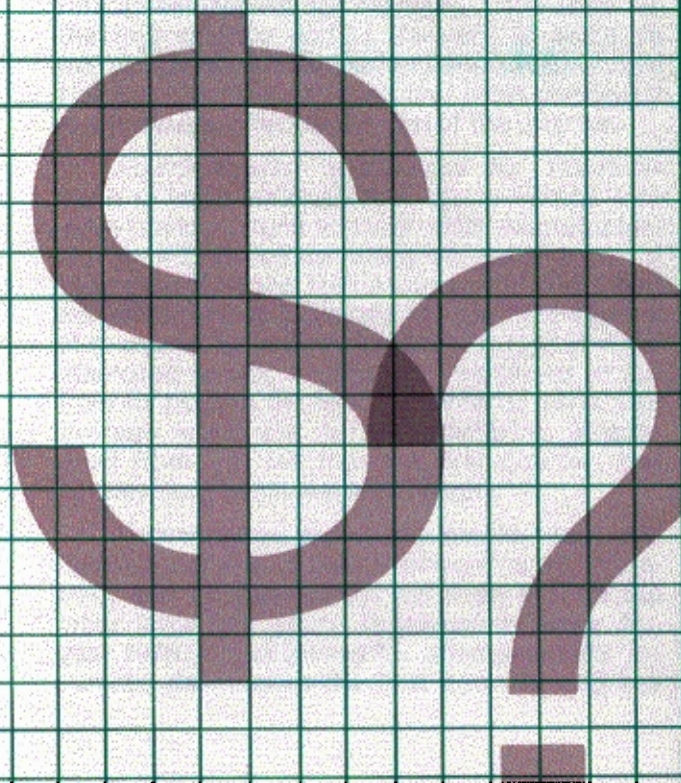


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Ninth District Quarterly

Federal Reserve Bank of Minneapolis
April 1976

Monetary Policy
in Uncharted Waters



District Conditions

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Monetary Policy in Uncharted Waters

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The Federal Reserve has recently found itself in "uncharted waters"—the unhappy combination of economic stagnation plus inflation. The Fed is being watched very carefully as it carries out its policy-making function in the midst of this dilemma. Procedures have been clarified and made public to promote a better understanding of the monetary process and how policy is decided.

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District Conditions

First Quarter '76 Review

The recovery of the Ninth District economy, which began modestly in the second half of 1975, continued through the first quarter of this year. Consumer spending still generated much of the recovery. But the manufacturing sector started an upward trend and added further stimulus to the district economy.

Consumer spending, which accelerated over the holiday season, showed sustained strength into the new year. Retail sales throughout the district increased at a healthy rate. In Minnesota, for example, retail sales for the four months ending January 31 were 15 percent above a year earlier, and spot surveys made by this Bank showed that sales continued at a good pace during the rest of the quarter.

Fourth-quarter indications for improvement in the manufacturing sector turned into more obvious signs in early 1976. Manufacturers reported sales up nearly 10 percent over a year earlier in the fourth quarter of 1975 and expected further increases for the first quarter of this year. Growth in wholesale prices of manufactured goods, meanwhile, continued to fall from its peak in the fourth quarter of 1974. The average workweek in manufacturing lengthened from last fall into the first quarter, but employment gains were still slight.

Overall wage and salary employment was up from last year in nearly all regions of the district, and unemployment fell even though the labor force had grown continuously since August 1975. Initial claims for unemployment insurance declined in the first quarter, and the

help wanted advertising index increased. The district's seasonally adjusted unemployment rate dropped from an October 1975 peak of 6.9 percent to 6.1 percent in January and further to 5.7 percent in February.

The degree of strength in construction activity was not yet clear. District housing permits were above levels of a year earlier for much of 1975's second half, and national data indicated more starts in the first quarter. But the unusually mild winter made recent data on residential construction activity difficult to interpret. And overall construction employment in the first quarter was somewhat lower than a year ago.

Most farm prices were surprisingly steady through the first quarter. Farmers were still hesitant to sell crops because many prices would then drop. With farmers choosing to store crops rather than sell them, inventory financing needs were substantial. In the livestock sector, hog prices didn't fluctuate much, but cattle slaughter prices took an unexpectedly sharp seasonal downturn in the first quarter before turning back up in early April.

Mortgage lending at district S&Ls surpassed year-ago levels, and loan growth at most banks was good. But some large city banks had slow loan growth because demand from businesses was still fairly low. Neither S&Ls nor banks were pressed for funds.

Second Quarter '76 Outlook

The recovery in district economic conditions should gain momentum in the second quarter.

Further increases in personal income and decreases in inflation rates will result in even higher consumer confidence. Consumer spending will then provide more stimulus to other sectors of the economy.

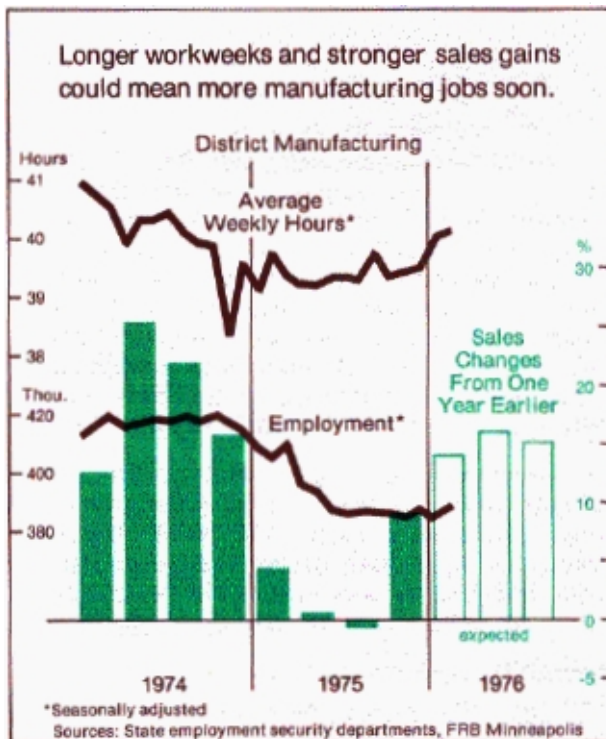
The manufacturing sector may be poised for stronger improvement. Average hours worked in district manufacturing industries has increased since October as manufacturers stepped up production. Manufacturers' sales expectations, if well-founded, promise good sales gains through the third quarter of 1976—ranging from 14 to 16 percent above year-earlier levels. Taken together these upward trends point toward a probable advance in manufacturing employment in the second quarter.

The higher level of housing permits for much of 1975's second half provides potential for a slightly higher level of starts in the first

half of this year. Availability of mortgage money, an easing of interest rates, and a slowdown in housing costs all provide hope for improvement in residential construction. Nonresidential construction, however, remains a weak spot in the district economy with awards still down from the low levels of a year ago.

Cattle prices should move up seasonally in the second quarter, and advances may be sharp if range conditions are as good as in 1975. Nonetheless, expanding pork supplies will help moderate the seasonal advance later in the summer and should hold livestock prices beneath 1975 peaks.

Rising employment, higher incomes, a slowdown in consumer prices, and a possibly less cautious inventory policy among businesses should all contribute to the general improvement in district economic conditions in coming months.

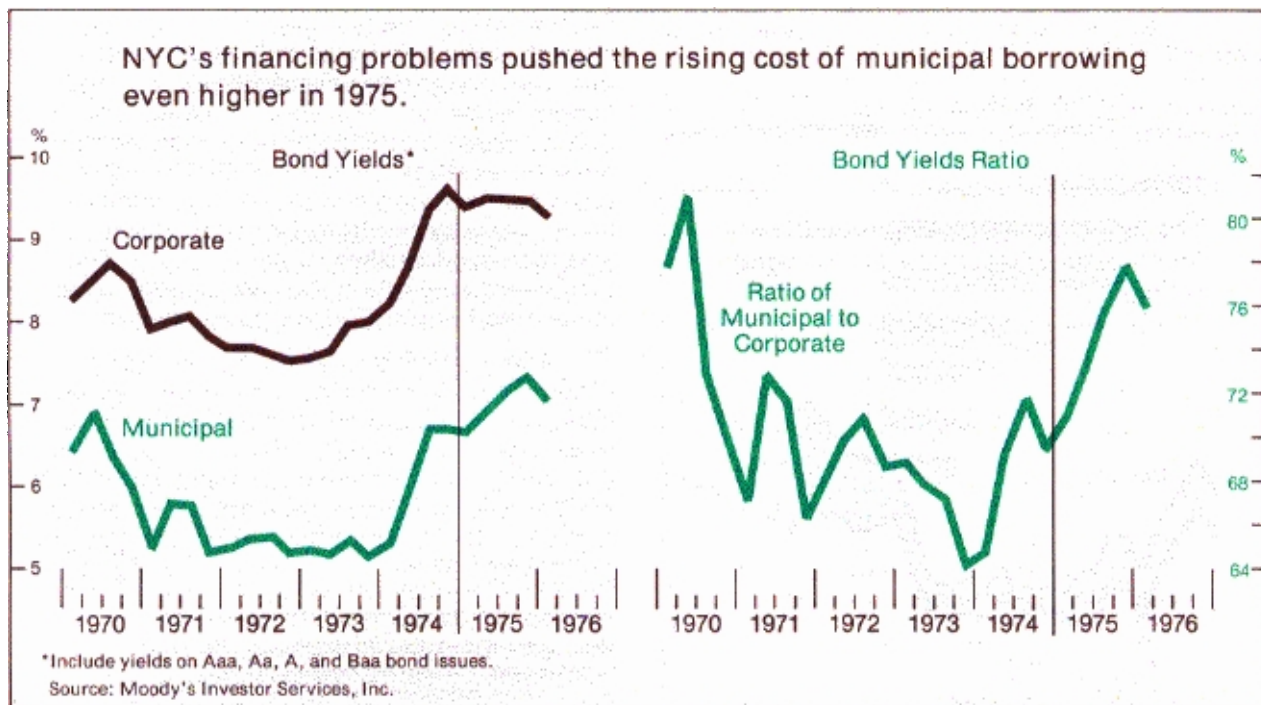


State and Local Government Spending

On average, higher interest rates in the municipal bond market and investor reaction to the problems of New York City in 1975 affected state and local governmental units' ability to finance planned expenditures less severely in the Ninth District¹ than elsewhere. The following report provides some insight into the favorable financial position of the district's state and local government sector and analyzes the probability for this strength to continue.

One reason for the relatively good financial position is that the district economy has recently outperformed many other areas of the nation, and this has benefited revenues of state and local governmental units. For example, all district states, except South Dakota, generated significant general fund surpluses in fiscal

¹For the purposes of this report, the Ninth District will be defined as the four complete states of Minnesota, Montana, North Dakota and South Dakota.



years 1974 and 1975. The fact that those states depend heavily on tax revenues from agriculture and energy industries seems to be an important factor in the buildup of surpluses.

According to a recent Joint Economic Committee study, most states with strong agriculture and energy sectors experienced high levels of tax revenues and large general fund surpluses in mid-1975. As a result, these states did not have to make the substantial spending reductions that confronted other states.²

This was undoubtedly true for Ninth District states. Minnesota, Montana, and North Dakota had record farm income gains in fiscal years 1974 and 1975 which boosted their tax revenues. And revenues gained from the development of Montana's coal resources helped to further improve that state's fiscal position. South Dakota does not have an income tax, so its revenues did not benefit directly from the increase in farm income. This may be part of the reason why South Dakota's fiscal position did

not show sizeable surpluses. But in general, revenues and surpluses helped place this district in a strong fiscal position compared to many other regions of the nation.

Another factor favoring this region's financial affairs is that the district's governmental units have traditionally taken a more conservative approach by relying less on short-term borrowings. A municipal finance authority considered the high credit rating of Minnesota, for example, "among the best in the country because of the paucity of short-term debt, the prudent use of borrowed funds, general fiscal conservatism, increased retail sales, and balanced budgets."³ This description might be

²U.S., Congress, Joint Economic Committee, THE CURRENT FISCAL POSITION OF STATE AND LOCAL GOVERNMENTS: A SURVEY OF 48 STATE GOVERNMENTS AND 140 LOCAL GOVERNMENTS, a study prepared for the use of the Subcommittee on Urban Affairs, 94th Cong., 1st sess., Joint Committee Print (Washington, D.C.: Government Printing Office, 1975), pp. 3-4.

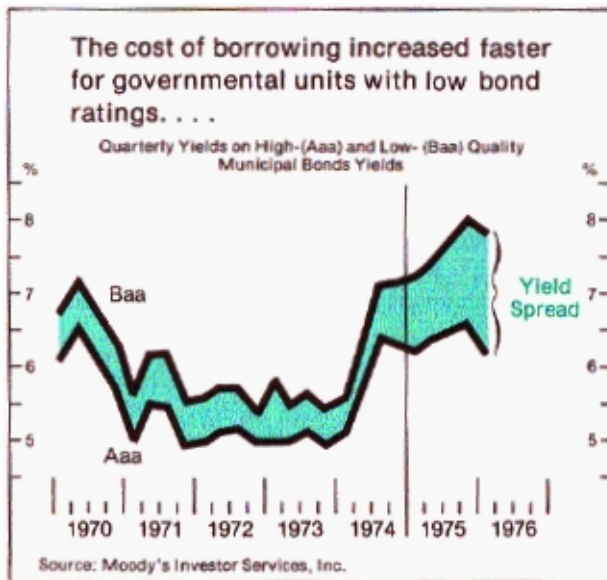
³Richard Gibson, "N.Y. Bond Shockwave Rolls Through Market," MINNEAPOLIS STAR, January 18, 1976, p. 12A.

applied to the other states in the district as well.

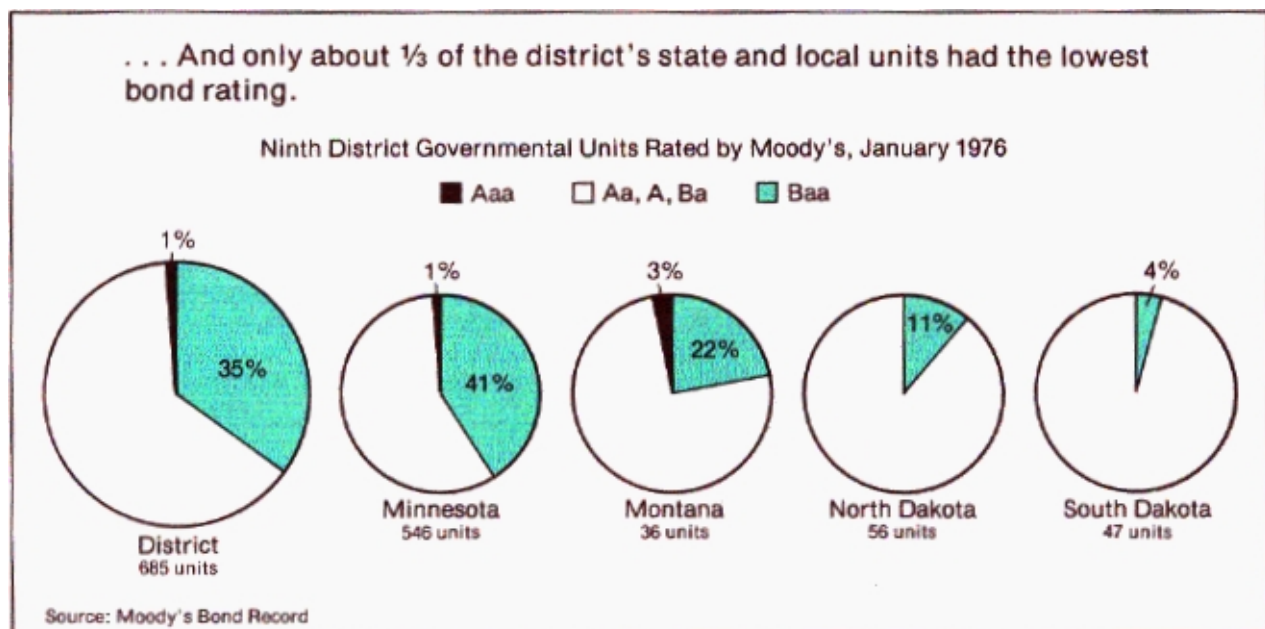
The district wasn't immune to financial pressures, however; some restrictions were

felt. A trend toward greater selectivity with regard to the quality of municipal bond issues did have a significant effect here. The gap between yields on high-quality (Aaa) and low-quality (Baa) municipals more than doubled—from an average 64 basis points in 1974 (100 basis points equals one percentage point) to 142 basis points by the fourth quarter of last year—and increased further in early 1976.⁴ This development pushed up the cost of borrowing for lower-rated Ninth District governmental units.

Alerted to the financial difficulties experienced by New York City, investors also began giving closer scrutiny to individual bond issues. Now, each time a state or local governmental unit brings a new municipal bond issue to the market, dealers and underwriters look especially hard at that unit's financial affairs and place great importance on its bond rating before



⁴During the first nine months of 1975, 44 points of the 113 basis point spread between Aaa and Baa municipal bonds can be attributed to the general market deterioration associated with New York City's problems. Ronald W. Forbes and John E. Peterson, COSTS OF CREDIT EROSION IN THE MUNICIPAL BOND MARKET, Municipal Finance Officers Association, Chicago, Illinois, December 20, 1975, p. 7.



admitting the new issue to the market. New Securities and Exchange Commission regulations on municipal bond market dealers and underwriters are expected to intensify the need for disclosure and so make it even harder for financially strained state and local governmental units to issue bonds.

The recent financial difficulty experienced by Minnesota's St. Paul school district is a good example of the impact of this closer scrutiny within the Ninth District. Since 1966 the St. Paul school district has borrowed short-term funds for operating purposes and refinanced the debt in the municipal bond market. Moody's Investor Services, Inc., largely attributing its action to the impact that the New York City situation had on the municipal bond market,⁵ removed the St. Paul school district's bond rating in January. Following that action, the school district failed to receive a bid for \$23.25 million in short-term bonds to pay off \$22.56 million in short-term debt coming due March 15. School district officials established special escrow accounts and devised a plan which required an additional tax to allow them to eventually eliminate this short-term borrowing. And in April, Moody's restored the St. Paul school district's original Aa rating.

None of the Ninth District's state and local government capital projects are known to have been cancelled as a result of problems in the municipal bond market, in general, or New York City's financial problems, in particular. But the relatively higher borrowing costs resulting from these problems did increase concern about financing as governmental units bumped against statutory interest rate ceilings. In Minnesota and Montana, for example, municipal bond rates in the last half of 1975 hovered around 7 percent, the local general obligation bond ceiling.⁶ The primary effect on municipalities—in Minnesota, at least—was some shortening in the maturity schedules of bonds in order to avoid having to pay the higher long-term rates.

In summary, governmental units in this district experienced somewhat higher borrow-



ing costs and a somewhat more restricted ability to issue bonds in 1975 than previously. But in general, their position was more favorable relative to that of state and local governmental units in most of the country.⁷

The District's Future Financial Position

The question now is whether the relatively strong position of Ninth District state and local governmental units will continue in fiscal years 1976 and 1977. The answer depends in part on how much they plan to spend in relation to their prospective revenues and probable ability to borrow.

⁵John Greenwald, "Bond Rater Looks to Minneapolis," MINNEAPOLIS STAR, January 16, 1976, pp. 1A and 5A.

⁶South Dakota has an 8 percent ceiling on local general obligation bonds; North Dakota has no ceiling for local general obligation bonds sold publicly and an 8 percent ceiling for those sold privately.

⁷Forbes and Peterson, p. 8.

District State General Fund Finances¹

Fiscal Years 1973-77

	Millions of Dollars					Percentage Changes			
	1973	1974	1975	1976e	1977e	1973-4	1974-5	1975-6e	1976-7e
Minnesota²									
Beginning Balance	11.5	74.5	233.7	413.6	302.2				
Revenues	1,730.3	1,885.5	2,116.7	2,291.9	2,604.7	9.0	12.3	8.3	13.7
Expenditures	1,667.3	1,726.3	1,936.8	2,403.3	2,706.0	3.5	12.2	24.1	12.6
Annual Surplus or Deficit	63.0	159.2	179.9	-111.4	-101.3				
Ending Balance	74.5	233.7	413.6	302.2	200.9	213.7	77.0	-26.9	-33.5
Montana³									
Beginning Balance	6.7	24.6	40.8	48.3	37.3				
Revenues	112.6	131.8	156.6	162.2	178.0	17.1	18.8	3.6	9.7
Expenditures	94.7	115.6	149.1	173.2	191.8	22.1	29.0	16.2	10.7
Annual Surplus or Deficit	17.9	16.2	7.5	-11.0	-13.8				
Ending Balance	24.6	40.8	48.3	37.3	23.5	65.9	18.4	-22.8	-37.0
North Dakota⁴									
Beginning Balance	29.5	52.3	89.5	155.9	124.3				
Revenues	135.8	173.2	220.4	183.1	198.4	27.5	27.3	-16.9	8.4
Expenditures	113.0	136.0	154.0	214.7	227.8	20.4	13.2	39.4	6.1
Annual Surplus or Deficit	22.8	37.2	66.4	-31.6	-29.4				
Ending Balance	52.3	89.5	155.9	124.3	94.9	71.1	74.2	-20.3	-23.7
South Dakota⁵									
Beginning Balance	10.8	23.5	27.2	13.5	15.9				
Revenues	114.0	126.7	139.3	157.3	164.6	11.1	9.9	12.9	4.6
Expenditures	101.3	123.0	153.0	154.9	172.7	21.4	24.4	1.2	11.5
Annual Surplus or Deficit	12.7	3.7	-13.7	2.4	-8.1				
Ending Balance	23.5	27.2	13.5	15.9	7.8	15.7	-50.4	17.8	-50.9
Four-State Total									
Beginning Balance	58.5	174.9	391.2	631.3	479.7				
Revenues	2,092.7	2,317.2	2,633.0	2,794.5	3,145.7	10.7	13.6	6.1	12.6
Expenditures	1,976.3	2,100.9	2,392.9	2,946.1	3,298.3	6.3	13.9	23.1	12.0
Annual Surplus or Deficit	116.4	216.3	240.1	-151.6	-152.6				
Ending Balance	174.9	391.2	631.3	479.7	327.1	123.7	61.4	-24.0	-31.8

e = estimated

¹General funds are designated to defray the general costs of state government, not for specific purposes. They contain some education monies, but highway funds are excluded.

²Data are based on yearly estimates prepared by the Minnesota Department of Finance in September 1975. New estimates for the entire 1976-77 biennium were prepared March 1, 1976, and the author allocated the revenue and expenditure changes equally between fiscal 1976 and 1977. Legislative action after March 1 could significantly change these projections.

³Estimates do not reflect the anticipated cost of a property tax relief initiative on the November 1976 ballot.

⁴January 1976 estimates.

⁵Estimates reflect actions taken by the South Dakota legislature in early 1976.

Sources: State budget documents and officials

Probable Spending Plans. State general fund revenue and expenditure data provide one way of estimating total Ninth District state and local government spending plans for fiscal years 1976 and 1977.⁸ The general fund is the main source of monies used to finance operations of state governments, and it provides the most complete data for estimating future outlays.

Current projections are for district general fund revenues to increase 6.1 percent in fiscal year (FY) 1976 and 12.6 percent in FY 1977. These increases are considerably smaller than the 10.7 and 13.6 percent gains, respectively, in fiscal years 1974 and 1975. Part of the reason for this expected slowdown in the rate of growth is that farm income in 1976 and 1977 is not considered likely to boost tax revenues as it did in the two previous years. The slow growth in revenues projected for FY 1976 is also a result of the past recession's effect on personal income and profits. But state officials believe the recovery will soon begin to boost state tax revenues, so a somewhat higher growth rate is forecast for FY 1977.

Despite these indications that revenue growth may be easing somewhat from previous years, district states are forecasting substantial increases in spending for the next two fiscal years. General fund data now published show projected expenditure increases of 23.1 percent in FY 1976 and 12.0 percent in FY 1977. Part of these increases are for the use of local governmental units in checking property tax increases. Another large part will pay for increased public employee wages and other rising operating costs.

General fund expenditures for Ninth District state government operations amounted to only 11.9 percent of total state and local governmental units' expenditures in FY 1966. But that share increased to 36.1 percent in FY 1973 and 35.6 percent in FY 1974 because state aid to local governmental units increased. Legislative action in 1975 will probably cause the share to rise even further, so that general fund expenditures may be about 38 percent of total expenditures in fiscal years 1976 and 1977. Using that

Tax revenue growth is generally expected to slow in 1976 but recover in 1977.

Percentage Changes in District General Fund Tax Revenue From Previous Fiscal Year, 1974-77

	Minnesota	Montana ¹	North Dakota ²	South Dakota ³
Personal Income Tax				
1974	20.5	2.2 ⁴	82.7	n.a.
1975	13.8	12.5	40.4	n.a.
1976e	9.5	18.3	-50.5	n.a.
1977e	19.0	18.3	6.0	n.a.
Corporate Income Tax				
1974	13.3	25.0	44.4	n.a.
1975	6.4	41.2	32.3	n.a.
1976e	-6.5	6.4	-40.2	n.a.
1977e	26.0	-12.1	8.3	n.a.
Sales Tax				
1974	14.4	n.a.	15.5	17.2
1975	9.2	n.a.	16.6	12.2
1976e	8.0	n.a.	4.0	7.4
1977e	14.2	n.a.	2.9	6.6

e = estimated
n.a. = not available

¹ Montana does not have a state sales tax.

² Estimates reflect recent legislative changes in North Dakota tax laws for fiscal 1976 and 1977.

³ South Dakota has neither a personal nor a corporate income tax and budgets annually instead of biennially.

⁴ Montana's 40 percent income tax surcharge was dropped to 10 percent in 1974.

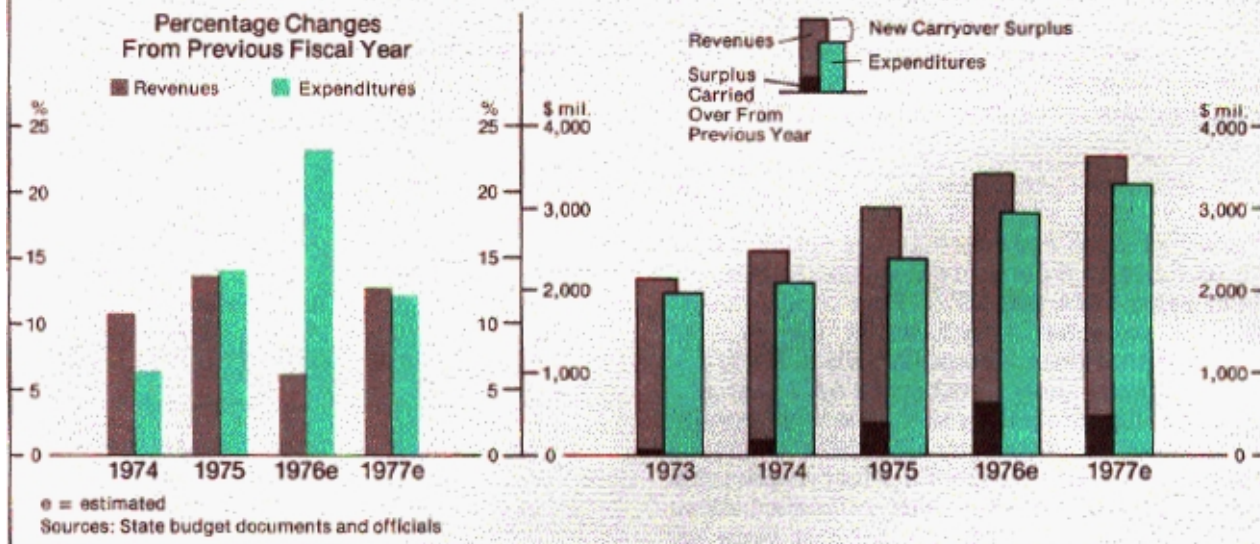
Sources: State budget documents and officials

ratio and the known projections for general fund expenditures, Ninth District state and local governmental units' total expenditures can be expected to rise about 16.6 percent in FY 1976 and 12.0 percent in FY 1977, much stronger than expected nationwide.⁹

⁸ This report's estimates for fiscal years 1976 and 1977 reflect state officials' views of future fiscal developments. Because the assumptions and methodology used in making the projections are not available, it is not possible to evaluate the projections' realism or comparability.

⁹ How useful district general fund data are for projecting state and local governmental units' total purchases of goods and services may be questioned. The traditional approach for such forecasts has been to project the trend rate of growth for the last several years. But recently, as a result of inflation, recession, and changes in demographics and voter attitudes this method has become unreliable. Using general fund data has the advantage of projecting policy makers' current spending proposals instead of relying on historical trends which may no longer hold. Still, these estimates should be viewed as a demonstrative effort since discretionary judgment helped develop the forecast ratios.

District state revenue growth may slow in fiscal 1976-7, but budget surpluses will allow spending to expand.



State and Local Government Spending and Borrowing in the District

Fiscal Years 1973-77, Millions of Dollars and Percentage Changes From Previous Year

	State General Fund Expenditures			State and Local Government Expenditures ¹		Long-Term Debt Issued ²	
	Million	Change		Million	Change	Million	Change
1973	\$1,976.3	n.a.		\$5,477.7	7.2%	\$469.1	22.6%
1974	2,100.9	6.3%		5,898.9	7.7	670.4	42.9
1975	2,392.9	13.9		6,646.9e	12.7e	697.9e	4.1e
1976e	2,946.1	23.1		7,752.9	16.6	814.1	16.6
1977e	3,298.3	12.0		8,679.7	12.0	911.4	12.0

e = estimated
n.a. = not available

¹U.S. Bureau of the Census classification of total general expenditures: "all expenditures of a government other than utility expenditure, liquor store expenditure, and insurance-trust expenditure." Forecast calculated by dividing district state general fund expenditures by the ratio of district state general fund expenditures to district state and local government expenditures (DSGF/DSLGL). This ratio is .36 for fiscal 1975 and .38 for fiscal 1976 and 1977.

²For fiscal 1975, 1976, and 1977, assumed to be 10.5 percent of total district state and local government spending.

Sources: State budget documents and officials; U.S. Department of Commerce, Bureau of the Census; FRB Minneapolis

Probable Borrowing Ability. Given these expenditure projections, district state and local governmental units will probably issue about \$814 million of long-term debt in FY 1976 and about \$911 million in FY 1977.¹⁰ These projections assume that the ratio of newly issued long-term debt to expenditures by district state and local governmental units will hold at the 10.5 percent average of the past eight years. Judging from recent experience, district state and local governmental units should have little trouble marketing this quantity of debt in fiscal years 1976 and 1977.

Experts estimate that borrowing in the municipal bond market may be down from last year's record of approximately \$30 billion.¹¹ But this should present no significant barrier here, since Ninth District states have accounted for a relatively small share—only 2 to 3 percent—of the total long-term tax-exempt bonds issued nationwide.

There is also the possibility that district municipal borrowing might not continue at its past rate and so not reach the projected levels. In fiscal years 1976 and 1977, the composition of Ninth District spending may shift from capital to operating expenditures in order to cover wage increases and other higher costs. Since operating expenditures generally cannot be deferred, state and local governmental units will have to pay for them out of current funds rather than borrow on the municipal bond market to finance them. Much of the district's long-term borrowing in the late 1960s, for example, was for financing capital outlays such as educational facilities. These outlays have decreased considerably since then and with the prospect of declining or steady enrollments should be even less in coming years.

The amount district state and local governmental units plan to spend seems to be in line with projected revenues and their probable ability to borrow in fiscal years 1976 and 1977. Thus, the relative strength of these governmental units should continue for the next couple of years.

Conclusion

The conclusion reached after examining the evidence presented in this article is that, financially, the Ninth District's state and local governmental units should continue in a good position compared to other areas of the country. This soundness in the state and local government sector should provide a source of strength and stability to the district's economy as a whole.

David S. Dahl

¹⁰These borrowing estimates are not designed to provide precise projections but rather some indication of the possible magnitude of future borrowing by Ninth District state and local governmental units. From fiscal years 1967 to 1974, Ninth District state and local government long-term debt issued amounted to between 2.1 and 3.5 percent (averaging 2.6 percent) of all state and local government long-term debt issued nationwide, obviously not a sizeable share.

¹¹"Municipal Bonds: High Yields, High Risk," *BUSINESS WEEK*, December 29, 1975, p. 114.

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Monetary Policy in Uncharted Waters*

Bruce K. MacLaury

Monetary policy got more attention than usual in 1975. The state of the economy has pleased no one, with unemployment holding above 8 percent and inflation only gradually receding from double-digit levels. In these circumstances, it's understandable that Congress and the general public should scrutinize the policies of the Federal Reserve System in hopes of finding an easier, faster, or more assured path to recovery.

At the same time, critics of the Fed must recognize the policy dilemma posed by "stagflation"—that unhappy state in which we find ourselves trapped by stagnation plus inflation. Keynesian expansionist policies (whether budgetary or monetary) designed for stimulating aggregate demand and putting people back to work may, in these circumstances, serve only to worsen inflation.

Out of these frustrations has come a dialog between the Congress and the Federal Reserve that can help foster a wider understanding of the monetary process. In the past, despite efforts by the Fed to explain it, many felt decisions were made in secret, perhaps without adequate regard for the policy preferences of elected officials. Now, for the first time, the Fed is announcing its intended paths for money supply growth over the next four quarters. This procedure, developed in response to congress-

sional request (House Concurrent Resolution #133), provides a framework for discussing the considerations that underlie monetary policy decisions.

Others have provided extensive detail about the actual step-by-step procedures followed by the Federal Open Market Committee—the top policy-making body within the Federal Reserve—in deciding on a policy stance.¹ What follows here is a conceptualization of that process, designed not so much to describe the Committee's actual procedures as to highlight some of the difficulties, debates, and uncertainties the Committee faces in arriving at a policy judgment.

The basic concern of the Federal Reserve in deciding on an appropriate stance for monetary policy is to do what it can to assure financial conditions conducive to high employment and low inflation in the months and years ahead. Among the important tools used by those who try to peer into the economic future (within the Fed and elsewhere) are macroeconomic models that try to capture in systems of equations the interrelationships of economic magnitudes in the real world. Such models come in all shapes and sizes and when supplied updated information and assumptions

¹See for example, Paul Meek, "Nonborrowed Reserves or the Federal Funds Rate as Desk Targets—Is There a Difference?" *NEW ENGLAND ECONOMIC REVIEW*, Federal Reserve Bank of Boston, March/April 1975, pp. 31-47; "Monetary Policy in a Changing Environment: The 1974 Annual Report of the Manager of the System Open Market Account," *MONTHLY REVIEW*, Federal Reserve Bank of New York, April 1975, pp. 70-82; "Numerical Specifications of Financial Variables and Their Role in Monetary Policy," *FEDERAL RESERVE BULLETIN*, Vol. 60, No. 5 (May 1974), pp. 333-337.

*Remarks made by Bruce K. MacLaury, President, Federal Reserve Bank of Minneapolis, before the U.S. Embassy in London, England, on September 30, 1975. Arthur J. Rolnick, Senior Economist at the Federal Reserve Bank of Minneapolis, provided valuable assistance in revising this speech for publication.

will produce sets of numbers predicting such factors as income growth, inflation rates, and unemployment rates over the quarters ahead.²

If models reflect stable economic relationships with fair accuracy, then one can feed them alternative policy assumptions (different rates of money growth, budget deficits, etc.) and compare alternative outcomes for real world magnitudes in the future. Theoretically, at least, the next steps are the policy makers': they choose their preferred outcome from, say, feasible unemployment-inflation alternatives, set the policy dial at the appropriate mark, then go home and relax until it's time to repeat the process with new information the next month.

In this conceptualization of the policy-making process, the accuracy and stability of these models is critical. If they are suspect, so are the policy implications.

Accuracy and Stability of Macro Models

Consumers of macroeconomic models can be roughly classified into two categories: those who want to know forecasts based on current policy intentions (both government and non-government consumers) and those who want to evaluate alternative policies (mainly government policy makers). The major concern of the first group is the accuracy of the forecasts, but the others are more interested in the stability of models, that is, the predictive reliability over periods when policy has changed. If a model is not stable, policy makers can have little faith in its ability to predict the outcomes of alternative policy actions. (Even if a model is not stable, though, it may still produce accurate forecasts as long as policy is unchanged.)

These concerns today are very real. The macro models now in use are being questioned on several grounds, some related to the state of the economy at the moment, others raising more fundamental issues about the models themselves.

Forecasting accuracy is likely to be greatest when real world economic conditions approximate those of the period from which the equations of the model were estimated. Yet

today's economic world significantly differs from most of the postwar years from which today's models were derived. Recently the nation experienced an unusually high unemployment rate along with double-digit inflation (stagflation), a four-fold increase in world petroleum prices, a change in international monetary markets—from a fixed to a floating exchange system, and the worst economic recession since the 1930s. In effect, then, these models are being asked for answers to questions outside their range of experience. Consequently, their answers are much less reliable than under normal conditions.

But apart from the limited forecasting accuracy of econometric models in interpreting new situations, their usefulness is being seriously questioned even within their supposed range of competence.

According to statistical theory, as more data become available and stable models are reestimated they will predict more accurately than their predecessors. Yet this has not been true of current models. Since these models were originally estimated, old data have been discarded, original equations replaced, and judgmental adjustments frequently added to the "pure" model so that forecasts look "more reasonable." Stated more rigorously, when the "pure" models are statistically tested for stability over even short periods, they fail significantly.

Policy makers, therefore, cannot rely on alternative policy prescriptions derived from these models. Why have macroeconomic models been unstable? More importantly, what implications does this have for economic policy? First, let's examine several specific aspects of the models.

The Elusive Tradeoff

The macroeconomic models used for policy

²For a nontechnical discussion of the uses and abuses of econometric models in economic forecasting, see Preston Miller and Ronald Kaatz, *INTRODUCTION TO THE USE OF ECONOMETRIC MODELS IN ECONOMIC POLICY MAKING*, Economic Information Series, Federal Reserve Bank of Minneapolis, May 1974.

making today assume a tradeoff between inflation and unemployment: policy makers can choose a lower unemployment rate at the cost of a somewhat higher inflation rate or choose a lower inflation rate at the cost of a somewhat higher unemployment rate. This tradeoff is based on the observed statistical correlation between inflation and unemployment, an updated version of the so-called Phillips curve of the late 1950s.

The Phillips curve, however, has not been a very stable relationship. Since the 1950s the curve has shifted several times; moreover, recent observations suggest that the correlation may have disappeared altogether.

A couple of theories try to explain why the curve has shifted. One points to the change in the composition of the work force, with the higher proportions of women and teenagers, and argues that these groups' greater frequency and duration of unemployment (compared with male heads of households) explains why the tradeoff appears to have worsened; a given rate of inflation is associated with higher levels of unemployment than was the case twenty years ago. According to this explanation, there is still a tradeoff, but the choices are worse.

Another theory, based on the natural rate-rational expectations hypothesis,³ argues that a statistical correlation may exist between inflation and unemployment, but there is no tradeoff. It points out that for policy to exploit the correlation, some people's expectations about inflation rates or jobs, for example, have to turn out to be wrong because policy is not what they thought it would be. But repeated experience over the postwar period has taught more and more people (rightly or wrongly) to associate stimulative policies with higher rates of inflation sooner or later. Moreover, double-digit inflation probably represented a threshold that greatly hastened and expanded the education process. As a result, employers and workers are probably reacting more rapidly (in price markups and wage demands) to signs of policy stimulation even when the economy is

slack.

If, in other words, stimulative policies affect mainly prices and wages rather than output and employment in the long run, and that long run is becoming increasingly telescoped into the short run, then the scope for increasing output through such policies even in the short run is eroding. The appearance of a tradeoff between unemployment and inflation is disappearing precisely as one would expect it to if the public has caught on.

The Public's Demand for Money

From the policy maker's viewpoint, the Phillips curve is a critical part of any macro model. From the Fed's viewpoint, so is the monetary sector. In general, macro models assume that changes in the money supply affect interest rates and financial wealth through a portfolio adjustment mechanism in which the public's money demand equation plays a key role. Interest rates and wealth, in turn, affect aggregate demand and ultimately goal variables such as unemployment and inflation. In order to determine the effects of (and carry out) alternative monetary policies, the money demand equation must be stable. But there are some new difficulties here too.

For a variety of reasons, the Federal Reserve has focused increasingly on the monetary aggregates—different distributions of reserves and money—as its index of policy. One of those reasons was the statistical stability of the money demand equation, that is, of the relationship between the amount of money demanded (M_1 or M_2) and income, interest rates, and other relevant variables.

There has always been difficulty in controlling the M s in the shortest run. But these difficulties were considered of limited importance if the controllability existed over, say, six- to twelve-month periods, as they generally seemed to.

³For a concise exposition of this hypothesis, see Thomas J. Sargent and Neil Wallace, *RATIONAL EXPECTATIONS AND THE THEORY OF ECONOMIC POLICY*, Studies in Monetary Economics Series, No. 2, Federal Reserve Bank of Minneapolis, June 1975.

Now, however, a new complication has appeared. M_1 , the narrowly defined money supply consisting of currency in circulation plus demand deposits at commercial banks, is being supplemented as the ultimate means of payment by other types of accounts. For example, thrift institutions are increasingly providing payments instruments that serve the public in the same way as bank demand deposits. And point of sale terminals that permit purchases by debit to savings accounts are being installed in retail outlets.

Technological change has been encouraging and facilitating smaller money balances throughout much of the postwar period. This trend toward reduced ratios of "money" to transactions (that is, increased income velocity of money) has been gradual enough not to disturb the basic stability of the money demand relationship. But today lower-than-predicted rates of growth in the M s may reflect a structural shift toward use of other types of balances for payments. To the extent this is true, efforts to insure desired rates of growth in "money" as traditionally defined will stimulate the economy more than intended.

This problem does not disappear simply by selecting a different M . Any number of definitions of money can be constructed, but the issue is the stability of whatever definition in relation to current and subsequent values of income. The difficulty lies in the changing institutional arrangements that determine at any given moment what people use as money, by any definition. The new uncertainty, in other words, comes from the faster pace of institutional change, and hence, the questionable reliability of the linkage between "money" (or some other policy handle) and the economy.

Implications of Uncertainty for Policy Making

In light of these increased uncertainties about macroeconomic models and, in particular, about the accuracy of their forecasts, the existence of an exploitable Phillips curve, and the stability of the money demand equation, what should monetary policy makers do?

For years, Milton Friedman has been advising us to set the dials on a steady course, pack up our bags, and go home. Now, along come the proponents of the natural rate-rational expectations hypothesis. They question the existence of even a short-run inflation-unemployment tradeoff. They believe that unemployment depends on labor force characteristics, the rate of technological change, capital-output ratios, wage flexibility, and unexpected policy actions but that unemployment cannot be systematically affected by the choice of a policy rule.

And then there are the proponents of "optimal control theory" who sing the same words with different music. Although they may accept the existence of a tradeoff, their message is this: the greater the uncertainty about economic relationships, the greater the likelihood that a simple (nonfeedback) rule prescribing steady growth in the monetary aggregates will turn out to be optimal.

Have policy makers accepted these conclusions and moved in this direction? Some clearly have not. Consider the way policy implications are typically drawn from a model. Most models indicate that if the economy is operating below capacity, output and employment respond relatively rapidly to budgetary or monetary stimulus whereas the impact on prices and wages is delayed. Thus, in a slack economy, there is always an incentive to administer the extra stimulus because one pays an apparently small price in the added inflation for the increase in output and employment generated over the forecast period.

But "there's the rub." Because people know something of the uncertainties inherent in model results, and because they not unreasonably assume that the further into the future those results are projected, the less reliable are the numbers, policy makers tend to throw out or disregard values beyond four to six quarters into the future. Yet it's only in the more distant quarters that the price and wage effect of the policy stimulus shows up. These people are misusing the model by incorrectly responding

to increased uncertainty about future forecasts. Rather than disregarding the projections and advocating an active short-run policy, they should be considering a more moderate policy stance.

What about Federal Reserve System policies? Last March, the Fed seemed to be moving toward a fixed rule with the adoption and public announcement of long-run (four-quarter) target ranges for monetary aggregates. But this is still some distance from pursuing a particular fixed growth rate. It's important to understand what has changed and what hasn't in this latest refinement of monetary formulation and discussion.

What Has Changed

Perhaps the most obvious thing that has changed is the nature of the public discussion about the Fed's current policy stance. A particular set of numbers now publicly characterize the Fed's intentions with respect to that policy. The 5 to 7½ percent range of growth in M₁ (and related ranges for other definitions of money), announced last March and reaffirmed for successive year-ahead periods since,⁴ sets the framework for the debate between the Fed and Congress, between the Fed and the interested public, and indeed within the Fed itself as to the appropriateness of this policy.

The publicly announced aggregates target has several advantages. Foremost among them is the focusing of debate on money growth instead of interest rates. While either of these handles could theoretically be used to guide or indicate policy, the debate can undoubtedly be more rational and less emotionally or politically charged if it takes place in terms of money growth. People, and hence politicians, are simply more passionate about interest rates (especially high or rising interest rates) than about a particular money growth path.

For much the same reason, if people can be convinced of the reasonableness of a particular money path, given the anticipated economic outlook, then political resistance to sticking to that path (assuming the outlook doesn't

change) should be lower—even if it means rising interest rates in an expanding economy.

(The term "political" here should be understood in a broad context, specifically including the policy bodies of the Federal Reserve itself. For discussions within the Fed are undeniably influenced by concerns about public reaction to rising interest rates.)

Another possible advantage (yet to be demonstrated) of a publicly announced target is that employers and workers might be convinced that price increases and wage demands greater than the announced target will be self-defeating, that they won't be validated by money growth, and will therefore only lead to lost sales and unemployment. A tight relationship of this sort is obviously a considerable oversimplification, given different rates of productivity growth and shifts in product demands among industries, but it might help the public accept limits to price and wage demands. In admittedly different institutional settings in Germany and Switzerland, publicly announced targets for money growth seem to have been intended, in part, to serve this purpose.

What Has Not Changed

It's also important to understand what the newly announced targets are not. And one thing they are not, in a conventional sense at least, are "targets." Remember that any set of money growth targets is predicated on a view of the economic outlook at a given point in time. If the Fed's view of that outlook changes—as it well might, since forecasts are so uncertain—then it would be wrong to stick with unchanged money growth targets simply to appear consistent. And indeed, the House Concurrent Resolution requesting the Fed to declare such targets specifically contemplated that they would be changed if economic conditions changed.

The stated growth paths are probably better described as "intentions." The word

⁴Changed to a range of 4½ to 7½ percent at the January meeting of the Open Market Committee.

“target” implies something not only to be aimed for, but hit, with the implication that bystanders will be able to assess, after the fact, whether a bull’s-eye was achieved or the target missed entirely. In practice, the procedure employs, at best, a moving target restated each quarter for four quarters ahead, with the option of choosing a new path each time or, indeed, between public restatements. In these circumstances, scoring the Fed on its accuracy will be difficult, if not impossible—unless, of course, we are so far off as to leave no doubt.

In any case, don’t be taken in by an impression of great precision in the new process. The numbers representing the money supply are unfortunately subject to fairly substantial revision; growth extrapolated four quarters from a given base period can result in quite a different money stock number if the base is revised in the meantime. And by stating the target as a range, as seems reasonable given the imprecision of the money supply numbers and the less than perfect fit between money supply growth and real economic variables, the Fed can alter intended growth paths as a response to changed conditions without a change in the announced range.

All of this implies that, although the uncertainties discussed earlier seem to push the Fed toward adopting a fixed rule or at least a less active policy, the Fed still has room for considerable discretion. Skepticism that a fixed money supply rule is optimal is still justifiable. Since we do not know how to control the money supply exactly, even with faith in the optimality of a fixed money rule, we would not know how to get back on path once a deviation occurred. A judgment would still be needed about how fast to get back on path. And this judgment would have to be made, in part, on an assessment of the resilience of financial markets in the face of interest rate change, a resilience depending on the direction of change and the general condition of financial institutions. And so on.

Thus, while increased uncertainties about the accuracy and stability of macroeconomic models suggest a less active policy, there is

by no means agreement about the best way to carry out policy-making responsibilities. Whether or not publicly announcing “targets” for monetary aggregates represents movement toward a less active policy, I believe it represents an advance whose value must continue to be reassessed with economic and political experience.

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CORRECTION

In the article "The Safeguard of Contingency Planning for Banks" of the February 1976 *NINTH DISTRICT QUARTERLY*, the chart on page 7 shows deposits and liabilities in million of dollars. In fact, those totals are in billions of dollars.