

FEDERAL RESERVE BANK OF KANSAS CITY

Economic Review



January/February 1990

Monetary policy in 1989: balancing the risks

The Tenth District economy: still playing catch-up

U.S. agriculture charts a new course for the 1990s

Monetary policy issues in the 1990s:
a summary of the bank's 1989 symposium

FEDERAL RESERVE BANK OF KANSAS CITY

Economic Review



January/February 1990

- Monetary policy in 1989: balancing the risks 5
By Bryon Higgins and Dodd W. Snodgrass
- The Tenth District economy: still playing catch-up 19
By Glenn H. Miller, Jr.
- U.S. agriculture charts a new course for the 1990s 32
By Mark Drabenstott and Alan D. Barkema
- Monetary policy issues in the 1990s:
a summary of the bank's 1989 symposium 50
By Donald P. Morgan

Economic Review

Federal Reserve Bank of Kansas City

President

Roger Guffey

Senior Vice President and Director of Research

Thomas E. Davis

Economic Research Department

Bryon Higgins, Vice President
and Associate Director of Research

Glenn H. Miller, Jr., Vice President
and Economic Advisor

Financial Markets and Institutions

Gordon H. Sellon, Jr., Assistant Vice President
and Economist

Sean Beckett

William R. Keeton

Charles S. Morris

Macroeconomics and Monetary Policy Analysis

Stuart E. Weiner, Assistant Vice President
and Economist

Craig S. Hakkio, Assistant Vice President
and Economist

C. Alan Garner

George A. Kahn

Jon Faust

Donald P. Morgan

Regional Economics

Mark Drabentstott, Assistant Vice President
and Economist

Alan D. Barkema

Tim R. Smith

The Economic Review (ISSN0161-2387) is published bimonthly by the Federal Reserve Bank of Kansas City, 925 Grand Avenue, Kansas City, Missouri 64198-0001. Subscriptions and additional copies are available without charge. Send requests to the Public Affairs Department, Federal Reserve Bank of Kansas City, 925 Grand Avenue, Kansas City, Missouri 64198-0001. Second-class postage paid at Kansas City, Missouri.

POSTMASTER: Send address changes to Economic Review, Public Affairs Department, Federal Reserve Bank of Kansas City, 925 Grand Avenue, Kansas City, Missouri 64198-0001.

The views expressed are those of the authors and do not necessarily reflect the positions of the Federal Reserve Bank of Kansas City or the Federal Reserve System. If any material is reproduced from this publication, please credit the source.

Contents

January/February 1990

Monetary policy in 1989: balancing the risks **5**

By Bryon Higgins and Dodd W. Snodgrass

The primary challenge for monetary policy in 1989 was to arrest the upward trend in inflation without causing an economic downturn. Members of the Federal Open Market Committee were able to balance these dual risks by basing policy decisions on a wide variety of information.

The Tenth District economy: still playing catch-up **19**

By Glenn H. Miller, Jr.

Revival in the energy sector and further improvement in agriculture supported modest economic growth in the Tenth District in 1989. As in the nation, economic performance in the district—especially in manufacturing—is likely to be sluggish in 1990.

U.S. agriculture charts a new course for the 1990s **32**

By Mark Drabenstott and Alan D. Barkema

After surviving a series of economic shocks in the early part of the decade, U.S. agriculture emerges from the 1980s in sound financial condition. The industry can expect another strong year in 1990. Beyond 1990, agriculture's course will be influenced by new farm legislation and the outcome of GATT negotiations.

Monetary policy issues in the 1990s: a summary of the bank's 1989 symposium **50**

By Donald P. Morgan

Participants at the bank's 1989 symposium generally agreed that maintaining price stability should be the primary goal of monetary policy in the 1990s. Prominent central bankers and economists at the symposium examined both the domestic and international obstacles to achieving this goal.

Monetary policy in 1989: balancing the risks

By Bryon Higgins and Dodd W. Snodgrass

Admittedly, the balance we are seeking is a delicate one.

—Chairman Greenspan in
Congressional testimony on
July 20, 1989.

The American economy entered 1989 with considerable momentum and an upward trend in inflation. The primary challenge for monetary policy in 1989 was to arrest the upward trend in inflation without precipitating an economic downturn.

To meet this challenge, the Federal Reserve had to balance the risks between higher inflation and recession. The published record of policy actions indicates clearly that the Federal Open Market Committee (FOMC) believed accelerating inflation was the primary threat early in the year to the long-run health of the American economy.¹ Monetary policy responded by fur-

ther restraining the growth of money and credit. As evidence accumulated through the summer and fall that overall economic growth was moderating, the policy record indicates the FOMC believed the balance of risks had shifted away from inflation toward an economic downturn. In response, the FOMC relaxed the degree of monetary restraint. The easing of policy was gradual, however, because inflation remained unacceptably high. Preventing further acceleration of inflation was nonetheless a major stride toward the FOMC's long-run goal of price stability. Looking ahead to 1990, the Committee anticipates further progress toward price stability.

The FOMC took account of a wide variety of information in assessing the appropriate course for monetary policy in 1989. In directing open market operations by the Desk at the Federal Reserve Bank of New York, the FOMC considers several factors in determining whether the degree of pressure on reserve positions, and indirectly the degree of monetary restraint, should be changed. In 1989, these factors included indicators on the strength of the economy and inflation, as well as monetary and

Bryon Higgins is vice president and associate director of research at the Federal Reserve Bank of Kansas City. Dodd W. Snodgrass is a research associate at the bank.

financial developments. Understanding monetary policy in 1989 thus requires understanding how FOMC members assessed these factors throughout the year.

I. January through April: Countering the Risk of Higher Inflation

Nearly all the members [of the FOMC] believed that the risks remained on the side of greater inflation and that the Federal Reserve would need to stay especially alert to inflationary developments.

—Record of Policy Actions of
the February 1989 FOMC
meeting.

Economic activity and inflation

The momentum from robust economic growth in 1988 carried into the early months of 1989. Fueling the demand for goods and services was the continuing export boom caused by the decline in the foreign exchange value of the dollar, which started in the first quarter of 1985. By early 1989, the lower dollar had made U.S. products very competitive on world markets. Moreover, demand for U.S. exports was heightened by strong growth of the economies of most major trading partners abroad. To meet this and other demands, U.S. firms expanded capacity by increased spending on plant and equipment, especially in the manufacturing sector. Despite declines in government spending, homebuilding, and in the growth of household spending for consumer goods, therefore, economic activity continued to expand at a fairly brisk pace in the early months of 1989 (Chart 1).

Continued economic expansion put increased pressure on productive resources. Rapid employment growth led to a drop in the unemployment rate to 5 percent in March, the lowest level since December 1973 and near a level that could lead to heightened pressure on wages (Chart 2). Job

gains were widespread, including substantial gains in manufacturing employment. Capacity utilization rates in the manufacturing sector rose to the highest level in a decade. This and other information led FOMC members to fear that, in the absence of some further monetary restraint, pressure on already strained production resources would induce more inflation.

Direct evidence on inflation was not reassuring. Producer and consumer prices had risen sharply, in part reflecting higher prices for food and energy. Most broad measures of labor compensation suggested an upward trend in wage inflation (Chart 3). Moreover, staff projections prepared for the FOMC suggested that wage and price inflation would be higher in 1989 than in 1988.

Against this background, most FOMC members expected intensified inflationary pressures to persist. For example, in conjunction with setting monetary growth targets, FOMC members and other Reserve Bank presidents must submit projections for economic growth and inflation biannually. The central tendency of the projections presented to Congress in February suggested that consumer price inflation in 1989 would be 4½ to 5 percent, up from 4.3 percent in 1988. Inflation was expected to accelerate even though output in the nonfarm economy in 1989 was expected to grow at a moderate rate of 2½ to 3 percent. After allowing for drought effects, this range implied considerably slower growth than in 1988.

Monetary and financial developments

In the absence of monetary restraint, the acceleration of inflation could have been worse than projected. Accordingly, the FOMC lowered the target ranges for growth of money and the monitoring range for the growth of credit. The monetary policy report to Congress in February explained the lowering of the growth ranges for money and credit as signaling a commitment by

CHART 1
Output and employment

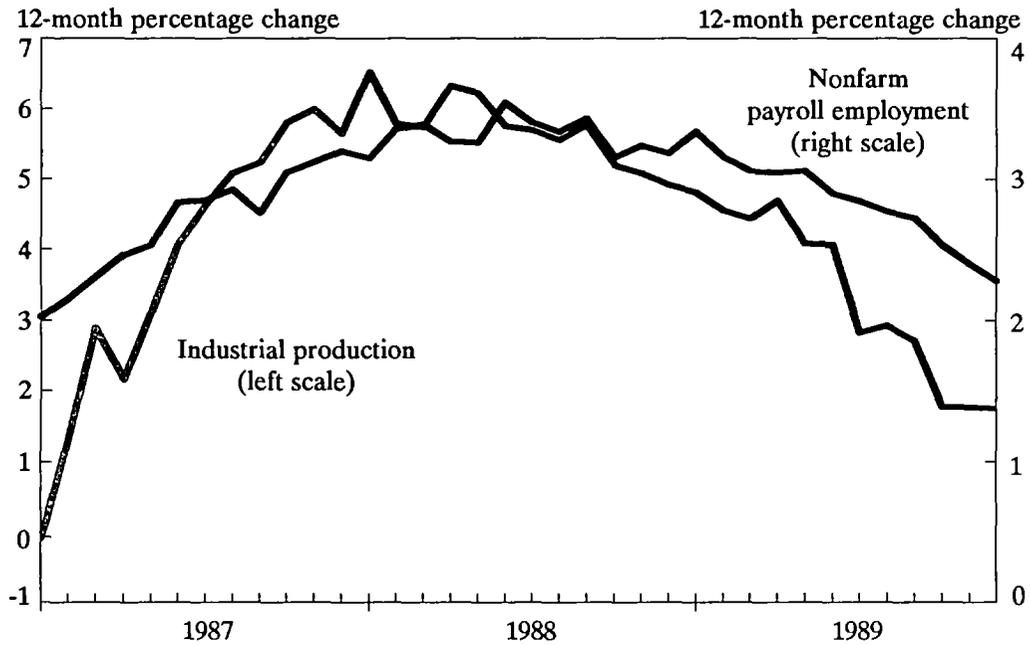


CHART 2
Pressure on resources

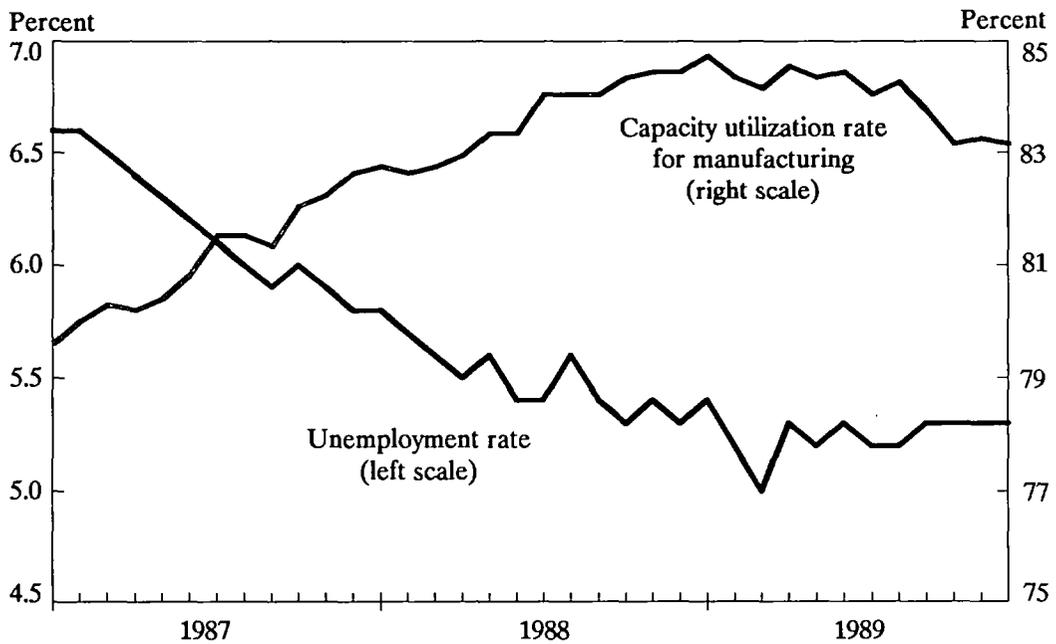
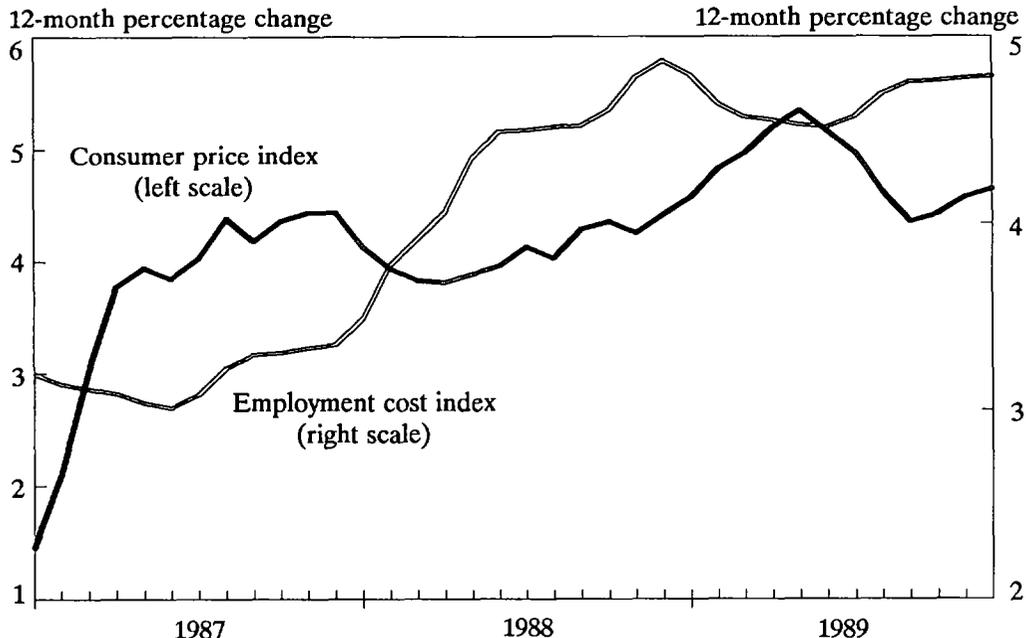


CHART 3
Wage and price inflation



the Federal Reserve to contain inflationary pressures.

Monetary growth was indeed subdued early in the year. After growing 5.2 percent in 1988, M2 grew at a rate of only 1.9 percent in the first four months of 1989. This slow growth was due in part to the upward trend in market interest rates that began in the spring of 1988. Because banks and thrifts slowly adjust rates on NOW accounts and other liquid deposits included in M2, the yields on such accounts become progressively less attractive as market interest rates increase. But such other factors as the S&L crisis and unexpectedly large tax payments also contributed early in the year to keeping M2 growth below its target range and M3 growth near the lower limit of its range (Charts 4 and 5). The weak growth of the monetary aggregates was thought by some FOMC members to portend lower inflation over time.

Strength of the dollar in foreign exchange markets was also cited as a factor that would help

contain inflation. The dollar rose sharply early in the year, in part because higher U.S. interest rates made dollar-denominated assets more appealing to international investors. A strong dollar would help control inflationary pressures by keeping import prices down and by relieving pressure on productive resources, albeit at the cost of slower progress in reducing the trade deficit.

Monetary policy actions

At its meeting in December 1988, the FOMC agreed that an immediate step toward tighter policy would be followed by a further tightening after yearend unless economic and financial conditions changed unexpectedly. When they did not, the degree of reserve pressure was increased in early January, leading to an increase in the federal funds rate to a little over 9 percent.

The FOMC agreed at its February meeting

CHART 4
M2 growth range and actual M2

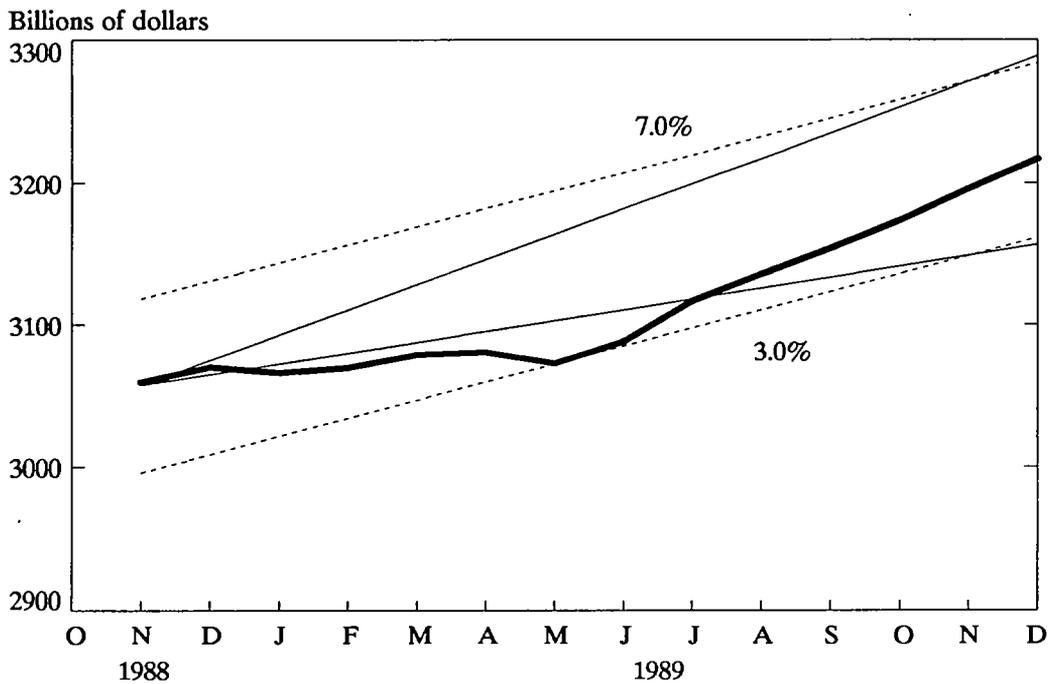
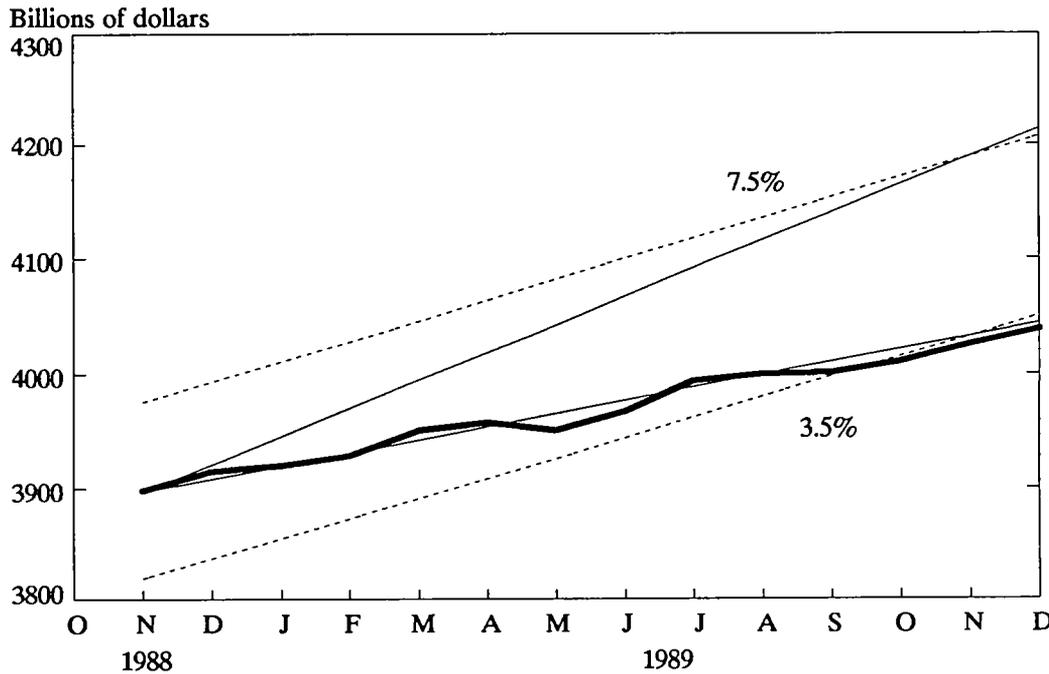


CHART 5
M3 growth range and actual M3



that policy would be tightened promptly if incoming information tended to confirm expectations of growing inflationary pressures. Soon after such confirmation in the form of sharply higher producer prices reported for January, the open market desk further increased the pressure on reserves in mid-February. This tightening was reinforced when the Board of Governors on February 24 approved requests by the Board of Directors of ten Reserve Banks, for an increase in the discount rate from 6½ percent to 7 percent. The federal funds rate rose further to a little above 9¾ percent in early March.

The cumulative effect of these monetary policy actions was an appreciable rise in interest rates. The federal funds rate rose a little more than 1¼ percentage points (Chart 6). Short-term market interest rates rose somewhat less, in part because some firming of monetary policy had been widely anticipated and was therefore already incorporated in rates. Yields on most private short-term debt instruments, including bank CDs, rose about three-fourths percentage point from early December to early March. The increased cost of funds led banks to increase their prime lending rate in two steps from 10½ percent to 11½ percent. Long-term interest rates increased much less (Chart 7). The yield on Aaa corporate bonds, for example, rose only about one-fourth percentage point.

By the time of the March FOMC meeting, preliminary evidence had suggested that economic growth was slowing to a more sustainable, noninflationary pace. Industrial production was unchanged in February following several months of sizable gains, and growth in consumer spending had moderated. Committee members felt, however, it was too soon to conclude that the slowdown in economic growth would continue. Although continued strength of the dollar and moderate growth of the monetary aggregates might lower inflation in the months ahead, there was no substantial information suggesting inflationary pressures were yet abating. To the con-

trary, monthly indicators suggested some pickup in inflation, in part due to spurts in food and energy prices. However, the full effect of earlier tightening had not been felt. Accordingly, the FOMC decided not to tighten policy immediately. The inflation risk was nonetheless judged to be sufficient to justify a directive skewed toward the possibility of further tightening before the next meeting in May.

II. May through December: Assessing the Risk of Recession

... what we seek to avoid is an unnecessary and destructive recession.

—Chairman Greenspan in
Congressional testimony on
July 20, 1989.

Economic activity and inflation

The momentum of the economy appeared to have moderated by the spring of 1989. Retail sales were flat in several areas of the country, and homebuilding activity had declined sharply. Continued strength of the dollar and slower growth in major foreign industrial economies had led to slower improvement in the trade deficit, thus reducing demand for U.S. products. Despite a rebound in government spending and continued strong spending for capital goods, the balance of evidence suggested a less robust economy.

More decisive evidence of weaker economic growth emerged in the summer and fall. A further rise in the exchange value of the dollar was accompanied by preliminary evidence that improvement in the trade balance was slowing, and previous declines in mortgage interest rates had failed to reverse the downward trend in homebuilding. Although incentives by auto producers led to a spurt in car purchases, consumer spending on other goods and services remained sluggish. And growth in business spending on plant and equipment had slowed from the pace

CHART 6
Short-term interest rates

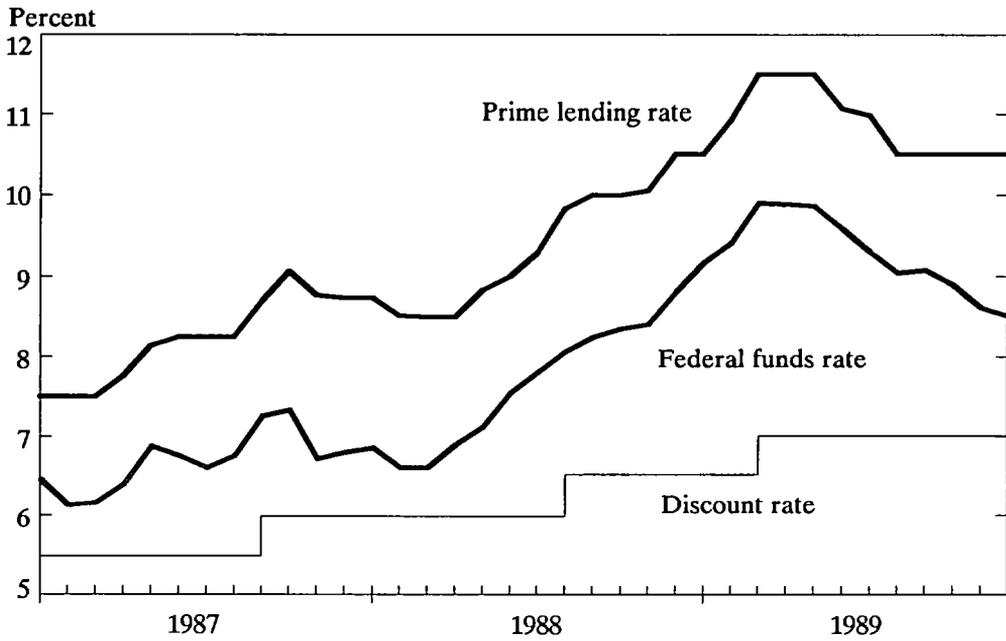
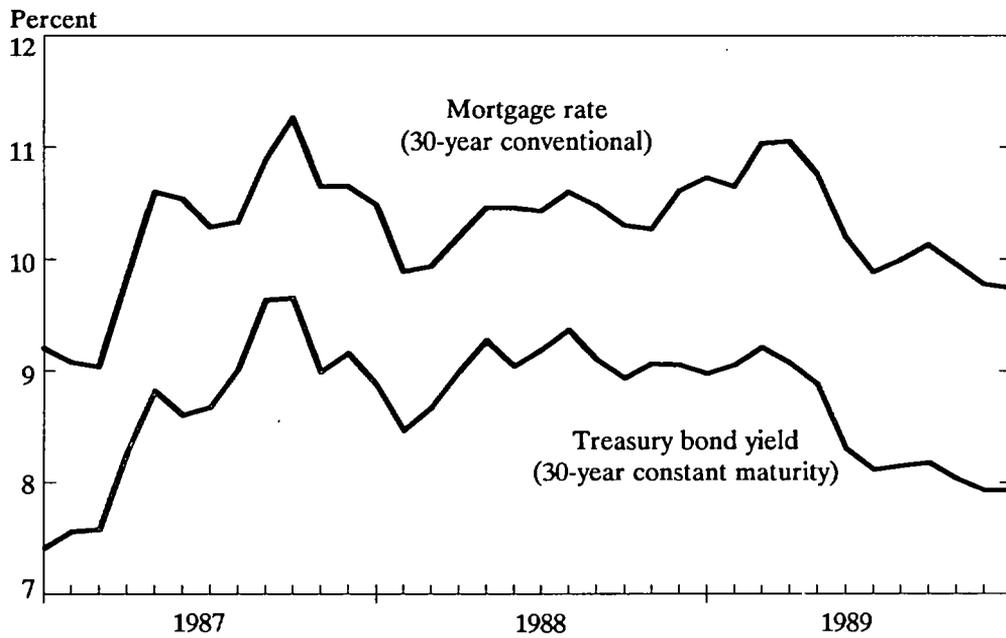


CHART 7
Long-term interest rates



earlier in the year. The manufacturing sector exhibited particular weakness. Manufacturing output, as measured by the manufacturing component of the industrial production index, had leveled out after advancing sharply in late 1988 and early 1989. Moreover, the survey of purchasing managers suggested that manufacturing output was contracting due to weakness in new orders for durable goods.

More subdued economic expansion progressively relieved pressure on productive resources. Employment growth slowed substantially, as jobs in the manufacturing sector dwindled. As a result, the overall unemployment rate edged up to about 5¼ percent. Capacity utilization rates in manufacturing also declined, especially at firms producing goods at earlier stages of processing. The resulting easing of pressure on productive resources contributed to a majority view of FOMC members by October that the risks to expansion were more heavily weighted toward an unexpected weakening in the economy rather than toward greater inflationary pressures.

Direct evidence on prices and wages tended to confirm that inflationary pressures were abating. Although fluctuating from month to month, increases in producer prices were substantially lower on balance than early in the year. Increases in food and energy prices elevated consumer prices for a while, but consumer price inflation excluding the volatile food and energy components trended downward gradually beginning in May. Broad measures of labor compensation showed that wage inflation had ceased to accelerate. Moreover, industrial commodity prices had leveled out, and the dollar remained strong on foreign exchange markets, leading the Committee to anticipate that inflationary pressures would subside further in the months ahead.

FOMC members nonetheless continued to expect that inflation would be somewhat higher than in 1988. At the midyear review of monetary policy in July, the central tendency of projec-

tions by FOMC members was for consumer price inflation of 5 to 5½ percent in 1989. This inflation projection was somewhat higher than at the February meeting, even though FOMC members now foresaw a more pronounced slowing of overall economic growth in 1989 to 2½ percent or less, implying less than 2 percent growth of nonfarm output.

Monetary and financial developments

In light of the somewhat changed outlook for economic growth and inflation, the Committee at its July meeting also reviewed the 1989 ranges of growth for money and credit established in February. Despite more rapid monetary growth since mid-May, M2 remained about one percentage point below its range and M3 remained near the lower bound of its range. However, a staff analysis suggested that more rapid monetary expansion was likely to persist. Recent declines in market interest rates, which were not expected to be matched by reduction in deposit rates, would enhance the attractiveness of holding M2 and M3 deposits. Moreover, the outflow of deposits from S&Ls was expected to have less effect on monetary growth for the remainder of the year. The staff analysis indicated the resulting acceleration of monetary expansion would yield M2 and M3 growth rates for the year as a whole that were well within the current ranges. Accordingly, the FOMC decided the existing ranges continued to be broadly consistent with its overall objective of reducing inflation over time.

This assessment proved to be accurate for M2 only. Growth of M2 finished the year within its target ranges. The higher M2 growth evident in late spring continued for the remainder of the year. As expected, lower interest rates and the absence of temporary depressing factors led to a sustained rebound in M2 growth from the sluggish rates early in the year. This rebound left M2 near the middle of its range by yearend. M3

did not fully recoup slow growth since July, leaving it below the lower limit of its target level for the rest of the year. Growth of M3 was boosted less by lower interest rates and may have been held down more by the shrinking of S&Ls associated with efforts to meet higher capital standards. Although not rebounding appreciably in the summer and fall, M3 growth nonetheless finished the year only slightly below the lower limit of its range.

The dollar remained strong in foreign exchange markets throughout the remainder of the year. Although the strong dollar helped keep inflation in check, further increases in the exchange value of the dollar would also impede progress in reducing the trade deficit. Persistent strength of the dollar gave rise to direct intervention in foreign exchange markets by several central banks, including the Federal Reserve. Intervening in exchange markets by selling dollars, it was thought, would foster exchange market stability by preventing a further rise in the value of the dollar. Although the Treasury Department is primarily responsible for the nation's international economic policy, the Federal Reserve consults with the Treasury on exchange market developments and actually carries out intervention when it is decided that doing so would help achieve international policy objectives. Such a situation arose in May and June. As the dollar advanced to the highest level against some key currencies in over two years, U.S. authorities sold a total of \$11.7 billion during this period in exchange for Japanese yen and German marks (Cross 1989). These operations were undertaken in coordination with other central banks that sought to prevent further depreciation of their currencies.

Interest rate developments could not fully explain why the dollar continued to rise. The increase in the foreign exchange value of the dollar early in the year had been due at least in part to rising U.S. interest rates. But beginning in April, the amount by which U.S. rates

exceeded foreign rates began to narrow. Interest rates in several major foreign countries began to rise as inflationary pressures in those countries mounted. Just as the strength of the dollar held down U.S. inflation, so the resulting weakness of the deutsche mark and the yen contributed to higher inflation in Germany and Japan. In response to the heightened inflation threat, the Bundesbank and the Bank of Japan tightened monetary policy by raising official lending rates. The dollar nonetheless remained strong in part because political uncertainties in Germany and Japan, together with turmoil in China, led investors to seek a safe haven in dollar assets.

In contrast to foreign interest rates, U.S. interest rates began to decline in the spring. As evidence accumulated that economic growth was slowing and inflation was not accelerating further, both short-term and long-term market interest rates receded from peaks reached in March. Market participants came increasingly to believe that the Federal Reserve would not need to tighten credit conditions further in order to control inflation. Moreover, the strength of the dollar lent support to bond prices by reducing foreign investors' concern that the real return on U.S. investments would be eroded by dollar depreciation. As a result, from late March to late May, most short-term market interest rates fell about three-fourths percentage point and most long-term interest rates fell nearly one-half percentage point. The prime rate was reduced to 10½ percent in late July. These declines were not a result of monetary policy actions. The Federal Reserve held policy constant over the period, with the federal funds rate remaining near 9¾ percent.

Monetary policy actions

No changes in policy were made immediately after the May FOMC meeting. The Committee adopted a symmetrical directive, however, rather than a directive skewed toward further

possible tightening, as had been typical earlier in the year. FOMC members expressed particular concern about sluggish monetary growth thus far in 1989, especially in light of the slowdown in economic growth that was becoming evident. Although weekly data in the latter part of May suggested some revival of monetary growth, both M2 and M3 declined for the month as a whole. Accordingly, policy was eased slightly in early June, leading to a decline in the federal funds rate to about 9½ percent.

The FOMC at its meeting in early July agreed to another slight easing of policy. In reviewing the economic outlook, Committee members noted recent evidence of weakness in housing and consumer goods. However, there were few signs of the kinds of imbalances that could lead to an economic downturn. Even though wage inflation apparently had leveled out, cost pressures remained intense and overall inflation, unacceptably high. Moreover, the extended period of slow monetary growth, the sustained strength of the dollar, and reduced growth in business activity were thought to bode well for lower inflation in the future. On balance, the Committee judged the risks of a sustained acceleration in inflation to be more limited than they had earlier in the year. Many members nonetheless stressed the importance of acting cautiously lest the actions be misinterpreted as a lessening in resolve to lower inflation. Accordingly, the degree of reserve pressure was lessened only marginally. Later in July, the degree of pressure was reduced slightly further. The combined effect was to lower the federal funds rate to about 9 percent by early August.

No further easing of policy was undertaken at the August FOMC meeting. The decision to maintain a steady policy course was based mainly on a reduced risk of recession. Incoming economic data suggested a somewhat stronger economy than at the time of the July meeting. Consumer demand in particular was estimated to be more robust. Moreover, monetary growth

had accelerated in July to the point that M2 was within its target range, a development that the Committee clearly thought desirable at the July meeting. Indeed, the easing of policy in June and July had contributed to the rebound in monetary growth by reducing the opportunity cost of holding deposits. The conditions that led to earlier easing of pressure on reserve positions had thus by August become less compelling, despite evidence that inflationary pressures were abating. Producer prices had fallen for two consecutive months, and consumer prices had risen less than earlier in the year. On balance, FOMC members agreed an unchanged policy was justified by improved prospects for moderate economic expansion consistent with progress over time in achieving price stability. The commitment to such progress was underscored by substituting the phrase “progress toward price stability” for the phrase “indications of inflationary pressures” as a factor in the directive governing policy actions.²

Despite the decision not to ease policy immediately, the FOMC adopted a directive biased toward possible easing until the next meeting. In this limited sense, most FOMC members still viewed the risks as being primarily on the side of unacceptably weak economic growth. Despite the bias toward ease, however, incoming information did not lead to any policy adjustments before the next FOMC meeting. The federal funds rate and other market interest rates were basically unchanged leading up to the October FOMC meeting.

Information available at the October meeting did not lead the FOMC to change the stance of policy. Despite noticeably slower growth in industrial production and employment since midyear, pressures on productive resources remained considerable. Inflation had nonetheless slowed due to a steep drop in energy prices, marginally lower prices for other commodities, and continuing declines in import prices. Aggregate demand had continued to expand at a

moderate pace despite indications that business capital spending was less robust than in the first half of the year and evidence of persistent weakness in the housing sector.

A complicating factor in assessing the appropriate course for monetary policy was an international agreement on exchange rates. Officials from the seven major industrial economies had issued a statement on September 23 that the persistent rise of the dollar in recent months was undesirable. This statement was interpreted in some quarters as implying that U.S. monetary policy would be used to supplement exchange market intervention—which was substantial following the statement—to achieve a lower dollar. FOMC members expressed concern that an easing of monetary policy at that time would be interpreted as an attempt to force the dollar lower. The Committee agreed the Federal Reserve's policy should not be used to peg the value of the dollar because doing so could conflict with domestic policy objectives. On balance, the FOMC decided not to ease policy further immediately following the meeting.

As at the August meeting, however, the FOMC adopted a directive skewed toward possible ease. Most FOMC members believed the risks of further slowing in the economy were greater than the risks of a stronger economy; a few members expressed concern about a more serious weakening. In the majority view, the balance of risks justified a policy that gave special weight to developments that might require some further easing before the November FOMC meeting.

Soon after the October meeting, turmoil arose in financial markets. Prices of “junk bonds” deteriorated as concern grew that highly leveraged firms would fare badly if the economy entered a recession. And stock prices declined sharply on October 13. Monetary policy was eased slightly soon after the stock market break, as the federal funds rate declined to about 8¾ percent. In early November, additional ease was

implemented following release of employment and other data confirming weakness in the manufacturing sector of the economy. The federal funds rate edged down to about 8½ percent. In response to the easing of policy since the October meeting and additional evidence of slower economic growth, most market interest rates, except those on low-rated corporate debt, declined appreciably before the November 14 FOMC meeting.

The mixed evidence available at that meeting led the Committee to keep monetary policy unchanged. Although the economy had continued to expand, economic conditions had softened in some regions and the manufacturing sector had weakened more generally. Staff projections suggested that economic growth was likely to slow over the next several quarters. But the near-term outlook was clouded by uncertainties related to the effects of a hurricane, an earthquake, and a major strike. Reflecting these and other uncertainties, Committee members differed somewhat in their evaluation of the risks. Some members foresaw the possibility that business activity would expand negligibly if at all in the next few quarters, while others thought that the odds were greater that the economy might grow at a rate near its potential. Views regarding the inflation outlook were similarly mixed, with some members skeptical that significant progress in reducing inflation could be made over the next few quarters but other members more optimistic in light of some evidence that inflationary momentum had been arrested. In weighing the concerns about a cumulative weakening in the economy against the desire to lower inflation, the Committee decided on a steady policy over the next few weeks. The policy directive continued to be biased toward a possible easing of policy.

Although no such action was taken before the December FOMC meeting, the conduct of open market operations immediately after that meeting led to a further one-fourth point reduc-

TABLE 1
Actual and projected economic performance

| | FOMC projections for 1990¹ | 1989 actual² |
|------------------------------|--|------------------------------------|
| Nominal GNP | 5½ to 6¾ | 6.4 |
| Real GNP | 1½ to 2 | 2.4 |
| Consumer price index | 4½ to 5 | 4.5 |
| Unemployment rate (civilian) | 5½ to 6 | 5.3 |

¹ Except for the unemployment rate, projections are for the percentage change from the fourth quarter of 1989 through the fourth quarter of 1990. The projection for the unemployment rate is the average level for the fourth quarter of 1990. The projections are the central tendencies of the ranges reported by the FOMC.

² Data for nominal and real GNP are growth rates from the fourth quarter of 1988 through the fourth quarter of 1989. Growth rates over this period excluding the effects of the drought are 5.9 percent for nominal GNP and 1.9 percent for real GNP. Comparable growth in 1988 is 8.0 percent for nominal GNP and 4.0 percent for real GNP. The unemployment rate is the average level for the fourth quarter of 1989. Data for 1989 GNP are from advance estimates by the Bureau of Economic Affairs released on January 26, 1990.

tion in the federal funds rate. The response of most short-term market interest rates was muted, however, in part because the possibility of somewhat less pressure on reserve positions had already been incorporated to some extent. The cost of funds to banks nonetheless dropped enough to precipitate a lowering of the prime lending rate by most banks soon after yearend. In contrast, most long-term market interest rates rose from early December to early January.

III. Monetary Policy for 1990: Reversing the Upward Trend in Inflation

Federal Reserve policy is focused on laying the groundwork for more definite progress in reducing inflation pressures in 1990. . . .

—Chairman Greenspan in
Congressional testimony
on July 20, 1989.

Economic activity and inflation

At the midyear review in July, FOMC members projected a continuation of moderate

economic growth in 1990. Staff projections suggested that export growth would contribute much less to economic expansion than in recent quarters, as the persistent strength of the dollar limited foreign demand for U.S. goods. Reduced export growth would also lessen the need for U.S. firms to expand capacity, thereby contributing to more restrained business spending for plant and equipment. In contrast, residential construction activity was expected to rebound in response to lower mortgage interest rates. On balance, though, growth in sectors sensitive to interest rates and exchange rates was expected to remain subdued. The consequent slowing of growth in employment and income would keep growth of consumer spending sluggish through 1990. FOMC members concurred in the main contours of the staff outlook. Accordingly, their projections centered on GNP growth of 1½ to 2 percent for 1990, down somewhat from growth in 1989 (Table 1).

Continued moderation of economic growth was expected to reverse the upward trend in inflation. Slow growth in demand would further lessen strains on capital and labor resources. The unemployment rate, for example, was projected

TABLE 2
Ranges of growth for monetary and credit aggregates

(Percentage change, fourth quarter to fourth quarter)

| | Provisional for 1990 | 1989 actual |
|------|---------------------------------|------------------------|
| M2 | 3 to 7 | 4.5 |
| M3 | 3½ to 7½ | 3.3 |
| Debt | 6½ to 10½ | 8.1 |

by the FOMC to edge up to a range of 5½ to 6 percent by the end of 1990. Reduced pressure on resources was thought consistent with somewhat lower inflation in 1990. After containing inflation in 1989, therefore, the FOMC expected to make progress toward price stability in 1990.

Monetary policy

The FOMC at its midyear review also established provisional ranges for growth of money and credit in 1990. The Committee recognized the merits of reducing the ranges further to demonstrate its commitment to reducing inflation. Some members pointed to a potential risk that failure to reduce the ranges might be misconstrued by some as complacency about current rates of inflation. On the other hand, monetary growth could accelerate somewhat in 1990 without being inflationary, especially if necessary to counter risks of an economic downturn should such risks develop. Most members of the Committee concluded that tentatively adopting the same ranges for 1990 as for 1989 was likely to be consistent with some reduction of inflation and continued economic expansion (Table 2). The members recognized this

tentative decision could be modified at the February 1990 FOMC meeting if available information warranted.

IV. Conclusion

The Federal Reserve's eclectic approach to the implementation of monetary policy worked well in 1989. By basing policy decisions on their evaluation of a wide variety of information, FOMC members were able to balance the dual risks of escalating inflation and an economic downturn. Early in the year, evidence of increased pressure on resources and worsening of wage and price inflation was instrumental in the decision to tighten policy. As monetary growth moved progressively further below target in the spring, the FOMC recognized the danger of a pronounced weakening of economic activity and employment. Monetary restraint was thus eased cautiously. During the summer and fall, incoming data suggesting a slowdown in economic growth and inflation convinced policymakers that it was safe to further ease monetary policy. And monitoring developments in domestic financial markets and foreign exchange markets enabled policymakers to assess the economic outlook more accurately throughout the year. As Chairman Greenspan said in his midyear Congressional testimony, "The complex nature of the economy and the chance of false signals demand that we cast our net broadly—gathering information on prices, real activity, financial and foreign exchange markets, and related data."

If the approach is similarly successful in 1990, the Federal Reserve stands a good chance of achieving its dual objectives of further reducing inflation while sustaining economic expansion.

Endnotes

¹ The description of FOMC deliberations in this article is taken primarily from the Record of Policy Actions of the pertinent FOMC meeting. The record of each FOMC meeting is released to the public following the subsequent meeting. In addition, the biannual reports to Congress (Board of Governors, 1989b and 1989g) and testimony by Chairman Greenspan (1989a) are also useful references for interpreting the reasons for FOMC actions.

² In October. Chairman Greenspan (1989b) also testified in favor of a proposal to make price stability the main objective of monetary policy. The proposal by Congressman Neal would require that "the Federal Open Market Committee of the Federal Reserve System shall adopt and pursue monetary policies...to eliminate inflation [in five years] and shall then adopt and pursue policies to maintain price stability."

References

- Board of Governors of the Federal Reserve System. 1989a. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on December 13-14, 1988." Press Release, February 10, 1989.
- _____. 1989b. "1989 Monetary Policy Objectives: Summary Report of the Federal Reserve Board, February 21, 1989."
- _____. 1989c. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on February 7-8, 1989." Press Release, March 31.
- _____. 1989d. "Record of Policy Actions of the Federal Open Market Committee: Meeting held on March 28, 1989." Press Release, May 19.
- _____. 1989e. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on May 16, 1989." Press Release, July 7.
- _____. 1989f. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on July 5-6, 1989." Press Release, August 25.
- _____. 1989g. "1989 Monetary Policy Objectives: Midyear Review of the Federal Reserve Board, July 20, 1989."
- _____. 1989h. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on August 22, 1989." Press Release, October 6.
- _____. 1989i. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on October 3, 1989." Press Release, November 17.
- _____. 1989j. "Record of Policy Actions of the Federal Open Market Committee. Meeting held on November 14, 1989." Press release, December 22.
- Cross, Sam Y. 1989. "Treasury and Federal Reserve Foreign Exchange Operations, May-July 1989," Federal Reserve Bank of New York *Quarterly Review*, Autumn.
- Greenspan, Alan. 1989a. "Statement before the Subcommittee on Domestic Monetary Policy of the Committee on Banking, Finance, and Urban Affairs, U.S. House of Representatives, July 20, 1989."
- _____. 1989b. "Statement before the Subcommittee on Domestic Monetary Policy of the Committee on Banking, Finance, and Urban Affairs, U.S. House of Representatives, October 25, 1989."

The Tenth District economy: still playing catch-up

By Glenn H. Miller, Jr.

Economic performance in the Tenth Federal Reserve District lagged behind U.S. economic performance again in 1989, as major sectors of the district economy combined for another mixed performance. Revival in the energy sector joined further improvement in agriculture to support modest overall growth, while manufacturing performance weakened.

Slow growth in the region is expected to continue in 1990. Sluggishness in the national economy—especially in manufacturing—is likely to be reflected in district economic performance. While some additional improvement may be expected in the district's farm and energy sectors, no strong source of overall growth has emerged.

This article reviews the district's economic performance in 1989 and explores the outlook for 1990. The first section of the article surveys the 1989 economic performance of the district

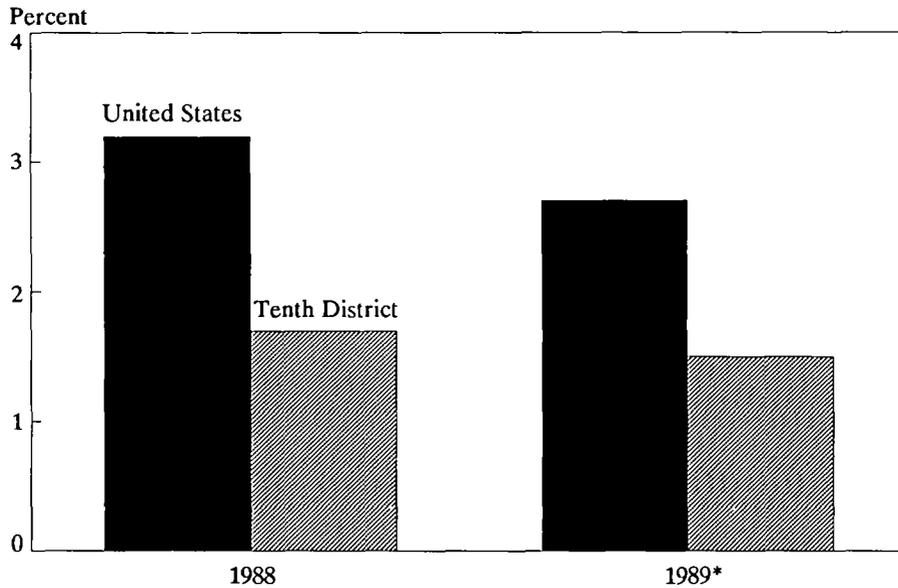
and its individual states. The second section examines the district's major sectors and their employment outlook. The third section discusses recent and prospective economic performance for each of the district states.

I. Recent Performance in the District

The district economy recorded modest growth in employment and income in 1989.¹ Average employment in the district grew at an annual rate of about 1.5 percent through the first three quarters of the year, somewhat slower than the 1.7 percent rate recorded in 1988 (Chart 1).² Although employment growth slowed, even slower labor force growth resulted in a district unemployment rate that averaged 5.3 percent for the first three quarters of the year, compared with an average rate of 5.9 percent in 1988. Real personal income in the district grew at a 1.8 percent annual rate through the first half of the year, faster than the 1988 rate of 0.8 percent (Chart 2).³ The relatively slow growth in both income and employment in the district is expected to continue in 1990.

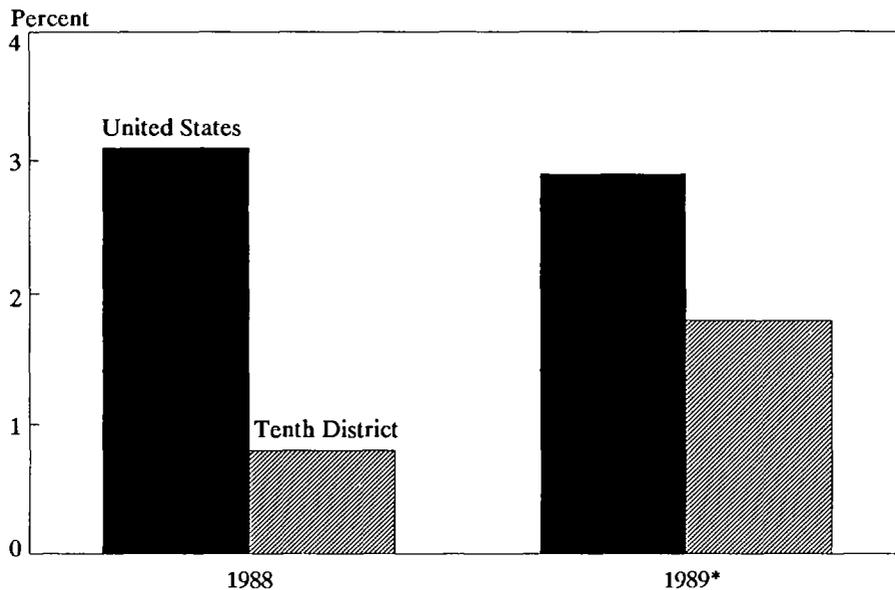
Glenn H. Miller, Jr. is vice president and economic advisor at the Federal Reserve Bank of Kansas City. Tim Sheesley, a research associate at the bank, assisted in the preparation of the article.

CHART 1
Growth in nonagricultural employment, U.S. and Tenth District



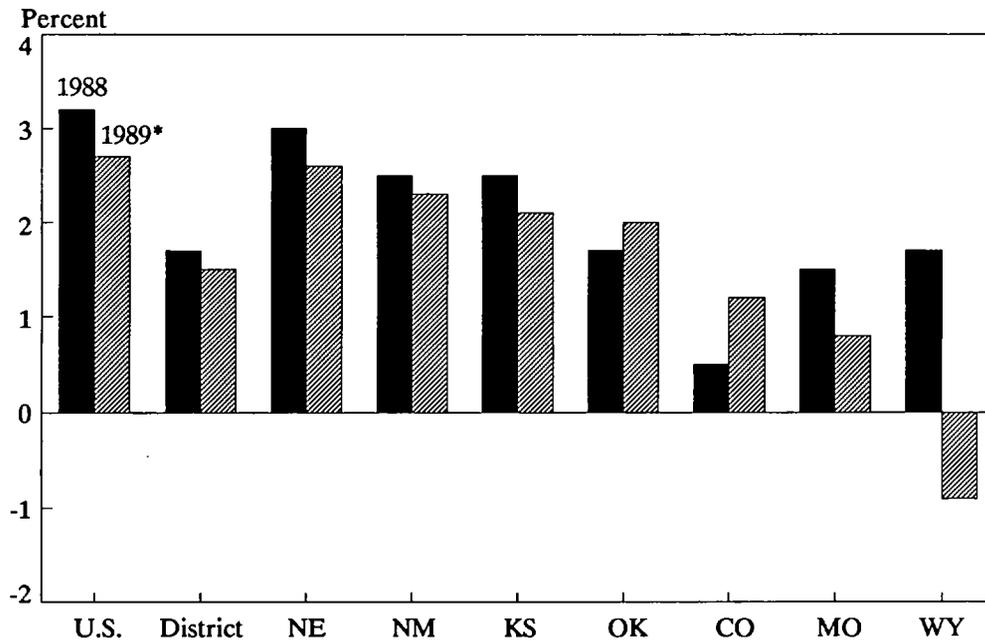
*First three quarters, seasonally adjusted annual rates.
Source: Bureau of Labor Statistics.

CHART 2
Growth in real personal income, U.S. and Tenth District



*First two quarters, seasonally adjusted annual rates.
Source: Data Resources, Inc.

CHART 3
Growth in nonagricultural employment in Tenth District states



*First three quarters, seasonally adjusted annual rates.
 Source: Bureau of Labor Statistics.

The district's modest pace of economic growth in 1989 was attributable to weakness in several key sectors of the regional economy. Sagging performance in manufacturing, construction activity, and the trade and services sectors curbed overall district growth, despite improvement in the farm and energy sectors.

Economic growth in the district was slower than in the nation again in 1989. Nonfarm employment in the district grew at a 1.5 percent annual rate through the first three quarters of the year, compared with a 2.7 percent rate in the nation (Chart 1). Average unemployment for the first three quarters was 5.3 percent in both the nation and the district. Real personal income through the first six months of the year grew at a 1.8 percent rate in the district, compared with

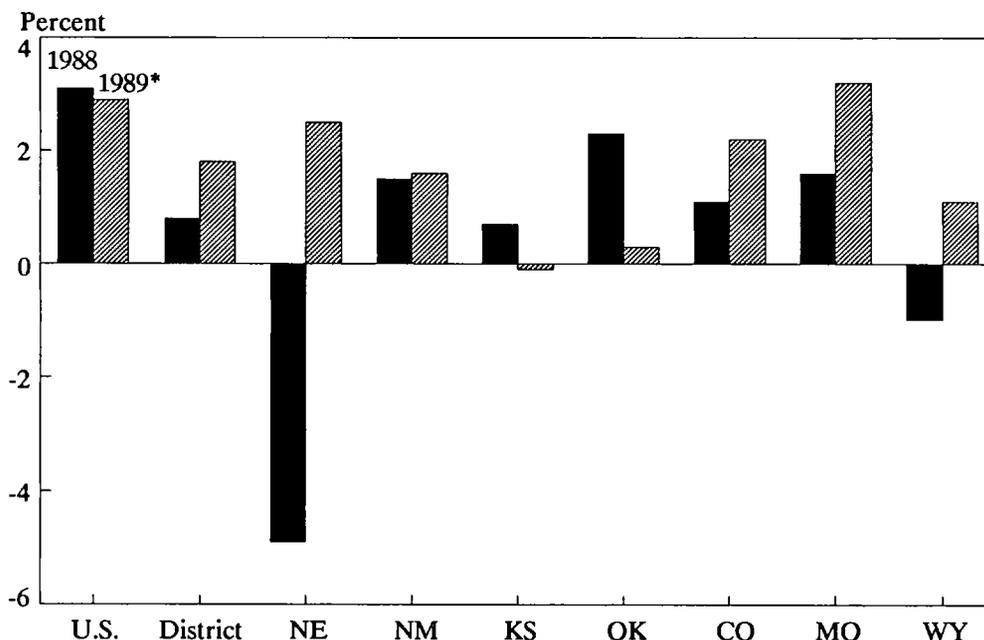
2.8 percent in the nation (Chart 2). The gap between U.S. and district employment growth was about the same in 1989 as in 1988, but the gap between U.S. and district income growth narrowed considerably.

Nonfarm employment grew more slowly in the first three quarters of 1989 than in 1988 in five district states (Chart 3). Employment growth was positive but slower last year in Kansas, Missouri, Nebraska, and New Mexico, while employment in Wyoming declined in 1989 after growing in 1988. In the remaining two states—Colorado and Oklahoma—employment grew faster in 1989 than the year before.

Real personal income grew faster in the first half of 1989 than in 1988 in five district states (Chart 4). In Colorado, Missouri, and New

CHART 4

Growth in real personal income in Tenth District states



*First two quarters, seasonally adjusted annual rates.

Source: Data Resources, Inc.

Mexico, income grew faster in 1989 than in 1988, while in Nebraska and Wyoming, income grew in 1989 after declining the year before. In Oklahoma, real personal income grew slower in the first half of the year than in 1988; and in Kansas, income declined slightly compared with the previous year.

II. Review and Outlook by Sector

Performance in the key sectors of the district economy continues to be mixed, and the pattern of strength and weakness appears unlikely to change in the year ahead. Sectors contributing strength to economic activity in 1989 are likely to do so again in 1990, while last year's weaker

sectors are not expected to improve much this year.

Recent sector performance

Improvement in the district's important farm and energy sectors contributed materially to economic activity and job growth in 1989. District manufacturing weakened significantly and construction activity remained sluggish.

Agriculture. Conditions in the district's farm sector continued to improve in 1989. The district was somewhat more affected by drought in 1989 than in 1988. Winter wheat yields were sharply lower in some parts of the district, while fall crop yields generally were about normal.

TABLE 1
Growth in nonagricultural employment by sector, Tenth District states

| | Percent change | |
|---------------------------------|----------------|-------|
| | 1988* | 1989† |
| Manufacturing | 2.2 | 0.7 |
| Durable goods | 2.8 | 0.3 |
| Transportation equipment | 3.0 | 2.1 |
| Nondurable goods | 1.4 | 1.1 |
| Food processing | 1.0 | 1.2 |
| Printing and publishing | 2.0 | 1.6 |
| Mining | -4.6 | 2.8 |
| Construction | -6.0 | -1.4 |
| Services | 3.5 | 2.0 |
| Wholesale trade | 1.9 | 0.8 |
| Retail trade | 1.9 | 0.7 |
| Federal government | -1.2 | 2.3 |
| State and local government | 2.6 | 3.9 |
| Transportation | 1.3 | 1.5 |
| Finance, insurance, real estate | -0.4 | -0.2 |

*From fourth-quarter 1987 to fourth-quarter 1988.

†First three quarters, seasonally adjusted annual rate.

Source: Bureau of Labor Statistics

Overall, near-normal crop yields and strong livestock prices maintained high farm incomes. Farmland values continued to rise, and agricultural credit conditions continued to improve.

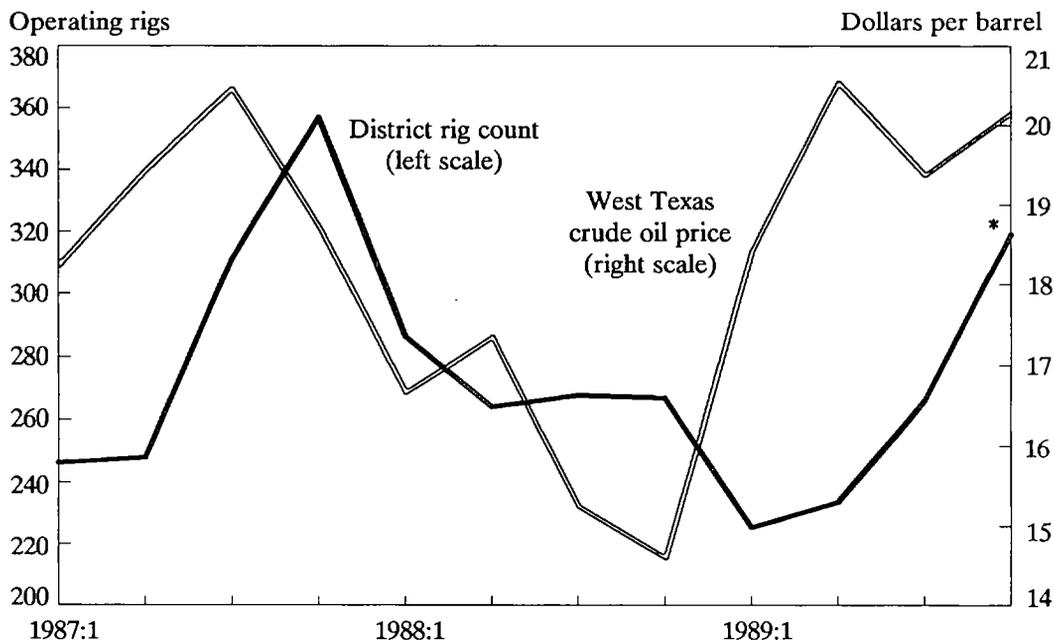
Manufacturing. District manufacturing activity weakened substantially in 1989 after a relatively strong performance in 1988. The slowdown in district manufacturing reflected the national slowing in manufacturing activity, which was partly attributable to weaker U.S. export performance. Manufacturing employment in the district increased more slowly in the first three quarters of 1989 than in 1988 (Table 1). Nevertheless, manufacturing employment still grew slightly faster in the district than in the nation in 1989.

The slowdown in district manufacturing employment growth centered in the durable

goods sector, where jobs grew considerably more slowly in 1989 than the previous year (Table 1). Weakness in the metals and machinery producing industries was only partly offset by gains in the transportation equipment sector.

Employment growth in the district's important transportation equipment industry slowed in 1989 (Table 1). Incomplete data for 1989 suggest some weakening in the district's general aviation industry compared with 1988. Both the number of new aircraft shipped and the value of shipments were slightly smaller in the first half of 1989 than in the first half of 1988. District aircraft sales have surged in the fourth quarter of each of the previous three years, however. Automobile output at district assembly plants rebounded in 1989. District plants produced 14 percent more units in the 1989 model year than

CHART 5
Crude oil price and district rig count



*1989:4 forecast based on October and November data.

Sources : Hughes Tool Company and Platt's.

in 1988, after three consecutive years of declining output. Consequently, the district share of total U.S. auto production increased from 13.0 percent in 1988 to 14.5 percent in 1989.

Nondurables manufacturing in the district remained weak in 1989, and employment growth slowed somewhat from 1988 (Table 1). Food processing plants and the printing and publishing industry accounted for nearly 55 percent of nondurables manufacturing employment in the district. Employment in both these industries posted only modest growth in 1989.

Mining and energy. The district's mining sector, a major contributor to district output, rebounded in 1989. The energy sector—the oil and gas industry, in particular—makes up the

lion's share of mining activity in the district. District mining employment grew solidly through the first three quarters of 1989, after declining in 1988 (Table 1). This substantial improvement was considerably better than the improvement in mining employment in the nation.

Movements in oil prices are obviously important for district energy activity. Oil prices have a sharp impact on drilling and production of oil and gas, the dominant energy resources of the region. Throughout much of 1988, the movement in the price of crude oil was downward, dropping to about \$14 a barrel in November. The price per barrel then increased to about \$20 in the second quarter of 1989 and remained in that neighborhood for the rest of the

year (Chart 5). This increase not only supported the increase in employment described earlier, but also induced a lagged increase in oil and gas exploration and development. The average number of drilling rigs operating in the district in the first three quarters of 1989 was 241, down from 273 in the first three quarters of 1988. But with higher oil prices, the number of operating drilling rigs in the district increased from 225 in the first quarter of 1989 to 326 in November.

Construction. Continued sluggishness in construction activity contributed to slow overall growth in the district economy in 1989. District construction employment declined further over the first three quarters of 1989 (Table 1).

In spite of slightly more favorable rates on home mortgages, district housing activity was somewhat weaker in 1989 than in 1988. Mortgage rates declined somewhat in 1989 from their early spring highs, then changed little after midyear. Housing starts in the district were down 9 percent in the first half of 1989 from the first half of 1988. Moreover, the value of residential construction contracts in the district averaged about 4 percent less in the first three quarters of 1989 than in the first three quarters of 1988.

Nonresidential construction activity in the district was also weaker in 1989. While there was some variation across the district, office vacancy rates (and to a lesser extent, industrial vacancy rates) remained high in a number of district cities. Rates remained especially high in Denver and Oklahoma City. The value of district nonresidential building contracts awarded in the first three quarters of 1989 was about 2.4 percent less than in the same period in 1988.

Trade and services. While employment growth in the district was stronger in services than in manufacturing in 1989, service employment growth slowed in the first three quarters of the year from its 1988 pace (Table 1). The services slowdown occurred despite some increases in tourist activity. Nationally, growth of service employment also slowed in 1989, but

remained considerably stronger than district growth.

Employment growth in wholesale and retail trade in the district slowed significantly in 1989 (Table 1). Employment in both trade sectors grew much more slowly in the district than in the nation, reflecting the stronger national growth in both employment and income.

Government. Federal government spending—defense spending, in particular—is an important influence on the district economy. Thus, slower growth in total federal spending is beginning to affect the district. Nonetheless, employment by the federal government in district states increased in 1989 after declining the preceding year.

More important than the federal government in the district economy, at least in terms of the number of employees, are state and local governments. More than four times as many district employees work for state and local governments as work for the federal government. Employment at state and local governments grew significantly faster in the first three quarters of 1989 than in 1988 (Table 1).

Employment and spending by state governments are affected by their fiscal condition. Changes in the fiscal condition of district states were mixed from 1988 to 1989. The size of a state's yearend balance relative to its general fund spending the preceding year is viewed as a key indicator of fiscal condition. By this measure, fiscal conditions improved in two district states, stayed about the same in three district states, and deteriorated in two district states.⁴ Modest revenue increases in nearly all district states were generally outstripped by spending increases.

Sector outlook

Growth in the district economy is expected to be slow in 1990, despite further improvement in agriculture and possible gains in the oil and gas industry. Ongoing weakness in construction

and manufacturing will likely restrain overall growth in the district economy.

District agriculture is expected to post another solid performance in 1990. The livestock sector can expect improving margins, with the outlook especially favorable for cattle ranchers. Prospects for crop producers are also generally positive, although dry growing conditions pose a potential threat to the 1990 winter wheat crop. Overall, farm incomes should remain at high levels, and some further gains in land values are expected.

The district's oil and gas industry may maintain or slightly improve its current level of activity, provided that oil prices remain relatively stable in 1990. But if OPEC continues to pump oil far in excess of its self-imposed ceilings and the demand for oil falls (as some analysts predict), oil prices may well decline in the first half of 1990. A large drop in oil prices would hurt the district's energy sector.

District manufacturing activity will likely be weak in 1990. The expected slowdown in the nation's economy will likely center in the manufacturing sector due to slower growth in exports, business fixed investment, and purchases of consumer durable goods.

How district manufacturing shares in the national slowdown will depend largely on which manufacturing industries are most affected by the slowdown. The Tenth District will almost certainly feel some of the effects of the defense build-down. Possible delays, stretch-outs, and cancellations of procurement contracts, as well as a potential shrinking of spending for research and development, would directly affect district manufacturing. Indirect effects would likely follow where high-technology industries have grown up in the shadow of defense industries. With the increase in new car sales likely to be small in 1990, district auto production will probably grow slightly at best. Special factors, such as the success of particular models built in district plants, will also affect the area's 1990 auto pro-

duction. District growth in nondurables manufacturing is likely to outpace growth in the durable goods sector again in 1990, as durables production remains weak.

Construction activity in the district probably will remain sluggish in 1990, given the slow pace of overall economic activity and continued high vacancy rates, especially in commercial buildings. Limiting the district's residential construction will be sizable housing inventories in some parts of the region.

Modest overall growth in the district economy in 1990 will permit only moderate growth in the trade and services sectors. Supporting the district's limited growth in trade and services will be continued improvement in agriculture and greater stability in the energy sector. District employment growth in trade and services is likely to trail national growth in those sectors again in 1990.

The government sector will likely contribute little to growth in the district. Concern about the federal budget deficit and the defense build-down will limit federal spending growth both in the nation and the district. State fiscal conditions are likely to come under some stress as economic growth slows. In nearly all states of the district, total balances as a percent of general fund spending are projected to be smaller in 1990 than in 1989.⁵

III. Modest Gains for District States

Most district states participated in the region's modest gains in 1989. Further modest gains are likely in 1990, with the size of the gains in individual states largely dependent on differences in industrial structure. States depending heavily on manufacturing will feel the effects of lower defense spending and sluggish auto sales. States supported by the farm and tourism sectors can expect to benefit from gains in these areas.

Nebraska

Overall economic performance in Nebraska improved in 1989. The state's employment growth was the fastest among district states and only slightly slower than the national rate. Employment growth through the first three quarters of the year was down only slightly from 1988 (Chart 3). Supporting the growth in Nebraska's economy were high farm incomes and gains in manufacturing. Real personal income increased in the first half of 1989, after declining in 1988 (Chart 4).

Agriculture in Nebraska had a strong year in 1989. Crop yields returned to normal after some sharp drought reductions in 1988. Returns to livestock producers were mixed, but ranch income was strong. Farm income in the state should be high again in 1990 as livestock margins improve.

Manufacturing led the way in the improvement of Nebraska's nonfarm sectors in 1989, spurred by continued growth in the food processing industry. Total manufacturing employment, however, slowed to a 2.7 percent annual growth rate in the first three quarters of the year, down from 5.6 percent in 1988.

Nebraska's construction sector improved in 1989, with both the residential and nonresidential sectors showing substantial gains in the first three quarters of the year. Construction employment increased at an annual rate of 1.7 percent for the same period.

Unlike most other district states, Nebraska enjoyed a gain in 1989 over the previous year's growth of employment in the business and personal services sector. Despite slow employment growth in the finance and insurance and the trade sectors in 1989, the total service sector continued to build an important base for the state's long-run economic health.

Nebraska's economy should continue to improve modestly in the year ahead. In a time of slow national growth, the state's economic

outlook should be sustained by continued improvement in the farm sector, as well as by the stabilizing presence of its food processing industry and service sector.

New Mexico

The New Mexico economy continued to grow solidly in 1989. Employment grew in the first three quarters at a rate which nearly matched the state's growth in 1988 (Chart 3). Real personal income grew slightly faster in 1989 than in 1988 (Chart 4).

New Mexico's mining sector shared in the industry's turnaround in the district and the nation in 1989. Mining employment grew at a 7.3 percent annual rate in the first three quarters of the year, after declining slightly in 1988. Employment in the state's oil and gas industry rose 4.5 percent in 1989. Despite increasing employment in the industry, the number of working rigs in the state remained below the 1988 level.

Manufacturing held its own in New Mexico in 1989, while construction activity declined. Manufacturing employment grew at a 3.4 percent annual rate in the first three quarters of the year, equal to the 1988 pace. Defense-related manufacturing and research continued to be important elements in the state's economy. Both residential and nonresidential construction activity declined in 1989, as did the number of construction workers.

The trade and service sectors in 1989 continued to perform better in New Mexico than in other district states. Tourism was again responsible for much of the strength in these sectors. New Mexico's service employment grew over 4 percent in 1989, greater than any other district state.

Improvement in New Mexico's economy will likely continue in 1989, although a range of other outcomes is possible. Gains will depend in part on improved agricultural conditions after

a poor year in 1989. New Mexico's heavy dependence on defense-related activities makes its economy vulnerable to cuts in federal spending. Some slack may be picked up by other kinds of federal programs, including environmental protection activities. Helping to sustain the state's economic health will be New Mexico's continued popularity as a tourist destination.

Kansas

Economic conditions in Kansas improved somewhat in 1989, although the improvement was less than in 1988. Employment growth outpaced employment growth in the district, but was slower than the state's growth the previous year (Chart 3). Real personal income declined slightly in the first half of 1989, after growing slightly in 1988 (Chart 4).

Improvement in the state's farm economy was slowed, but not halted, by the 1989 drought. Wheat production in Kansas fell sharply. Offsetting some of the crop losses was continued high production of livestock.

Manufacturing activity in Kansas was sluggish in 1989. Durable goods manufacturing deteriorated somewhat from its 1988 pace, while nondurables activity improved. All manufacturing employment grew at a 1.6 percent annual rate in the first three quarters of the year, following a 2.2 percent rate in 1988. Durables producers increased jobs by 1.9 percent, following a 4.2 percent increase the previous year. Aircraft production and sales gave less of a lift to Kansas manufacturing in 1989 than in 1988. But automobile production in Kansas City, where General Motors opened a new facility, rebounded from its very low 1988 level. Nevertheless, assemblies there remained well below the peak levels of the mid-1980s.

The relatively small Kansas mining sector participated somewhat in the 1989 turnaround in district mining activity. Mining employment in Kansas declined at a 0.8 percent annual rate

in the first three quarters of the year, up significantly from a 14 percent decline in 1988. Nevertheless, Kansas was the only district state that failed to post an increase in mining jobs in 1989. Higher, more stable crude oil prices after the second quarter of the year brought virtually no increase in the number of drilling rigs operating in the state.

Only moderate economic growth is likely for Kansas in 1990. Manufacturing in Kansas, as in the nation, will likely grow slowly. Manufacturing in the state may well be buoyed by the general aviation sector, while the auto sector may have a negative influence. The 1990 wheat crop remains dry and, with limited soil moisture reserves, is especially susceptible to weather developments. Nevertheless, a solid year for Kansas agriculture appears to be in the offing.

Oklahoma

The Oklahoma economy saw limited improvement again in 1989. Employment grew somewhat faster in the first three quarters of the year than in 1988 (Chart 3). Growth of real personal income slowed substantially in the first half of 1989 (Chart 4).

Oklahoma's energy industry, however, responded positively to higher oil prices in 1989. Employment in the oil and gas industry grew at a 1.5 percent annual rate in the first three quarters of the year, reversing a 4.4 percent decline in 1988. The response in the number of operating rigs lagged, however. The average number of rigs operating in the first three quarters of 1989 was still about 9 percent lower than in the same period a year earlier, although the number of rigs increased as the year went on.

Performance in Oklahoma's manufacturing sector deteriorated significantly in 1989. The decline was fairly widespread across producers of both durables and nondurables. Total manufacturing employment was about flat in 1989 after increasing 3.7 percent in 1988, despite

a sharp rebound in automobile production, which brought the number of assemblies close to the levels of the mid-1980s.

Reflecting the weakness of Oklahoma's economy were the trade and services sectors. Employment in the services sector grew more slowly in 1989 than in the year before, and considerably more slowly than services employment in the nation. Employment in Oklahoma's wholesale and retail trade industry declined in the first three quarters of 1989, compared with 1988.

Oklahoma's transition from an oil state to a more industrially diversified economy may be slowed in 1990. As in other states, weakness in the nation's manufacturing sector is also likely to show up in the Oklahoma manufacturing sector. A potentially more stable energy sector and improvement in agriculture should help sustain the state's economy until a manufacturing rebound takes hold.

Colorado

After a weak performance in 1988, the Colorado economy rebounded in 1989, although not to its heights of the mid-1980s. Although employment grew only modestly in the first three quarters of the year, that performance was still better than the slow growth of 1988 (Chart 3). The increase in real personal income in the first half of 1989 was twice the increase posted in 1988 (Chart 4). Mining and retail trade accounted for much of the improvement in Colorado's economy, offsetting poor performances by manufacturing and construction.

The improvement in Colorado's manufacturing sector, begun in 1988, stalled in 1989. Manufacturing employment increased at an annual rate of only 0.2 percent for the first three quarters of 1989, down from 2.5 percent the year before. The weakness in the state's manufacturing performance was spread across many industries.

Construction activity continued to be weak in 1989, in both the residential and nonresidential sectors. Denver's industrial and commercial vacancy rates remained above the national averages in late 1989, although downtown commercial vacancy rates have continued to fall from their earlier peaks. Total construction employment in Colorado declined at an annual rate of 1.6 percent in the first three quarters of the year, a much smaller decline than in 1988.

Colorado mining was stronger in 1989 than in the year before, although oil and gas remained weak. Total mining employment increased at a 3.6 percent rate after declining nearly 14 percent in 1988. But employment in the state's oil and gas industry continued to fall in 1989 at nearly the same rate as in 1988. While the number of operating drilling rigs increased during the year, the average number was still below the 1988 average level.

A relatively strong support for Colorado's moderate overall growth in 1989 was growth in the state's trade and services employment. Especially significant was retail trade employment. Tourism also played a prominent role in boosting the state's economic health, with skiers visiting Colorado's slopes in near-record numbers in the 1988-89 season.

Growth in Colorado's economy is likely to continue in 1990, but again its growth is likely to be moderate. Both Denver and Colorado Springs are among the top 15 cities for defense research and development spending, so the defense build-down may adversely affect them. Overall manufacturing will likely parallel the nation's weakness in that sector. Apart from the positive impact of special projects like the new Denver airport, construction's role in the state's economy will be limited, until excess residential and commercial buildings are absorbed. Tourism will continue to give solid support to the state's economy.

Missouri

Missouri's economy, the most diversified in the district, continued to grow more slowly than the nation's economy in 1989. The state's employment growth slowed even further in the first three quarters of 1989 from only modest growth in 1988 (Chart 3). The weakness in employment growth was widespread among industries. Missouri's income growth was faster in the first half of 1989 than in 1988 (Chart 4).

Manufacturing, the key to Missouri's economic health, weakened in 1989. Total manufacturing employment was flat through the first three quarters of the year, after increasing only 0.6 percent in 1988. The weakness persisted throughout industries producing both durables and nondurables. While Missouri again produced more than half of the new cars built in the district, 1989 production in the state was virtually unchanged from its 1988 level.

Both residential and nonresidential construction in Missouri continued to weaken in 1989. Late in the year, commercial vacancy rates for both Kansas City and St. Louis were above the national downtown average but below the national average for suburban areas. Missouri construction employment declined at a 3.0 percent annual rate in the first three quarters of the year, a lesser decline than the 4.3 percent drop in 1988.

Performance in Missouri's trade and services sector also sagged in 1989. Services employment grew at only a 0.4 percent rate in the first three quarters of 1989, less than one-tenth the rate of increase in national services employment and well below the 2.8 percent increase in Missouri in 1988. Trade employment growth was also weak in Missouri, especially in the retail sector.

The year ahead does not appear to be promising for the Missouri economy. General business conditions must improve for construction activity to gain new impetus. While the state's farm sec-

tor may enhance overall economic activity, the performance of Missouri manufacturing will likely be restrained by the defense build-down and weakness in new car production. Missouri, which in recent years dropped from second to third among state leaders in auto assemblies, now finds that ranking threatened by increased output and capacity in Illinois.

Wyoming

Wyoming's economic recovery faltered in 1989. Employment fell in the first three quarters of the year, after rising in 1988 (Chart 3). Real personal income, however, increased slightly in the first half of 1989 after declining slightly in 1988 (Chart 4).

The state's economy in 1989 benefited from improvement in the mining sector. Mining employment, which had decreased 4.6 percent in 1988, increased at a 1.8 percent rate in 1989. The mining of coal and trona, or soda ash, was again a major contributor to Wyoming's minerals output. The number of drilling rigs operating in the state increased as the year went on, but the average number of rigs in the first three quarters of 1989 was smaller than the average number operating in the same period the year before.

The Wyoming construction sector showed some signs of strength in 1989. Although employment declined again in 1989, an uptick in contract awards in the third quarter brought both residential and nonresidential building awards for the first three quarters of 1989 above their average level for the same period of 1988.

Agriculture and tourism were positive factors for the Wyoming economy again in 1989. Ranching, a major part of the state's agricultural sector, had particularly strong income and helped support business activity in much of the state. National park visits through the summer of 1989 bounced back to levels established in 1987.

Wyoming appears to be facing another year of relatively slow growth in 1990. Continued

improvement in the farm sector should support such growth. Moreover, the state's energy sector is poised for a boost from increased activity in the natural gas industry. And tourism will help sustain trade and services activity in parts of the state.

IV. Summary

Economic performance in the Tenth District lagged behind national economic performance again in 1989. The district's relatively slow growth reflected weakness in manufacturing, while the agricultural and energy sectors showed

marked improvement. Compared with 1988, overall economic performance of the district showed slight improvement in 1989, while the performance of individual states was mixed.

Like growth in the national economy, growth in the district is expected to be slow in 1990. The district's energy sector is likely to retain the improvement achieved in 1989. Agriculture and tourism should provide solid underpinnings for district economic performance, but continued weakness in manufacturing will likely restrain overall growth. No district state appears to be poised for especially strong economic performance in 1990.

Endnotes

¹ This article's assessment of 1989 Tenth District economic performance uses the most recent data available at the time of writing. In some cases, such as employment, preliminary data for the third quarter were available. In some other cases, data were not as recent.

² Discussions of employment growth in this article are based on growth for 1988, calculated from the fourth quarter of 1987 to the fourth quarter of 1988, and growth for 1989, calculated as the annual rate of growth from the fourth quarter of 1988 to the third quarter of 1989. The employment data are from the Bureau of Labor Statistics Current Employment Statistics program, seasonally adjusted at the Federal Reserve Bank of Kansas City.

³ Discussions of income growth in this article are based on growth for 1988, calculated from the fourth quarter of 1987 to the fourth quarter of 1988, and growth for 1989, calculated as the annual rate of growth from the fourth quarter of 1988 to the second quarter of 1989. The income data are seasonally adjusted real personal income data from Data Resources, Inc.

⁴ Fabricius and others, 1989. Balances in 1989 were more than one percentage point higher than in 1988 in Kansas and Nebraska; about the same in Colorado, Missouri, and Oklahoma; and more than one percentage point lower in New Mexico and Wyoming.

⁵ Fabricius and others, 1989.

References

Fabricius, Martha A., Steven D. Gold, and Corina L. Eckl. 1989. "State Budget Actions in 1989." *Legislative Finance*

Paper no. 69, Fiscal Affairs Program, National Conference of State Legislatures, September, Table 1

U.S. agriculture charts a new course for the 1990s

By Mark Drabenstott and Alan D. Barkema

Farmers entered the 1980s expecting a golden decade, but instead encountered the worst recession in 50 years. The ensuing financial problems raised farm foreclosures to postwar highs, lifted farm bank failures to the highest levels since the Great Depression, and prompted a federal bailout of the Farm Credit System. Following significant financial restructuring and considerable assistance from Washington, agriculture embarked on a strong recovery in 1987.

The three-year-old farm recovery appears likely to continue in 1990. Crop prices may slump in the year ahead as crop production rebounds from two years of drought. Nevertheless, strong export prospects will lend support to crop prices. Lower feed prices along with record meat production point to a good year for livestock producers. Overall, farm income in 1990 may decline modestly, but will remain at

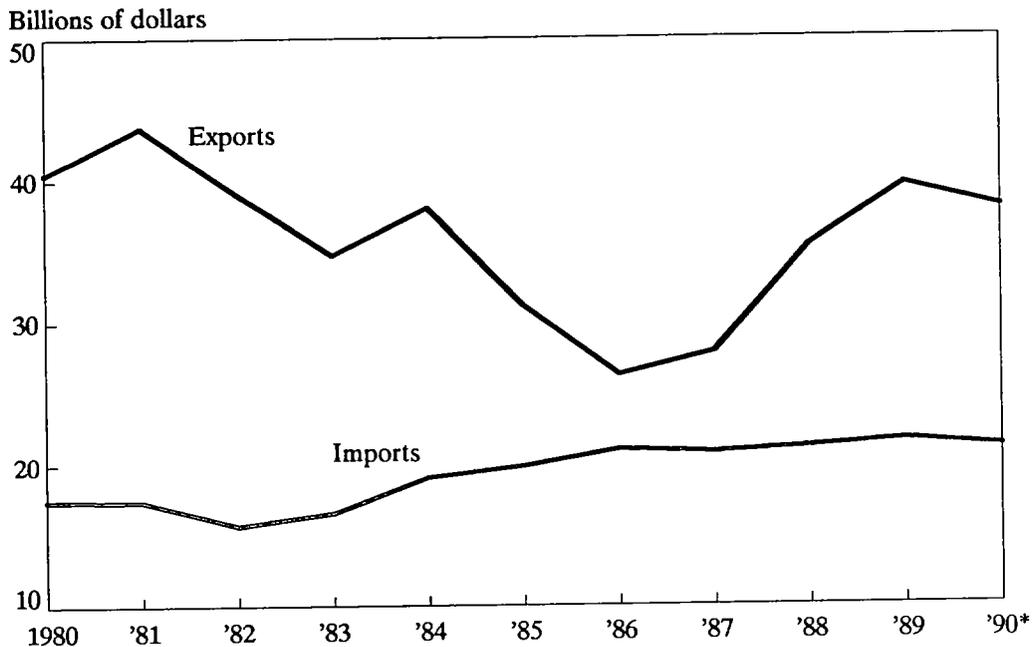
a high level. Farm financial conditions should continue to improve, as farmland values rise and farmers add modest amounts of debt to already strong balance sheets.

Despite agriculture's favorable position entering 1990, a number of fundamental issues could transform the farm economy over the next several years. In 1990, a new farm bill will be written and the Uruguay Round of GATT (General Agreement on Tariffs and Trade) negotiations will conclude. Bold new agricultural technologies emerging here and abroad will pose new competitive challenges for U.S. producers. And mounting concerns about agriculture's effect on the environment could lead to new limits on long-standing farming practices.

This article considers the outlook for agriculture in the year ahead and examines the issues likely to shape the agricultural economy in the coming decade. First, it reviews the farm recession and recovery of the 1980s. Next, it considers the farm outlook for 1990. Finally, it identifies the issues likely to influence the farm outlook in the 1990s and explores the possible impacts.

Mark Drabenstott is an assistant vice president and economist at the Federal Reserve Bank of Kansas City and Alan D. Barkema is a senior economist at the bank. Julie Stanley, a research associate at the bank, assisted in preparing the article.

CHART 1
Agricultural trade balance



*Forecast.

Source: U.S. Department of Agriculture, *Agricultural Outlook*.

I. The 1980s: A Decade to Remember

U.S. agriculture will not soon forget the 1980s. Rarely has an entire industry been more surprised by events than agriculture during the past decade. The 1970s proved to be wildly successful for most farmers and agribusinesses, initiating a boom in farm investment. Industry participants anxiously awaited the 1980s, expecting hefty investment returns. Instead, a long farm recession began in 1981. After five years of painful financial adjustment, farm recovery took hold in 1987 and has continued to the present.

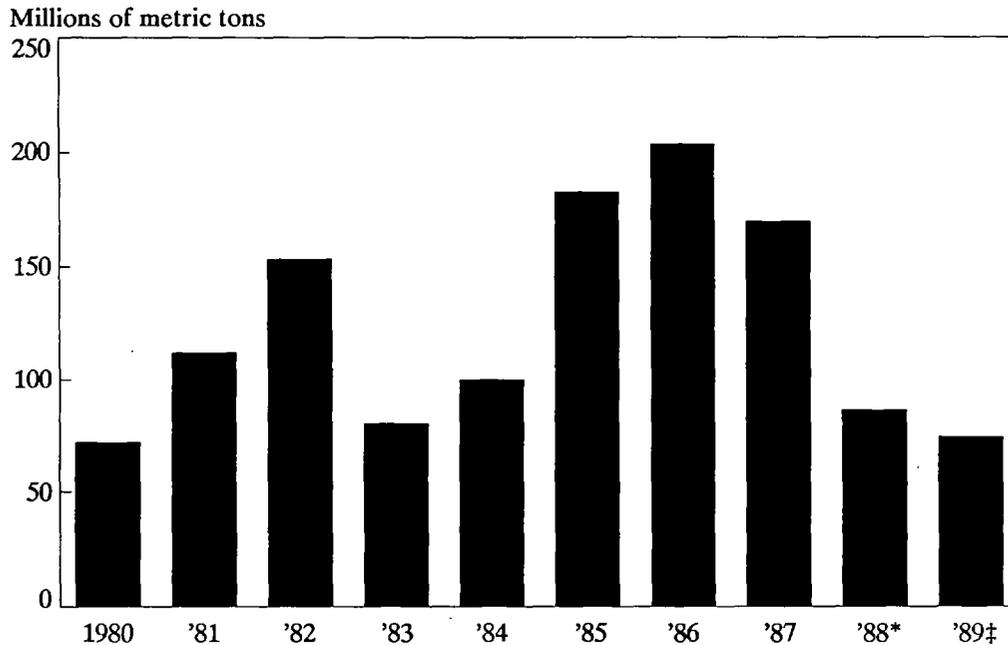
The farm recession

The farm recession began in 1981. The farm

investment boom of the 1970s was leading to excess capacity in U.S. agriculture. Agriculture's problems were exacerbated by a dramatic increase in interest rates, especially in real, or inflation-adjusted, terms. Farm loan interest rates increased sharply, squeezing the ability of farmers to repay the mountain of debt accumulated when income expectations were higher during the 1970s. The higher interest rates contributed to deep recession in the global economy, trimming demand for U.S. farm exports. And the higher interest rates contributed to a stronger dollar, further hurting farm exports.

After peaking in 1981, U.S. farm exports fell by a third through 1986 (Chart 1). Despite the sluggish demand caused by the strong dollar and the world recession, rising U.S. support

CHART 2
Inventory of total grains



*Estimated.
 ‡Projected.

Source: U.S. Department of Agriculture, *World Agricultural Supply and Demand Estimates*.

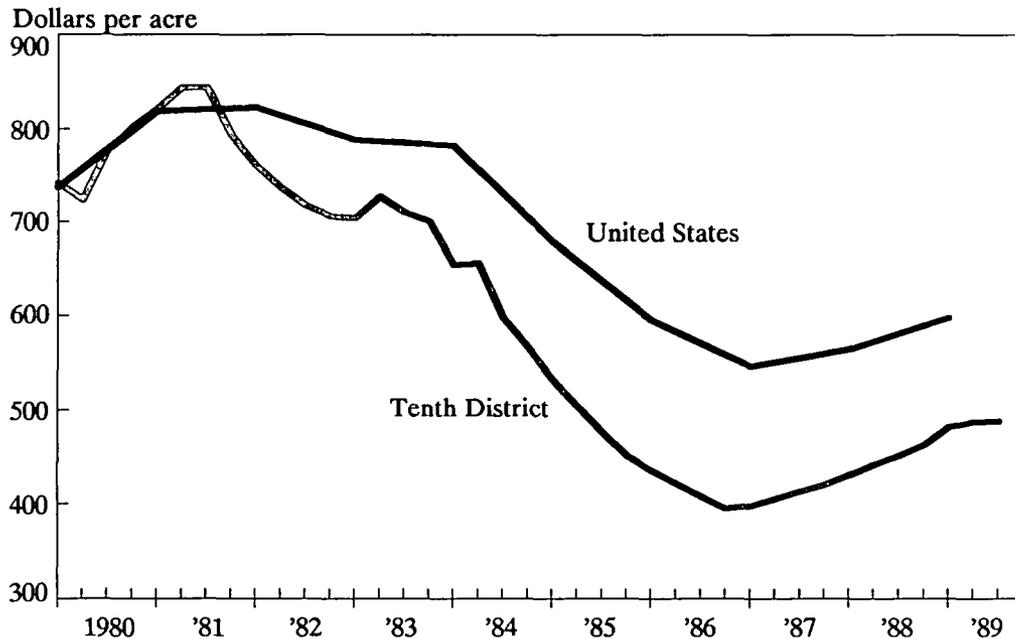
prices encouraged production by U.S. farmers and competing nations. The agricultural trade surplus declined sharply, falling from \$26.5 billion in 1981 to just \$5.5 billion in 1986. While exports fell, agricultural imports increased steadily in the 1980s. Thus, agriculture's contribution to the nation's trade accounts fell sharply.

As exports fell, grain surpluses mounted, becoming a hallmark of agriculture's recession. With world markets weak and U.S. farm programs still encouraging U.S. farmers to produce, grain surpluses swelled to record levels (Chart 2). The government ended up holding most of the surplus, at great cost to the public. The rise in grain stocks was interrupted only by the

introduction of the PIK (Payment-In-Kind) program in 1983. The PIK program paid farmers government-owned grain to idle a third of the nation's cropland and, combined with a mild drought that year, cut annual crop output roughly in half. But despite the PIK program, by 1986 total grain carryover stocks in the United States topped a record 203 million metric tons, roughly 70 percent of annual use. Correspondingly, farm commodity prices dropped to 15-year lows.

By 1981, farmland values had risen to record heights, as farmers and other investors bid aggressively on the belief that the 1980s would bring continued good times to agriculture (Chart 3). In reality, though, land values were above levels that the cash flow would support. Thus,

CHART 3
Farmland values



Source: U.S. Department of Agriculture, *Agricultural Resources: Agricultural Land Values and Markets, Situation and Outlook Report*; Federal Reserve Bank of Kansas City, *Agricultural Credit Survey*.

when price expectations fell and farm mortgage rates soared, farmland values plummeted. Between 1981 and 1986, farmland values in the Tenth District fell 55 percent. Nationally, farmland values fell about a third.

The farm recovery

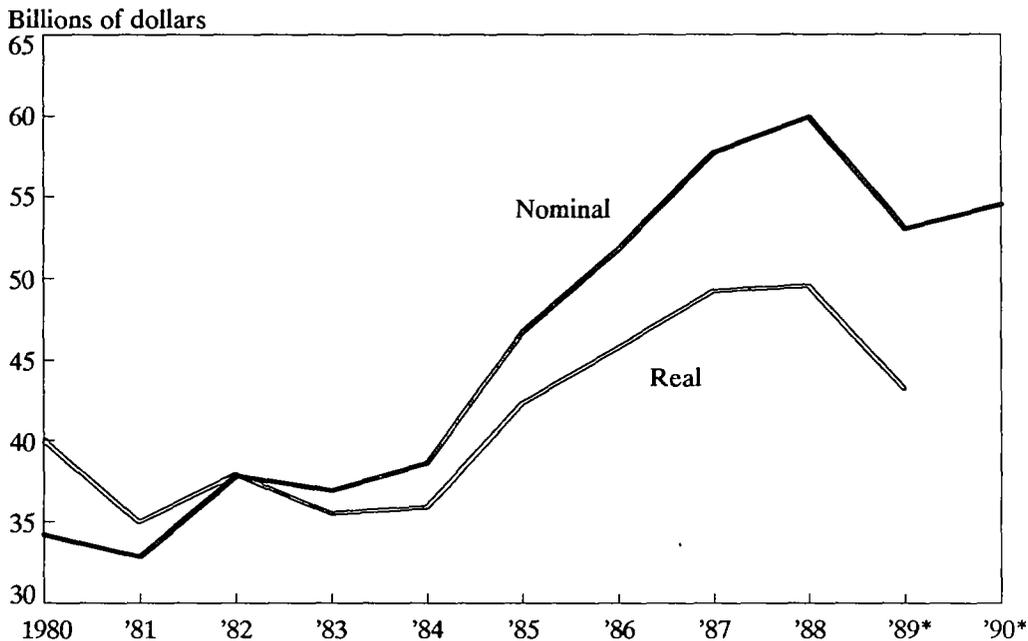
Farm recovery began in earnest in early 1987. The recovery was spawned by heavy government spending on farm programs and a constellation of favorable market developments. Under the provisions of the Food Security Act of 1985, U.S. farm support prices were cut—making U.S. farm products cheaper in world markets—while income support for producers was held high. As a result, federal outlays for

farm programs were a record \$26 billion in 1986 and \$22 billion in 1987. A declining dollar also helped make U.S. farm products more competitive. Finally, a more favorable mix of macroeconomic policy led to lower interest rates, easing farm debt problems.

Rebounding farmland values were the clearest indicator of the farm upturn. Land values began to recover in early 1987 and continued to climb, despite a large inventory of land held by lenders. In the Tenth District, land values increased 23 percent from the trough in the fourth quarter of 1986 to the third quarter of 1989. The rebound in U.S. farmland values was a more modest 10 percent.

Also signaling a farm recovery was an export turnaround. Exports improved modestly

CHART 4
Net cash income



*Forecast.

Source: U.S. Department of Agriculture, *Agricultural Outlook*.

in 1987 as government export subsidies and the cheaper dollar spurred foreign demand. But improving economic growth in key U.S. markets—Asia and Latin America, in particular—began to boost sales further in 1988 and 1989. By 1989, farm exports had increased 50 percent from the recession low.

Throughout the farm recovery, farm incomes also moved smartly higher. Farm incomes actually began to improve in 1985, but producers were under so much financial stress then that the gains seemed marginal at best (Chart 4). But beginning in 1986, a combination of record government spending and improving commodity markets pushed farm cash income to a record high. New records were also set in 1987 and 1988. Income remained strong in 1989,

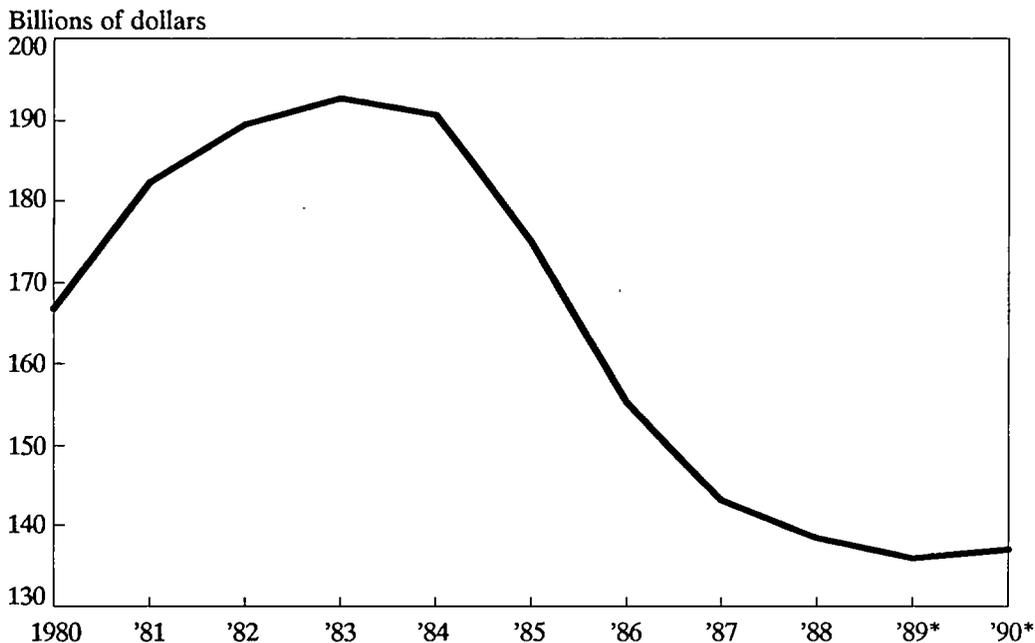
although slightly below the record set in 1988.

An important feature of the income strength throughout the recovery was how broadly it was shared. Livestock and crop producers shared about equally. Livestock prices were cyclically strong at the same time that government programs were boosting crop income.

Farm debt proved to be a lagging signal of both recession and recovery in the 1980s, but it graphically describes agriculture's journey through the decade. Farm debt was high as the 1980s began, yet farmers continued to add more debt, believing that agriculture was passing through a temporary downturn (Chart 5). About \$25 billion in debt was added from 1980 to 1983, when farm debt peaked at \$192 billion.

U.S. agriculture underwent a historic finan-

CHART 5
Farm debt



*Forecast.

Source: U.S. Department of Agriculture, *Agricultural Outlook*.

cial restructuring from 1983 to 1988, as more than a quarter of farm debt was trimmed. The debt reduction was broadly shared. Lenders absorbed as much as a third in principal write-downs. As loan losses mounted, many agricultural banks failed, and the Farm Credit System required federal assistance. And as pressures to repay delinquent farm loans increased, perhaps 10 to 15 percent of the farms that entered the 1980s failed—the most since the Depression. Many bad loans ended up with the Farmers Home Administration, the government lender of last resort to agriculture. And, the strong farm incomes of the past four years enabled many farmers to pay off debts to more manageable levels.

Following three years of strong farm

recovery and dramatic financial restructuring, agriculture appears to be entering the 1990s with solid financial foundations. Both farm assets and farm liabilities have now adjusted to a more competitive global agricultural market.

U.S. agriculture's odyssey of the 1980s offers many lessons. First, even though financial restructuring proved painful, agriculture proved relatively resilient to the economic shocks of the early 1980s. Second, agriculture learned its share of the world market is not guaranteed—it must compete effectively with many other nations. Third, agriculture became even more fully integrated into national and international markets, making it more susceptible to macroeconomic developments. Fourth, as annual farm program costs swelled to more than \$20 billion,

agriculture learned its programs can be very expensive and are likely to come under greater budget scrutiny by policymakers. Finally, persistent rural economic weakness, even in the face of strong farm recovery, shows that agriculture is no longer the economic mainstay for much of rural America.

II. The Farm Outlook for 1990

After a tumultuous decade, U.S. agriculture appears ready to make a solid entrance into the 1990s. All indicators point to a continuation of the three-year-old farm recovery in the year ahead. The upcoming year will probably bring further farm financial gains, nearly steady farm exports in a more competitive world market, and recovery of farm production from two consecutive years of drought. Crop prices may be weak, but livestock profits are expected to increase. Consumers will benefit from slower food price inflation.

Farm income and financial conditions

After three years of buoyant recovery, agriculture's financial condition may stabilize on a relatively high plateau in 1990. Livestock returns, fueled by steady livestock prices and cheaper feed prices, will be the dominant source of farm income strength. While a further rebound in feedgrain and soybean production translates into cheaper feed for livestock producers, lower feedgrain and soybean prices could limit returns for cash grain farmers. Greater quantities of somewhat higher priced crop production inputs will be required to plant larger acreage in 1990, but cash farm expenses are likely to remain steady as higher crop expenses are offset by lower feed costs. On balance, net cash farm income—equal to the difference between cash receipts and cash expenditures—is expected to increase about 3 percent, and at \$52 to \$57 billion will exceed \$50 billion for the fifth consecutive

year (Chart 4). Net farm income—which includes depreciation charges and changes in inventory values—could slip slightly to \$44 to \$49 billion, as prices for the 1990 feedgrain and soybean crops edge down.¹

Continued farm income strength should support further improvement in the farm balance sheet in 1990. Farm asset values, supported by further gains in farmland values, are likely to increase slightly more than 4 percent (Table 1). In many areas, farmland values appear to have risen at least to the level supported by the land's cash return. Following the strong rebound of the past three years, however, further gains are not likely to exceed the rate of price inflation in the economy as a whole—about 4 percent in 1990. On the other side of the farm balance sheet, farm debt could edge up as confidence in agriculture's repayment capacity is gradually restored by strong farm incomes and steady gains in farmland values.

Although the tone of the farm financial outlook for 1990 is generally positive, the industry's continued reliance on federal support remains a major concern. Scrutiny of agriculture's government support is likely to intensify as pressure builds to reduce the federal budget deficit. Direct government payments of \$9 to \$10 billion, down slightly from 1989, will remain a bothersome reminder of Washington's role in the industry's recovery.

Food price outlook

The drought's lingering effects on food prices will diminish in 1990. Following sharp increases in meat and poultry prices in 1989, larger meat and poultry production will limit gains in red meat prices to 1 to 3 percent and lead to lower poultry prices. Despite lower grain prices, strong consumer demand for high-fiber cereal products will cause cereal and bakery product prices to rise 5 to 7 percent, down from an 8.5 percent gain in 1989. Dairy product prices

TABLE 1
Farm balance sheet excluding operator households and CCC loans
 (Billions of dollars)

| | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990*</u> |
|---------------------|-------------|-------------|-------------|--------------|
| Assets | 765 | 810 | 849 | 885 |
| Liabilities | 143 | 138 | 136 | 137 |
| Proprietor's equity | 622 | 672 | 713 | 745 |

*Forecast.

Source: U.S. Department of Agriculture. Economic Research Service. Agricultural Outlook Conference.

will stabilize as improved forage quality boosts milk production. In 1989, poor forage quality—another effect of the 1988 drought—reduced milk supplies and helped boost dairy product prices about 6 percent. In sum, consumer food prices are likely to rise 3 to 5 percent in 1990, down from a 6 percent increase in 1989, but slightly above the 3 to 4 percent annual increase in food prices during most of the 1980s.

Export outlook

Exports of U.S. farm products are likely to slip slightly in both volume and value in 1990. After rising for four consecutive years, export value is likely to be pushed down slightly to about \$38 billion by lower feedgrain and soybean prices (Chart 2). A slight decline in export volume is expected as gains in coarse grain and soybean exports are offset by a decline in wheat exports.

Coarse grain exports will be fueled by larger corn imports by the Soviet Union and South Korea. But despite a larger export volume, lower prices are likely to push down the value of coarse grain exports about 10 percent. U.S. soybean exports will face stiff competition from soybeans produced in Argentina, Brazil, and Paraguay, where production increased 10 percent in 1989. Although the volume of U.S. soybean exports could rise significantly in 1990, soybean exports will remain well below the 700 to 800 million

bushels exported annually during most of the 1980s. The limited rebound in U.S. export volume will not be sufficient to offset lower soybean prices, and U.S. soybean sales are likely to edge lower.

In contrast to the growth expected in U.S. corn and soybean exports, the volume of U.S. wheat exports is expected to fall sharply in 1990. Surging production in China, India, and the Soviet Union will constrain demand for wheat imports, while larger production in Argentina, Canada, and the European Community will boost competing wheat supplies. Although a continued decline in U.S. and world wheat inventories will boost wheat prices, the price gain will not be sufficient to offset the decline in export tonnage. As a result, the value of U.S. wheat exports is expected to fall.

Continued strength in high-value exports rounds out the farm export outlook for 1990. Spurred by larger beef exports to Japan, exports of U.S. livestock, dairy, and poultry products are expected to equal the record set in 1989. In sum, a slight decrease in U.S. farm exports and nearly steady farm imports are expected to maintain a U.S. farm trade surplus of about \$17 billion in 1990.

Crop outlook

The lingering effects of two consecutive

years of drought are clearly evident in the wheat outlook for 1990. But the drought's impact on the outlook for corn and soybeans has been diminished by a rebound in corn and soybean production in 1989. Thus, wheat prices are likely to remain strong, but the mid-1988 surge in corn and soybean prices will fade further as prospects for large crops and recovering inventories weigh down corn and soybean prices in 1990.

Continued drought in 1989 partially thwarted attempts to boost wheat production. A reduction in the percentage of wheat base acres idled for participation in the government farm program contributed to an increase of nearly a sixth in 1989 wheat plantings. Despite a rebound in northern Plains wheat yields, low yields and a high rate of abandonment in the drought-stricken central Plains states limited production gains from the larger plantings. At only 32.9 bushels per harvested acre, the national average wheat yield in 1989 was the lowest in more than a decade. As a result, the U.S. wheat crop was only an eighth larger than the drought-reduced 1988 crop.

Despite a 10 percent decline in wheat exports, projected wheat use will again be larger than the drought-shortened crop. As a result, wheat inventories will be drawn down for the fourth consecutive year to the smallest level since 1974 (Table 2). The narrow wheat inventories are likely to encourage a large expansion in production in 1990, which could eventually drive wheat prices lower. But any production shortfall resulting from continued adverse weather could cause wheat prices to surge even higher. Thus, dry early-winter growing conditions across much of the Great Plains wheat belt lends a large measure of uncertainty to wheat price projections. Nevertheless, the further drawdown of wheat inventories may boost average farm-level wheat prices during the 1989-90 marketing year almost to the \$4.10 target price (Table 3).

In contrast to the drought's continued impact on the wheat crop, feedgrain (corn, sorghum,

barley, and oats) production bounced back in 1989. Production of corn, the principal feedgrain, rebounded by more than half. Nevertheless, corn use is expected to be larger than the 1989 crop due to a modest rebound in domestic feed use and continued strong export demand. But the projected drawdown in corn inventories during the 1989-90 marketing year is slight compared with the huge drawdown of a year earlier. The production rebound, limited inventory drawdown, and prospects for a larger crop in 1990 are expected to result in an average corn price during the 1989-90 marketing year well above the \$1.65 loan rate, but well below the average price of a year earlier.

Soybean production rebounded more than a fourth in 1989. The larger crop, limited gains in domestic use, and an export-constraining surge in foreign production are expected to boost U.S. soybean inventories to pre-drought levels. Strong domestic feed demand by expansion-minded hog and poultry feeders and steady soybean meal exports are expected to support slightly larger soybean meal production. Although the larger meal production will increase soybean oil production, soybean oil stocks will be drawn down sharply by plummeting imports and larger domestic use. The recovery in soybean inventories is expected to weigh down average prices for both soybeans and soybean meal, while the drawdown in soybean oil inventories supports soybean oil prices.

Livestock outlook

The drought's impact on the livestock sector will also diminish in 1990 as the recovery in feedgrain and soybean production pushes feed prices lower and feeding margins higher. Lower feed costs could help boost total production of red meat and poultry about 3 percent to a new record. Beef and pork production are both expected to increase about 1 percent, while poultry output may surge nearly 7 percent.

TABLE 2
U.S. agricultural supply and demand estimates on December 12, 1989
(Millions of bushels or metric tons)

| | Corn (bu.) | | | Feedgrains (mt.) | | |
|------------------------|-----------------|---------|---------|------------------|---------|---------|
| | Sept. 1-Aug.31 | | | June 1-May 31 | | |
| | 1987-88 | 1988-89 | 1989-90 | 1987-88 | 1988-89 | 1989-90 |
| Supply | | | | | | |
| Beginning stocks | 4,882 | 4,259 | 1,930 | 152.1 | 133.6 | 65.9 |
| Production and imports | 7,076 | 4,926 | 7,593 | 216.5 | 150.6 | 224.2 |
| Total supply | 11,958 | 9,185 | 9,523 | 368.6 | 284.3 | 290.0 |
| Demand | | | | | | |
| Domestic | 5,967 | 5,195 | 5,475 | 182.3 | 156.3 | 166.2 |
| Exports | 1,732 | 2,060 | 2,150 | 52.6 | 62.1 | 62.8 |
| Total demand | 7,699 | 7,255 | 7,625 | 234.9 | 218.4 | 229.0 |
| Ending stocks | 4,259 | 1,930 | 1,898 | 133.6 | 65.9 | 61.0 |
| Stocks-to-use ratio | 55.32 | 26.60 | 24.89 | 56.88 | 30.17 | 26.64 |
| | | | | | | |
| | Soybeans (bu.) | | | Wheat (bu.) | | |
| | Sept. 1-Aug. 31 | | | June 1-May 31 | | |
| | 1987-88 | 1988-89 | 1989-90 | 1987-88 | 1988-89 | 1989-90 |
| Supply | | | | | | |
| Beginning stocks | 436 | 302 | 182 | 1,821 | 1,261 | 698 |
| Production and imports | 1,923 | 1,548 | 1,937 | 2,124 | 1,834 | 2,062 |
| Total supply | 2,359 | 1,850 | 2,119 | 3,945 | 3,095 | 2,760 |
| Demand | | | | | | |
| Domestic | 1,255 | 1,141 | 1,204 | 1,092 | 973 | 1,042 |
| Exports | 802 | 527 | 580 | 1,592 | 1,424 | 1,275 |
| Total demand | 2,057 | 1,668 | 1,784 | 2,684 | 2,397 | 2,317 |
| Ending stocks | 302 | 182 | 335 | 1,261 | 698 | 443 |
| Stocks-to-use ratio | 14.68 | 10.91 | 18.78 | 46.98 | 29.12 | 19.12 |

Source: U.S. Department of Agriculture, Foreign Agricultural Service, *World Agricultural Supply and Demand Estimates*.

TABLE 3
U.S. farm product price projections

| Crops | Marketing years | | Percent Change |
|----------|-----------------|-----------------|----------------|
| | 1988-89* | 1989-90† | |
| Wheat | \$3.72/bu. | \$3.80-3.95/bu. | 4.17 |
| Corn | \$2.54/bu. | \$2.10-2.40/bu. | -11.42 |
| Soybeans | \$7.35/bu. | \$5.25-5.75/bu. | -25.17 |

| Livestock | Calendar years | | Percent Change |
|-----------------|----------------|---------------|----------------|
| | 1989* | 1990† | |
| Choice steers | \$71.94/cwt. | \$71-77/cwt. | 2.86 |
| Barrows & gilts | \$41.84/cwt. | \$43-49/cwt. | 9.94 |
| Broilers | \$.61/lb. | \$.50-.56/lb. | -13.11 |
| Turkeys | \$.66-.67/lb. | \$.57-.63/lb. | -9.77 |

*Estimated.

†Projected.

Source: U.S. Department of Agriculture, Foreign Agricultural Service, *World Agricultural Supply and Demand Estimates*.

Poultry will continue to increase its share of U.S. meat consumption in 1990. Total per capita consumption of red meat and poultry may increase nearly 5 pounds to 223 pounds, the fourth consecutive year of record meat and poultry consumption. Poultry will account for nearly all of the consumption gain, as per capita broiler consumption surges more than 4.5 pounds to 69.6 pounds. For the first time, broiler consumption may overtake per capita beef consumption, which is expected to drop to less than 68 pounds. Pork consumption is expected to edge up to about 63 pounds.

The cattle outlook is favorable in 1990, especially for ranchers. The nation's cow herd has shrunk nearly a fourth in the last 15 years. Continued strong market demand for the limited supply of calves produced by the shrunken breeding herd promises to maintain high feeder cattle prices well into 1990. Despite strong feeder cattle prices, expansion in the nation's cattle herd has been slow, and prospects for immediate expansion appear limited. During the past two

years, expansion plans have been partially frustrated by the withered pastures and higher feed costs caused by drought. Continued dry pasture conditions in several Great Plains and Rocky Mountain states may limit expansion of herds or force some modest reductions in herds in some areas this winter. But over the next year or two, strong returns to cattle ranchers suggest a continued, gradual expansion in the size of the nation's cattle herd and in future beef production.

In 1990, continued strong feeder cattle prices could push the breakeven price for fed cattle to nearly \$80 per hundredweight for at least part of the year. Continued strength in retail beef prices—which have risen to new records in each of the last three years—will be required to support fed cattle prices at profitable levels. But large competing supplies of pork and poultry are likely to limit any further gains in retail beef prices in 1990. As a result, profits for cattle feeders may be limited.

Pork production in 1990 will continue to recover from the effects of the 1988-89 drought.

Higher feed costs following the severe drought of 1988 cut sharply into returns for pork producers. The result was a rapid cutback in the size of the U.S. hog breeding herd. In the year ending September 1, 1989, the breeding herd shrank 3 percent. With the rebound in feedgrain production in 1989 and larger crops in prospect for 1990, however, lower feed costs are likely to contribute to improved returns and an expansion in breeding herds during the coming year. With continued strong demand, hog prices may be steady to slightly higher in 1990. Although hog prices may average above the 1989 average for the year as a whole, prices will likely fall below year-ago levels in the third and fourth quarters as production increases.

The steady expansion in poultry production of the 1980s is likely to continue in 1990, but at a slightly lower rate than in 1989. Broiler production, supported by continued positive returns, surged 7 percent in 1989 and is expected to increase an additional 7 percent in 1990. Sluggish profits, however, are expected to slow the expansion in turkey production from 6 percent growth in 1989 to 4 to 5 percent growth in 1990. Large supplies of red meats, combined with the seemingly relentless expansion in poultry production, may push broiler and turkey prices lower in 1990.

Summary

Another strong performance in the coming year will usher U.S. agriculture into the new decade. Continuing the farm recovery begun in 1987, farm incomes will be high and farm financial conditions will remain strong. Crop prices may weaken as grain stocks increase. Nevertheless, farm export prospects remain strong and grain stocks will be much less than the burdensome levels of the mid-1980s. With feed prices falling, livestock producers look forward to improving profit margins in the year ahead. Overall, another solid year in 1990 will enable

U.S. agriculture to build an even stronger foundation to meet the changing markets of the coming decade.

III. Agriculture's Challenges In the 1990s

While agriculture looks forward to a solid outlook in 1990, what course will agriculture follow throughout the remainder of the decade? Even though the farm recovery is well established, the 1990s will pose great challenges for U.S. agriculture. No one expects the deep recession of the 1980s to repeat itself, but the coming decade may bring changes that, in some cases, could be even more sweeping than the financial adjustments of the 1980s.

Four issues stand out as challenges to agriculture in the decade ahead. Competing in what may be a more open world market will remain a critical factor determining agriculture's performance. Environmental concerns will become more important in agricultural policy decisions. New agricultural technologies may dramatically boost farm productivity, although the public may harbor suspicions about the safety of biotechnology breakthroughs. And in response to all these developments, new agricultural policy will evolve.

Competing in the world market

U.S. agriculture appears to be in a strong position to compete in world food markets in the 1990s. A loss of market share in the 1980s forced the United States to cut costs—from farm gate to export terminal. Yet the U.S. position in world markets in the decade ahead is not assured and will depend on policy developments and growth in the world food market.

The outcome of current trade negotiations under the auspices of the GATT (General Agreement on Tariffs and Trade) will be central to U.S. agriculture's outlook in world markets in

the coming decade. The Uruguay Round of GATT talks, scheduled to end in 1990, have made agriculture a critical subject from the outset of the round in 1986. So far, progress toward more liberalized trade in agriculture has been stymied. The United States, believing it will benefit from free world trade, has steadfastly maintained that agricultural trade should be completely liberalized. But the U.S. position has been blocked by the EC and Japan, who are more reluctant to phase out current agricultural subsidies and farm trade restrictions.²

Many observers fear the opportunity for constructive compromise on agriculture in the Uruguay Round may be passing. The final U.S. proposal, offered in October, included four main elements: 1) convert all agricultural trade restrictions to tariffs and then phase them out in ten years, 2) eliminate export subsidies in five years, 3) harmonize farm and food sanitary standards, and 4) phase out all internal farm supports that distort world trade. The U.S. plan has not been warmly received by the EC or Japan. The basic problem is that the other nations perceive the U.S. proposal as ideologically correct but insensitive to the social realities embedded in Japanese farm trade restrictions and the EC's Common Agricultural Policy.

If the Uruguay Round fails to produce an agreement on agriculture, the specter of continuing agricultural trade wars emerges as a distinct possibility for the 1990s. Although rising incomes are stimulating food demand in world markets, continued high levels of agricultural subsidies will elicit supplies sufficient to rebuild large surpluses. Such an outcome would prove expensive to taxpayers in the United States, Europe, and Japan. Under such an outcome, U.S. agriculture's current share of the world market could be maintained only with large government subsidies.

U.S. agriculture will be most competitive in the 1990s under a combination of freer trade and strong growth in world markets. The United

States has learned in the 1980s that a sluggish world market provides easy access to producers such as Brazil and Argentina. These countries have relatively low costs of production, but only at relatively low levels of output. When world demand is great, U.S. unit costs of production remain low while costs in South America rise sharply. In addition, strong growth in the world market plays to the strength of U.S. agriculture's substantial infrastructure. No other producing nation can match the grain-handling network of highways, railroads, and waterways in the United States. But that network provides a competitive advantage only if it is used to capacity.

In short, U.S. agriculture may improve its market position in the 1990s. It has first-class soils, leading technology, and unmatched infrastructure. But for those competitive assets to be of value, the Uruguay Round must prevent escalation of agricultural subsidies and trade restrictions, and growth must continue in world food markets.

Addressing environmental concerns

Environmental issues loom large for the United States in the 1990s, and agriculture promises to be a key arena for debate on environmental reform. Agriculture is increasingly perceived by the general public as causing serious harm to the environment. Those concerns are at least partly justified. The use of chemical fertilizers, herbicides, and pesticides has led to groundwater contamination in nearly half of all U.S. counties, three-fourths of them rural (Holmes, Nielsen, and Lee 1988). Agricultural runoff is a serious problem that reduces the productivity of some key estuaries (Crutchfield 1987). And conversion of land to agricultural use has been a leading cause of the loss of wetlands. As these environmental problems have become better known, agriculture has come under greater public criticism. Such criticism stands in contrast to the traditional perception that farmers are

responsible stewards of the soil.

Closely related to environmental concerns are rising concerns about food safety. Highly publicized scares in 1989 over pesticide residue in apples, cyanide in Chilean grapes, and hormone residue in U.S. beef exports sparked new debate on food safety standards. One difficulty is that advanced detection methods can now spot levels of chemical residues that may be too minute to pose any danger to consumers.³ Such scientific precision begs the more difficult question of what is an acceptable level of risk for pesticide residue. The question remains open to debate. The Food and Drug Administration, the Environmental Protection Agency, and the U.S. Department of Agriculture recently joined in proposing new food safety guidelines that seek a new balance between consumer benefits and consumer risks. Regardless of what regulations are finally adopted, alternative farm production techniques, notably Low Input Sustainable Agriculture, will receive greater attention from policymakers and researchers as alternatives to current chemical usage.⁴

Weighing policy choices concerning agriculture and the environment promises to be a thorny process involving many interest groups that are new to the farm policy arena. Indeed, environmental issues are bringing many new players to an agricultural policy process that historically has included just farmers. Such groups as the Audubon Society, Natural Resources Defense Council, and the Sierra Club now have staff devoted to agricultural policy analysis. The new diversity of interests will make the difficult task of assessing the economic and social costs and benefits of environmental solutions even more complex. While increased regulation of agricultural chemical use is possible, existing farm programs are more likely to be altered and new programs added to encourage a reduction in chemical use and protection of the environment.

Adopting new agricultural technology

Even as environmental concerns mount, the prospect for bold new technological advances increases. The 1990s may well be the decade of biotechnology.⁵ The 1970s were a decade when growth in agricultural productivity was thought to have slowed sharply; food shortage was the chief concern. The 1980s were a decade when new productivity growth was found throughout the world, and even greater potential was suggested—in the form of biotechnology. The 1990s may finally see that potential realized.

Genetic engineering appears likely to boost the productivity of both livestock and crop production. To date, most biotechnology advances have occurred in livestock production techniques. The development of gene-insertion and embryo-transfer techniques and the mass production of growth hormones and vaccines promise to enhance animal productivity and disease resistance. For example, biotechnology has enabled BST (bovine somatotropin), a growth hormone that boosts productivity of dairy cows, and PST (porcine somatotropin), a growth hormone that boosts productivity of hogs, to be manufactured in mass quantities. These products are now on the verge of commercialization.

In the 1990s, further livestock gains are expected, and even larger potential appears for biotechnology applications to crop production and utilization. Biotechnology may make plants more hardy, more fruitful, and more resistant to disease and pests. Genetic changes that boost natural crop resistance to disease and pests also have the potential to dramatically reduce dependence on agricultural chemicals.

Biotechnology may also unlock new industrial uses for U.S. farm products. Crops may be altered, for example, to provide a higher yield of a particular oil, amino acid, or other compound with industrial applications. Such developments would benefit agriculture by boosting overall demand for farm products. But unlike

recent applications of biotechnology to animal production, the new plant breakthroughs appear to be years in the future.

How quickly biotechnology in any of its forms will be adopted in the coming decade is uncertain. Some environmental groups are attempting to slow or even stop the introduction of genetically altered plants or animals. Such arguments will probably be overridden when policymakers recognize that genetic engineering is, at least in part, a laboratory shortcut to the lengthy genetic selection process that has long been practiced in plant and animal breeding. Nevertheless, prudent regulatory oversight and a limited federal budget for research suggest a slow, cautious path to introducing biotechnology into the mainstream of U.S. agriculture. Farmers, however, appear willing to adopt biotechnology as soon as it becomes available. Due to greater concentration of farm production among larger producers, biotechnology may be adopted more quickly than previous technology advances, such as mechanization and agri-chemicals.

Charting new directions for agricultural policy

The 1990 farm bill will be written with all of the above issues in mind. But unlike 1985, when farm financial stress and uncompetitive U.S. farm exports argued for a substantial redirecting of farm programs, 1990 brings a strong consensus for continuing the major focus of the existing legislation. The Food Security Act of 1985 is widely regarded as having met its goals of spurring a farm recovery and restoring export sales. Thus, both the administration and Congress have indicated a desire to use the 1985 legislation as the broad blueprint on which some modest policy corrections will be made.

The policy, changes most likely to be made are greater flexibility in planting crops, reforms in federal crop insurance, new environmental

provisions, and increased funding for agricultural research.

Flexibility is the leading policy issue for 1990. The problem is that the 1985 legislation encouraged farmers to maintain cropping patterns, in spite of changing market signals. The problem is best illustrated by the trade-off in planting soybeans or corn. U.S. soybean plantings have remained relatively low the past four years despite the fact that soybean prices have been high relative to corn prices. Two features of existing farm programs explain the anomaly. First, subsidies paid to corn growers are sufficiently large to encourage corn production at the expense of soybean production. And second, a shift out of corn production lowers a farm's corn base acreage eligible for subsidized production, thus reducing the farm's claim on future corn program benefits. While discouraging U.S. soybean plantings, U.S. farm policy encouraged aggressive expansion in South American soybean production with only limited competition from the United States.

Several policy innovations are under discussion to give farmers greater flexibility in their cropping decisions. Senators Richard Lugar and Patrick Leahy recently proposed the establishment of a normal crop acreage farm base (NCAFB), a concept similar to the normal crop acreage provision of the 1977 farm legislation. Under the NCAFB, any mix of approved crops could be planted on a farm's program base acreage to receive program benefits and preserve the base. The list of approved crops is uncertain.

Another proposal for enhancing flexibility is the so-called triple base, put forward by Congressman Charles Stenholm. Under this plan, a farm's base acreage would be divided into three parts: program base, flexible base, and idle acres. The program base would be planted to a specified crop that would be eligible for program payments. The flexible base would receive no program benefits, but could be planted to any crop. The plan reduces commodity program costs

while encouraging farmers to make decisions based on market prices.

Nearly all policymakers favor greater crop flexibility, but few agree on how to achieve it. To compete effectively in a rapidly changing world market, U.S. farmers must have incentives to respond quickly to market developments. Thus, more flexible commodity program provisions of one form or another are desirable and probably will be implemented.

Crop insurance may be reformed in the 1990 agricultural legislation due to mounting budget concerns over disaster assistance. Fully ten years ago, lawmakers redesigned the subsidized federal crop insurance program to serve as a viable long-term alternative to ad hoc disaster assistance. But in 1988, less than 30 percent of eligible acreage was enrolled in the crop insurance program. One reason most farmers opt out of insurance is their belief that federal disaster assistance will be granted if their crops are ruined. That belief has been well founded. Responding to drought, Congress authorized \$4.0 billion in disaster aid in 1988 and another \$897 million in 1989.

The lack of coordination between crop insurance and disaster assistance is costly to the public. Taxpayers end up underwriting periodic disaster aid as well as the ongoing losses of the federal crop insurance program. In 1988, federal crop insurance losses were estimated at \$586 million.

A number of insurance reforms have been proposed. Crop insurance could be made a requisite for receiving commodity program benefits. A problem with compulsory insurance, however, is that such an approach overlooks numerous nonprogram crops. Alternatively, crop insurance could be subsidized further, or even provided free, to program participants. Again, this approach overlooks nonprogram crops and could encourage too much production on marginal land. Finally, the current farm program could be modified to provide protection against

abnormally low yields as well as low prices, thus eliminating the need for other types of crop insurance. In this approach, the deficiency payments of the current farm program would be replaced by some guaranteed level of "target revenue," based on historical crop yields and some target price. The merit of this program would depend heavily on the level of target revenue. A low target would discourage participation in the program and probably increase demands for ad hoc assistance if a weather disaster occurred. A high target would inflate program costs. Regardless of the alternative chosen, crop insurance is a better long-run solution to crop production risks than expensive ad hoc disaster programs.

Environmental provisions almost certainly will be included in 1990 agricultural legislation. In keeping with the spirit of the 1985 farm bill, sodbuster and swampbuster provisions will continue. But the 1990 farm bill may tighten the wetlands provisions to aim more precisely at President Bush's publicly stated goal of no loss of wetlands. After much debate, new agricultural chemical regulations probably will not be enacted. The base of scientific information on groundwater contamination is limited, and much research remains to be done on underground migration of agricultural chemicals. Nevertheless, Congress is likely to increase research funding for alternatives to current cropping practices.

Agricultural research will be an important topic in the 1990 farm bill and beyond. Following the intense competition U.S. agriculture faced in the 1980s, Congress may be more willing to invest public dollars in agricultural research. The National Academy of Sciences (NAS) recently proposed an aggressive new public agenda for agricultural research. Under the proposal, federal spending on biotechnology and other basic agricultural research would be increased by \$500 million. Currently, the federal government spends approximately \$1.2 billion on agricultural research. The NAS proposal has some support

in Congress, but the full \$500 million is unlikely to be funded given ongoing concerns about the budget deficit.

In sum, 1990 appears to be a year when agricultural policy will be fine-tuned. Unlike 1985, when a major change of course was legislated, most lawmakers in 1990 appear content with the major features of the existing farm bill. Nevertheless, modifications can be expected in crop flexibility, crop insurance, environmental provisions, and funding of agricultural research.

In some respects, 1991 could be a more eventful year for agricultural policy. If the Uruguay Round produces a new agreement on agriculture in December 1990, Congress would have to revise U.S. farm programs accordingly the next year. Members of Congress appear willing to make revisions if lawmakers in the European Community, Japan, and elsewhere are doing the same. Until then, Congress is equally willing to maintain pressure for reform by retaining relatively high target prices to protect farm incomes and by countering foreign export subsidies with the Export Enhancement Program.

IV. Conclusions

Agriculture enters the 1990s in sound condition. Following steep recession earlier in the 1980s, agriculture is in strong recovery. A historic financial restructuring of the industry is largely complete, and farm asset values are on the rebound. Rounding out the improvement in agriculture is a significant recovery in U.S. farm exports and stronger commodity markets in general.

U.S. agriculture can expect another strong year in 1990. Diminished wheat inventories resulting from two consecutive years of drought promise to support relatively high wheat prices while pushing open the planting restrictions of the government farm program. Rebounding feedgrain and soybean production may push down corn and soybean prices. But the attendant decrease in feed costs, record-setting meat production, and strong livestock prices will boost incomes for livestock producers. At more than \$50 billion for the fifth consecutive year, cash farm income will be sufficient to sustain a modest increase in farmland values and bolster the industry's debt-carrying capacity. Despite stiffer competition from foreign wheat and soybean producers and lower feedgrain and soybean prices, the U.S. farm trade surplus will slip only slightly while remaining far above the meager level of the mid-1980s.

Beyond 1990, agriculture's course will be shaped by several issues. The competitiveness of U.S. agriculture will depend on the outcome of the Uruguay Round of GATT negotiations and the rate of growth in world food markets. Environmental concerns promise to bring change to some agricultural practices, either through regulation or incentive. Biotechnology could increase crop and livestock productivity dramatically, while opening up innovative uses for traditional commodities. And agricultural policy will evolve in response to changes in the industry and global markets. Modest corrections are expected in the 1990 farm bill, but a new GATT accord would lead to more sweeping change in 1991.

Endnotes

¹ Net cash farm income and net farm income are useful measures of the farm sector's financial performance. Net cash farm income is a cash-flow measure that reflects the sector's ability to meet its annual cash obligations. Net farm income provides a more accurate reflection of the financial progress that is due to the current year's production.

² The EC and Japanese objections to the U.S. proposal are unfounded, since the U.S. proposal allows continued farm income support. The United States does insist, however, that any support be provided in such a way that production and trade decisions are not affected.

³ Scientists can now detect traces of some chemicals in concentrations of less than one part per trillion. Food safety legislation, however, has not kept pace with advances in detection methods. For example, the Delaney Clause, part of the 1958 Food Additives Amendment to the Food, Drug, and Cosmetic Act, specifies a zero tolerance for any food additive that may be carcinogenic. At the time this legislation was enacted,

however, minimum detectable concentrations were far higher than today.

⁴ The term "low-input, sustainable agriculture" actually embodies two separate concepts: low input and sustainable. Low input generally refers to farming systems that rely less on external purchased inputs, such as chemical fertilizers and pesticides, and more on internal resources, such as land and management. Sustainable agriculture defines farming systems capable of maintaining their productivity and usefulness to society indefinitely. Sustainable agriculture should be resource conserving, socially supportive, commercially competitive, and environmentally sound (Ikerd 1989).

⁵ Biotechnology is a broad term, but generally applies to the use of molecular genetic techniques to improve plants or animals or to develop micro-organisms for specific uses. For a more complete definition and description of emerging biotechnologies, see U.S. Congress, Office of Technology Assessment 1986.

References

Crutchfield, Stephen R. 1987. "Controlling Farm Pollution of Coastal Waters," U.S. Department of Agriculture, Economic Research Service, *Agricultural Outlook*, November, pp. 24-25.

Holmes, Thomas, Elizabeth Nielsen, and Linda Lee. 1988. "Managing Groundwater Contamination in Rural Areas," *Rural Development Perspectives*, October, pp. 35-40.

Ikerd, John E. 1989. "Sustainable Agriculture." Paper presented at the U.S. Department of Agriculture Outlook Conference, Washington, D.C., November 29.

U.S. Congress, Office of Technology Assessment. 1986. *Technology, Public Policy, and the Changing Structure of American Agriculture*, OTA-F-285, Washington, D.C.: U.S. Government Printing Office.

Monetary policy issues in the 1990s: a summary of the bank's 1989 symposium

By Donald P. Morgan

Monetary policy operates in a different environment than it did a decade ago. Financial market innovations have eroded the distinctions among monetary assets, making the definition of money increasingly arbitrary. Deregulation of interest rates and banking activity is changing the behavior of the monetary aggregates, as banks pay interest on monetary assets and non-banks offer monetary-like assets. And globalization of markets has increased the international effects of domestic policy through trade accounts and exchange rates.

The evolution in world financial and goods markets raises a number of questions about monetary policy. What should be the long-run goal of monetary policy? What short-run procedures should monetary policy adopt to achieve this goal? How should monetary policy respond to trade imbalances and volatile exchange rates?

To confront such questions, the Federal Reserve Bank of Kansas City invited distin-

guished central bankers, academics, and industry representatives to a symposium entitled "Monetary Policy Issues in the 1990s." The symposium was held August 31—September 1, 1989, in Jackson Hole, Wyoming.

Participants generally agreed that the goal of monetary policy in the 1990s, above all else, should be price stability. The challenge to monetary policymakers will be to achieve price stability in the face of rapidly changing financial markets and competing international goals of monetary policy. Most participants agreed that price stability cannot be achieved by targeting monetary growth because the relationship between money and prices will remain unstable in the 1990s. Participants disagreed, however, on whether competing international goals of monetary policy—stable exchange rates and balanced trade—would, or should, compromise the goal of price stability.

This article summarizes the papers and commentary presented at the symposium. The first section discusses the lessons from the 1970s and 1980s that have led monetary policymakers to believe their primary goal should be price sta-

Donald P. Morgan is an economist at the Federal Reserve Bank of Kansas City.

bility. The second section examines the operational challenges to price stability arising from the evolution in financial markets. The third section discusses international obstacles to achieving price stability. The final section summarizes the views of four prominent central bankers participating in the symposium.

I. Price Stability: The Goal of Monetary Policy in the 1990s

Historically, central banks have pursued a number of economic goals: price stability, full employment, exchange rate stability, and balanced trade. Defining the proper long-run goal of monetary policy in the 1990s was an important issue at the symposium.

The symposium's first presenter, Charles Freedman, set the stage for this issue. In "Monetary Policy in the 1990s—Lessons and Challenges," Freedman reviewed some important lessons for monetary policy from preceding decades. Freedman argued that high inflation and unemployment in the 1970s, followed by the high cost of disinflation in the 1980s, have convinced central bankers their foremost goal in the 1990s should be price stability.

The principal lesson from the 1970s, according to Freedman, is that monetary policy should not try to stabilize the unemployment rate. He explained the long-run unemployment rate depends on real factors such as labor force mobility and minimum wage laws, rather than on the supply of money. If policymakers increase the money supply in an effort to reduce unemployment, the only long-run effect will be inflation. Policymakers learned this lesson when they expanded the money supply to prevent unemployment from increasing after the price of oil tripled in the 1970s. The result was stagflation—high unemployment and high inflation.

Turning to the 1980s, Freedman argued that the high cost of disinflation—the recession in 1981 and 1982—taught policymakers to be

vigilant against inflation. If policymakers ignore inflation the public will doubt policymakers' commitment to ending inflation. Policymakers in this predicament cannot change the public's expectations merely by announcing that inflation will decline. To overcome inflationary expectations, monetary policy must eventually become severely restrictive, even at the risk of a recession. To avoid this outcome, Freedman advised policymakers to respond quickly to signs of inflation.

Looking ahead to the 1990s, Freedman identified three major challenges for monetary policy. First, the deregulation of interest rates and exchange rates and the greater integration in world financial markets will change the channels of monetary policy. Second, ongoing financial innovation will result in continued instability in the relationship between prices and money. And third, greater international capital mobility may prevent central banks from achieving both price stability and exchange rate stability.

In discussing Freedman's paper, Lyle E. Gramley said it may be politically impossible for monetary authorities to aim only at price stability while ignoring the unemployment rate. He recalled the Bush Administration criticized the Federal Reserve for worrying too much about inflation in 1989, even though the unemployment rate was low at the time. Gramley predicted political pressure to stabilize the economy may increase in the event of disturbances to the vulnerable international or financial sectors. If policymakers are forced to try to stabilize the economy, Gramley advised them to remember that monetary policy has only a temporary effect on real variables, but a lasting effect on prices.

II. Achieving Price Stability: Operational Challenges

As Freedman observed, rapidly changing financial markets pose an operational challenge to the goal of achieving price stability. Four

papers at the symposium addressed this issue. Benjamin Friedman investigated how the monetary transmission mechanism has been changed by deregulation, innovation, and globalization in the 1980s. Central bank economists from three countries then discussed how monetary operating procedures in the 1990s must adapt to these changes if price stability is to be achieved.

The changing monetary transmission mechanism

In "Changing Effects of Monetary Policy on Real Economic Activity," Benjamin Friedman identified three changes in the U.S. economy in the 1980s that may have altered the behavior of major spending components. First, the elimination of deposit interest-rate ceilings and the emergence of secondary mortgage markets may have weakened the strong effect of monetary policy on the housing industry. Second, rising indebtedness of U.S. corporations and consumers may have made them more sensitive to changes in interest rates. And third, the increased openness of the U.S. economy may have made the exchange rate a more important channel of monetary policy.

Friedman conducted statistical tests of these hypotheses. He found the housing industry has become less susceptible to restrictive monetary policy. Business investment in plant and equipment, on the other hand, has become more sensitive to interest rates. Friedman found consumer spending in the 1980s was less affected by changes in interest rates and stock prices than previously. And finally, Friedman found the flow of imports and exports was less sensitive to changes in the dollar's value in the 1980s; he calculated the decline was large enough to decrease the importance of foreign trade as a channel for monetary policy, even accounting for the larger share of U.S. GNP traded internationally. In sum, Friedman judged, the ability of monetary policy to affect aggregate spending

has not changed, but its relative impact on housing, business investment, consumption, and foreign trade has changed. Policymakers in the 1990s must take these changes into account.

Discussant Ralph Bryant disagreed with some of Friedman's conclusions. Bryant questioned Friedman's finding that consumer spending is now less responsive to changes in interest rates and stock prices. In Bryant's view, not enough data have accumulated since deregulation to measure accurately its effects on consumer spending. Bryant also doubted that trade flows have become less sensitive to financial variables. Even granting that result, Bryant thought the increased share of U.S. GNP constituted by foreign trade would enhance the importance of trade as a channel for monetary policy.

Bryant did agree with Friedman's conclusions that the housing industry has probably become less affected by monetary policy. He also agreed that business investment has become more sensitive.

In Bryant's view, monetary policy will remain effective in the 1990s, but its effects will be more uncertain. Greater uncertainty will force policymakers to proceed cautiously and to be candid about the possibility of mistakes.

Policy targets and operating procedures

Papers by central bank economists from the United States, Australia, and Japan examined how short-run monetary policy must operate in the 1990s to achieve price stability. The central question was whether price stability could be achieved by targeting the monetary aggregates in the context of financial deregulation, globalization, and innovation.

In "Policy Targets and Operating Procedures in the 1990s," Donald Kohn began with the premise that the only reasonable long-run objective for monetary policy is price stability. He then examined operating procedures that

Monetary Policy Issues in the 1990s

A symposium sponsored by the Federal Reserve Bank of Kansas City
August 30 - September 1, 1989

Session I: Implementing Monetary Policy in a Changing World

Frederick H. Schultz, Former Vice Chairman, Board of Governors of the Federal Reserve System,
moderator

Monetary Policy Issues in the 1990s: Lessons and Challenges, Charles Freedman, Deputy Governor,
Bank of Canada

Commentary, Lyle E. Gramley, Senior Staff Vice President and Chief Economist, Mortgage Bankers
Association

Effects of Monetary Policy on Real Economic Activity, Benjamin M. Friedman, Professor, Harvard
University

Commentary, Ralph C. Bryant, Senior Fellow, The Brookings Institution

Policy Targets and Operating Procedures in the 1990s, Donald L. Kohn, Director, Division of Monetary
Affairs, Board of Governors of the Federal Reserve System; Ian J. Macfarlane, Head of
Research, Reserve Bank of Australia; and Yoshio Suzuki, Vice Chairman, Board of Councillors,
Nomura Research Institute, Ltd.

Europe 1992: Implications for Monetary Policy, Robin Leigh-Pemberton, Governor, Bank of England

Session II: The International Dimension of Monetary Policy

Anthony M. Solomon, Chairman, S.G. Warburg, Inc., *moderator*

International Dimensions of Monetary Policy: Coordination versus Autonomy, Jacob A. Frenkel, Economic
Counselor and Director of Research, International Monetary Fund; Morris Goldstein, Deputy
Director, Research Department, International Monetary Fund; and Paul R. Masson, Adviser,
Research Department, International Monetary Fund

Commentary, Robert Solomon, Guest Scholar, The Brookings Institution; and John Williamson,
Senior Fellow, Institute for International Economics

The Dollar in the 1990s: Competitiveness and the Challenges of New Monetary Areas, Rudiger Dornbusch,
Professor, Massachusetts Institute of Technology

Commentary, Jeffrey A. Frankel, Professor, University of California-Berkeley; and Alexander K.
Swoboda, Professor, Institute for International Studies

Overview Panel: Central Bank Perspectives

John W. Crow, Governor, Bank of Canada

Leonhard Gleske, Member of the Directorate, Deutsche Bundesbank

Alan Greenspan, Chairman, Board of Governors of the Federal Reserve System

might achieve this objective in the United States.

Kohn first considered intermediate targeting as a short-run operating procedure. Under this procedure, Kohn explained, policymakers try to achieve their ultimate goal by controlling some intermediate variable—the supply of money or bank credit, for example. He noted that policymakers must abandon a particular target if the short-run relationship between the target and their ultimate goal becomes unstable. For example, bank credit was abandoned as a target in the 1960s after firms began borrowing more in open markets and less from banks, thus altering the relationship between bank credit and spending. For much the same reason, Kohn added, monetary targets were deemphasized in the late 1980s. Kohn concluded that the intermediate targeting procedure may be inherently inefficient because it ignores information from other variables.

As an alternative to targeting a single variable, Kohn advocated a strategy of small, frequent policy adjustments in response to many different variables. Uncertainty about underlying relationships among financial and economic variables forces policymakers to “cast a wide net” by monitoring several variables, including interest rates and indicators of real activity. Uncertainty also calls for small, frequent adjustments in policy to avoid making cumulative errors, Kohn argued.

Under this strategy, warned Kohn, policymakers risk losing sight of the long-run goal of reducing inflation. In Kohn’s view, the Federal Reserve has avoided this danger by “leaning against the wind” to avoid excess demand that might cause higher inflation. Doing so has enhanced the credibility of the Federal Reserve’s commitment to control inflation. In turn, greater credibility has helped reduce inflation by keeping inflation expectations low.

In “Policy Targets and Operating Procedures: The Australia Case,” Ian Macfarlane observed that Australia did not reduce its infla-

tion rate in the 1980s as much as many other industrialized countries. He said reducing inflation further would be the major challenge in the 1990s.

Macfarlane described how monetary policy procedures in Australia had evolved from exchange rate targeting to monetary targeting and then to interest rate targeting. He explained that targeting the exchange rate in the 1970s and 1980s constrained the central bank’s ability to achieve domestic objectives. For example, whenever the central bank tried to slow the economy by raising interest rates, capital inflows from foreign investors put upward pressure on the exchange rate. Then, to stabilize the exchange rate, the central bank had to sacrifice its domestic objectives. To free monetary policy from this constraint, exchange rate targets were abandoned in 1983.

Macfarlane reported that targeting various monetary aggregates proved to be unreliable in controlling inflation. The narrow aggregates were potentially useful, since changes in the narrow aggregates usually preceded changes in spending. But the relationship became unpredictable after interest rates were deregulated in the 1980s. The broader monetary aggregates, on the other hand, bore a lagging relationship to spending, which limited their usefulness as targets. Consequently, the Reserve Bank abandoned monetary targeting in 1985.

Macfarlane explained that the Australian Reserve Bank now operates by adjusting interest rates to achieve price stability. He acknowledged the tendency under this procedure for interest rates themselves to become an objective. The risk, he explained, lies in keeping interest rates steady in the face of accelerating inflation. He felt, however, that the Australian central bank had avoided this risk in recent years. Besides, he could see no better alternative, as exchange rate targets and monetary targets had not performed well in Australia.

In “Targets and Operating Procedures of

Japanese Monetary Policy in the 1990s," Yoshio Suzuki predicted the Japanese central bank will continue to rely on monetary targeting to maintain price stability. Suzuki reported that the relationship between money and prices in Japan remained relatively stable in the 1980s. He attributed the stability to the gradual pace of interest rate deregulation in Japan, which is not yet complete, and to relatively stable inflation and interest rates in the 1980s.

Suzuki suggested that deregulation would change the channels of monetary policy. Under current deposit and loan interest rate ceilings, a rise in market interest rates leads to a reduction in bank deposits and bank credit. Suzuki predicted this credit availability channel would weaken when deposit ceilings are abolished in the 1990s. A stronger channel may arise from the effect of monetary policy on wealth. He explained that higher interest rates reduce wealth by depressing the stock market and the value of bonds, and the reduction in wealth in turn reduces consumer spending. This wealth effect channel will likely strengthen as Japanese wealth increases in the 1990s.

III. Achieving Price Stability: International Challenges

Integration of world markets has given international issues greater prominence in policy debates. Two papers examined the possible conflict between the domestic goal of price stability and competing international goals. Jacob A. Frenkel, Morris Goldstein, and Paul R. Masson examined whether price stability could be reconciled with the goal of exchange rate stability. Rudiger Dornbusch argued that policymakers should not be too concerned with price stability in pursuing balanced trade and full employment.

Price stability versus exchange rate stability

In "International Dimensions of Monetary Policy: Coordination Versus Autonomy," Jacob A. Frenkel, Morris Goldstein, and Paul R. Masson examined the tension between central banks' coordinated pursuit of exchange rate stability and their independent pursuit of domestic price stability.

The authors argued that stabilizing exchange rates is sometimes a legitimate goal of monetary policy. They cited theoretical and empirical evidence that destabilizing speculation can cause excessively volatile exchange rates. Because excess volatility creates needless uncertainty for investors, the authors argued, it would be a mistake for policymakers to ignore exchange rates. On the other hand, since excess volatility is the exceptional case, it would also be a mistake for policymakers to fix exchange rates. As an intermediate solution, the authors proposed that central bankers in larger countries should keep exchange rates within "loose and quiet" target zones.

Will maintaining exchange rate zones compromise the goal of price stability? Not for high-inflation countries, said the authors, since maintaining the exchange rate vis-a-vis a low-inflation country disciplines the central bank of the high-inflation country. However, for larger countries with low inflation rates, enforcing the zones will occasionally require central banks to intervene in exchange markets or to make coordinated adjustments in their domestic policies. In these events, the goal of domestic price stability has to be ignored since monetary policy cannot simultaneously control the domestic and international value of the currency.

Can fiscal policy control the domestic price level when monetary policy is aimed at the exchange rate? The authors offered several reasons why, in their view, fiscal policy is not suited to this purpose. First, fiscal policy is too

inflexible to function as a tool of demand management. For evidence, they pointed to persistent and, in their view, inappropriate budget deficits in the United States in the 1980s. Second, too little is known about the effects of fiscal policy on the economy. Third, fiscal policy should be guided by long-run issues, such as economic growth and income distribution, not by the short-run goal of demand management.

Discussant Robert Solomon agreed that excessively volatile exchange rates will occasionally be a major concern for monetary policy in the 1990s. He disagreed, however, that aiming monetary policy at exchange rates requires abandoning the goal of price stability. In his view, fiscal policy could be used to control the price level. While it may be less flexible than monetary policy, fiscal policy may affect the economy faster than monetary policy. He asserted that nearly a decade of large U.S. budget deficits should not disqualify fiscal policy as a useful policy tool.

Discussant John Williamson agreed with most of the authors' arguments, but disagreed on two points. First, he argued that monetary authorities should announce the exchange target zones publicly. Second, he objected to assigning monetary policy exclusively to controlling inflation or the exchange rate, while assigning fiscal policy solely to balancing the budget. In his view, price stability and exchange rate stability could both be achieved by the appropriate mix of fiscal and monetary policy. He echoed Solomon's point that large U.S. budget deficits should not disqualify fiscal policy as a useful instrument of demand management.

Price stability versus balanced trade

In "The Dollar in the 1990s: Competitiveness and the Challenge of New Economic Blocs," Rudiger Dornbusch argued that U.S. monetary policy cannot be "overconscious" of inflation if the United States is to improve its

trade account in the 1990s without suffering a recession.

Dornbusch observed that increased financial integration in the 1980s increased the international spillover of domestic policy. The combination of large U.S. budget deficits and tight monetary policy in the 1980s resulted in higher U.S. interest rates, which attracted foreign capital. The capital inflow moderated the increase in interest rates but increased the value of the dollar. The resulting increase in the trade deficit allowed the United States to run large budget deficits without displacing domestic investment. In Dornbusch's view, there is ample evidence that trade deficits caused by budget deficits are cause for concern.

Next, Dornbusch argued that the trade deficit could remain large unless the exchange value of the dollar declines. The dollar is overvalued, as evidenced by the fact that some U.S. export prices remain above their 1980 levels. The U.S. competitive position appears even worse, he added, in light of the superior quality of some foreign goods compared with U.S. goods. The U.S. competitive position is weakened further, he asserted, because Japanese markets are closed to U.S. exports.

A change in macroeconomic policies is needed to reduce the trade deficit, Dornbusch reasoned. He stressed that domestic policy must be coordinated toward this end. If monetary policy is eased to lower the dollar without an accompanying reduction in the budget deficit, the economy would overheat and inflation would accelerate. Alternatively, if the budget deficit is reduced without an accompanying ease in monetary policy, a recession could follow. Thus, in the event the budget deficit is reduced, the Federal Reserve should ease monetary policy to lower the value of the dollar in order to increase U.S. exports. The risk is that the Federal Reserve, fearing inflation, would not ease policy as the budget deficit is reduced.

Dornbusch also argued that the emergence

of "inward-looking" trading blocs in Europe and Asia threaten the U.S. competitive position and the international role of the dollar. He noted that Europe 1992 has already led some U.S. firms to build plants in Europe to avoid being locked out of that market. He also predicted an Asian trading bloc centered in Japan would emerge in the 1990s as the United States closes its deficit with Japan and Japan seeks new markets. Furthermore, Dornbusch predicted the emergence of a single currency unit in each of these blocs would displace the dollar as a world currency.

Discussant Jeffrey A. Frankel agreed with Dornbusch that the current U.S. budget deficit should be reduced in order to improve the trade balance. He also agreed that the Federal Reserve should accommodate a fiscal contraction by lowering real interest rates and the value of the dollar. Frankel emphasized, however, that inflation would worsen if monetary policy becomes expansionary before the budget deficit is reduced.

Frankel objected to Dornbusch's assertion that European and Asian integration threaten the role of the dollar. He predicted the dollar would remain the preeminent world currency into the next century. A more important trend, in his view, was the increasing share of world output produced in Japan and Europe. To the extent this change reflects slow U.S. productivity growth in the 1980s, it is cause for concern. He noted, however, that integration and economic success among our trading partners would not necessarily be at the expense of the United States.

Discussant Alexander Swoboda warned against focusing too much attention on the exchange rate, lest it be elevated to the undeserved status of a target of monetary policy. In his view, monetary policy should be assigned to price stability in the long run and stabilizing output in the short run. The U.S. current account deficit should be addressed at its source: large budget deficits. Swoboda also thought Dornbusch overemphasized Japanese-U.S. trade relations,

pointing out that opening Japan's markets would benefit all nations, not only the United States. On a separate point, Swoboda observed that while the U.S. dollar is still the predominant world currency, its role is declining vis-a-vis the yen. He predicted a further, albeit slow, decline in the dollar's role in the 1990s.

IV. Central Banker Overview

The symposium also provided a forum for the opinions of four prominent central bankers. The luncheon address on the first day was delivered by Robin Leigh-Pemberton, the Governor of the Bank of England. The symposium concluded with an overview panel comprising John Crow, Governor of The Bank of Canada; Leonhard Gleske, Member of the Directorate, Deutsche Bundesbank; and Alan Greenspan, Chairman of the Board of Governors of the Federal Reserve System of the United States.

Robin Leigh-Pemberton's address was entitled "Europe 1992: Implications for Monetary Policy." He noted that integration of Europe in 1992 will enable goods, capital, and labor to move as freely among the nations in the European Community as they do currently throughout the United States. This unity may constrain the autonomy of member countries in conducting monetary policy, perhaps leading eventually to a common currency and monetary authority. Leigh-Pemberton asserted it is "more important than ever" to understand that the "first and overriding goal" of monetary policy should be price stability.

Leigh-Pemberton discussed the pace at which monetary integration should occur. It is often argued, he noted, that since an integrated Europe will resemble the United States, Europe should adopt a common currency and single monetary authority modeled after the Federal Reserve System. In his view, this argument ignores the fact that European goods and labor markets will likely remain less integrated than

U.S. markets for some time. Lacking the adjustment mechanism that integrated markets provide, each European nation may still need an independent monetary authority to accommodate disruptions to its own economy. For this reason, Leigh-Pemberton warned against allowing monetary integration to race ahead of goods and labor market integration.

Leonhard Gleske addressed two issues in his remarks: the role of monetary targeting in the 1990s and the implications of a tri-polar currency system for monetary policy.

Gleske reaffirmed the majority view that the primary responsibility of a central bank is price stability. Monetary targeting has been useful to the Bundesbank in fulfilling that responsibility, said Gleske, especially when the Bundesbank was attempting to reduce inflation in the early 1980s. More recently, however, German monetary policy has not been guided exclusively by the monetary aggregates; some overshooting of the monetary targets has been tolerated to prevent the deutsche mark from appreciating. In Gleske's opinion, this compromise was justified by the need to protect West Germany's large foreign sector from misaligned exchange rates. Furthermore, because the external sector will likely grow with the integration of Europe, he expects the monetary aggregates to serve as long-run policy guides in the 1990s rather than formal targets.

Gleske speculated that strict monetary targeting might be feasible under a tri-polar currency system. Because each bloc's foreign sector would constitute a smaller share of the bloc's aggregate output, each bloc could better withstand shocks to its exchange rate. Gleske felt, however, that a common monetary authority in Europe is still remote, and a common authority in the Pacific Rim may never occur.

John Crow observed in his remarks that central banks are officially charged with many responsibilities. For example, the Bank of Canada Act calls upon the bank to protect "the

international value of the currency, and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment." Crow argued that monetary policy is best suited to achieving price stability; therefore, price stability should be the foremost goal of monetary policy.

Crow urged central bankers to resist having too many duties foisted upon them, lest they fail in their primary duty of stabilizing prices. He acknowledged that monetary policy has a comparative advantage over fiscal policy in controlling the exchange rate. Crow reasoned, however, that exchange rate is best stabilized by preserving the domestic value of the currency—that is, by eliminating inflation.

Alan Greenspan predicted central bankers in the 1990s will face more instability in the international financial system due to the accelerating volume of international financial transactions. He explained that most international transactions are not concurrent: a period of "float" separates the commitment and final settlement of a transaction. During such a period, the transaction is essentially a loan. If the borrower defaults, the lender may in turn default on transactions the lender agreed to when still expecting payment from the borrower. Such a chain reaction of defaults could destabilize the international financial system. Greenspan judged that we cannot hope to eliminate such systemic risk. He concluded, however, that because the stability of financial markets ultimately depends on the performance of the world economy, systemic risk is best controlled through the "pursuit of sound economic policies both domestically and, to the extent relevant, on a coordinated international basis."

V. Conclusion

Participants at the Federal Reserve Bank of Kansas City's 1989 symposium discussed a wide range of issues for monetary policy in the 1990s.

One issue, however, forced itself center stage: price stability. Virtually all participants agreed that price stability should be the foremost goal of monetary policy in the 1990s.

With this goal in mind, participants acknowledged a number of obstacles to achieving price stability. Deregulation and innovation in financial markets have changed the transmission of monetary policy in uncertain ways. Just as important, the evolution in financial markets has destabilized the short-run relationship between

money and prices, depriving policymakers of a useful tool for short-run policy operation. At the same time, the integration of world markets has forced policymakers to look beyond their borders in deciding policy. International issues, such as volatile exchange rates and trade imbalances, now compete with price stability for policymakers' attention. To achieve price stability in the coming decade, monetary policymakers must overcome these operational and international challenges.

Economic Review
Federal Reserve Bank of Kansas City
Kansas City, Missouri 64198-0001
January/February 1990, Vol. 75, No. 1