FEDERAL RESERVE BANK OF KANSAS CITY

Economic Review

First Quarter 1992

Economic Review
Federal Reserve Bank of Kansas City

First Quarter 1992 *Volume 77, Number 1*

Contents

The Tenth District: Matching a Nation in Recovery

By Glenn H. Miller, Jr.

The Tenth District economy grew slowly in 1991, but it outpaced the national economy, which was hampered by recession and anemic recovery. Weakness was widespread among major sectors of the regional economy, with manufacturing bearing the brunt of the cyclical slowdown. Still, the district's diverse economy outperformed the nation in both income and employment growth in 1991.

Economic performance ranged widely across the seven district states. Nebraska's economy, for example, enjoyed strong growth due to its burgeoning communications and food processing industries. Missouri's economy, meanwhile, sputtered due to a heavy reliance on durables manufacturing, an industry hard hit by the nation's recession.

The district economy will probably grow slowly again in 1992, as the national recovery proceeds at a slow pace.[1] District manufacturing may recover somewhat in the year ahead, but two of the region's key industries, agriculture and energy, will offer little if any economic stimulus. Overall, slow growth in the district may differ little from the sluggish pace of the nation's recovery.

This article reviews the district's economic performance in 1991 and explores the outlook for 1992. The first section compares the overall performance of the district and its individual states with the nation in 1991. The second section reviews the district's diverse industries and considers their outlook. The third section surveys the wide-ranging performance of district states in 1991 and discusses each state's outlook for the year ahead.

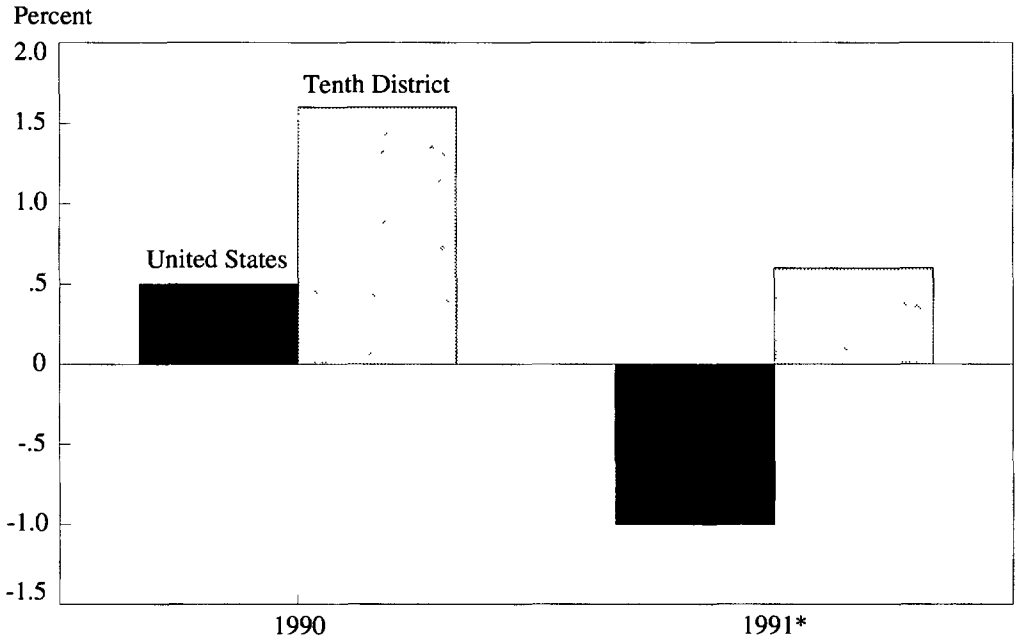
Glenn H. Miller, Jr. is a vice president and economic advisor at the Federal Reserve Bank of Kansas City. Tim Sheesley, an assistant economist at the bank, helped prepare the article.

Continued Slow Growth for the District in 1991

The district continued to grow slowly in 1991. While the nation grappled with a mild downturn and halting recovery, most of the

Chart 1

Growth in Nonagricultural Employment, U.S. and Tenth District



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

district stayed out of recession due to its diverse mix of industries. Still, the district felt the impact of the national recession, especially in places like Missouri that depend heavily on manufacturing.

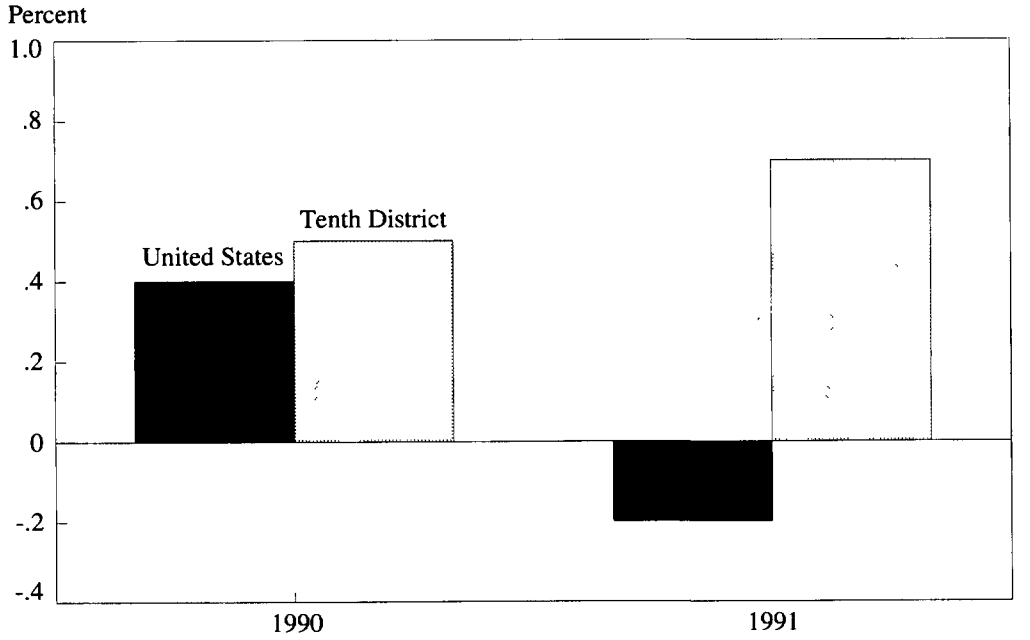
The district's continued growth in 1991 may also be partly explained by the region's severe downturn in the mid-1980s. That economic correction undoubtedly helped lay a solid foundation for stronger performance in recent years.

Two broad measures of district economic performance, employment and income growth, both registered gains in 1991 in contrast with the nation.[2] Nonfarm employment in the district grew 0.6 percent in 1991, while nonfarm employment in the nation declined 1.0 percent (Chart 1).[3] Average unemployment for the first three quarters was 5.6 percent in the district and 6.7 percent in the nation. Real nonfarm personal income grew 0.7 percent in the district in 1991, compared with a 0.2 percent decline for the nation (Chart 2).[4]

Faster economic growth in the district than in the nation in 1990 and 1991 partly reflects historical relationships during recessions. Recessions have been milder on average in the district than in the nation since World War II. And the district's relative performance in the recession of 1990-91 was even better than in recessions of the past. District employment continued to grow during this recession, even

Chart 2

Income Growth, U.S. and Tenth District



Notes: Income growth rates are based on real nonfarm personal income. For 1991, data for the first two quarters are seasonally adjusted annual rates.
Source: Data Resources, Inc.

as national employment declined.

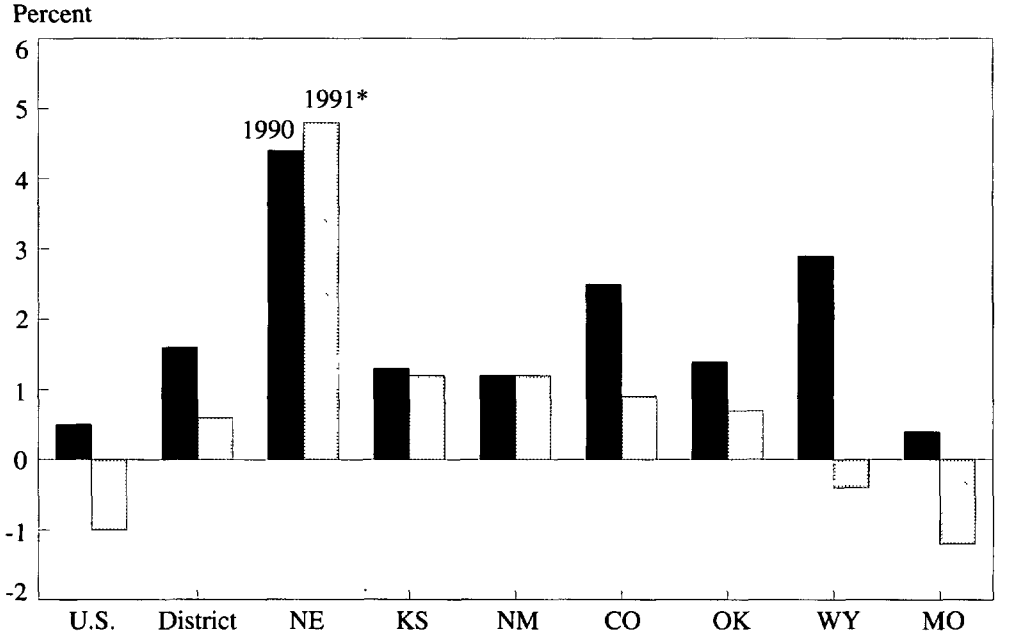
The district has also grown slightly faster than the nation in the first few months of recovery, even though the district typically grows somewhat more slowly than the nation in early recovery periods. Employment data for the district since the end of the recession are still limited. But data for the third quarter of 1991—the first full quarter of recovery—show that employment in the district grew 0.3 percent, while employment in the nation grew 0.1 percent.[5]

District employment grew 0.6 percent in 1991, considerably slower than the 1.6 percent rate posted in 1990. Employment in five district states grew more slowly in 1991 than in 1990 (Chart 3). The number of jobs grew in Colorado, Kansas, and Oklahoma, but not as fast as in 1990. Employment in Missouri and Wyoming declined in 1991 after growing in 1990. In New Mexico, jobs grew at the same pace as in 1990. Only in Nebraska did employment grow faster in 1991 than the year before.

Real nonfarm personal income in the district rose 0.7 percent in 1991, slightly faster than the 0.5 percent increase in 1990. Income grew faster in 1991 than in 1990 in Kansas, Nebraska, and New Mexico (Chart 4). Missouri's income decline was smaller in 1991 than the previous year. Income grew more slowly in 1991 than in 1990 in Colorado, Oklahoma, and Wyoming.

Chart 3

Growth in Nonagricultural Employment in Tenth District States



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

Review and Outlook by Sector

The district's diverse mix of industries helped it escape the recession, but most sectors did weaken over the past year. Employment in manufacturing and wholesale trade decreased faster in 1991 than the year before, while employment in mining, retail trade, transportation, and the financial sector declined after making small increases in 1990. Growth gains in construction and services were smaller in 1991 than they had been the year before.

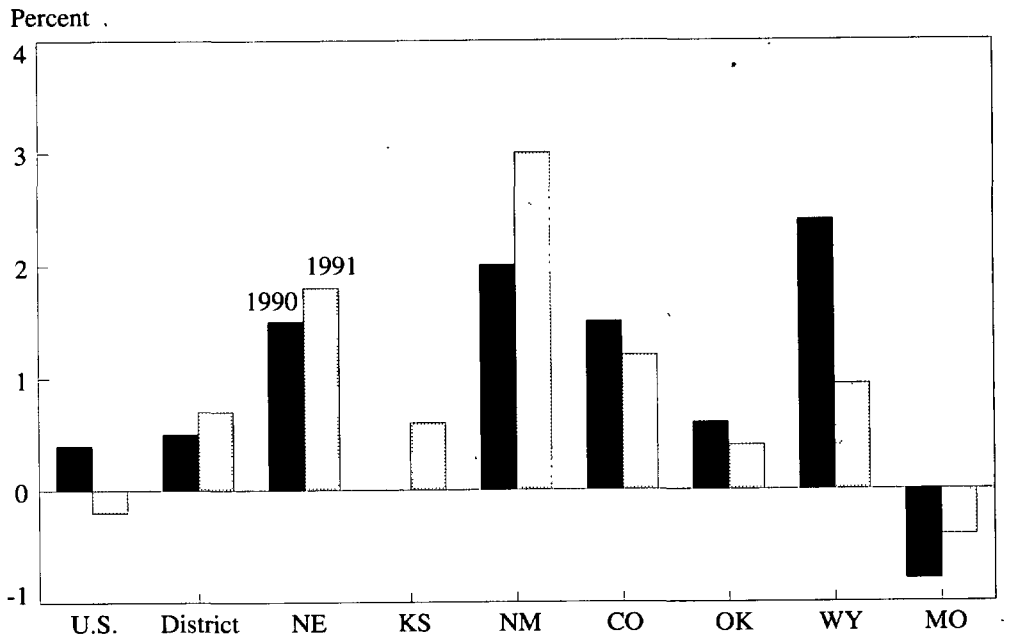
The national economy in 1992 is expected to grow considerably slower than the average for upturns since World War II, and the district economy is likely to reflect that performance. As a result, most sectors of the region's economy are likely to enjoy only modest growth.

The *farm* recovery, central to the district's economic growth in recent years, lost steam in 1991. After posting record highs in three of the last four years, farm income dropped in 1991. The decline had two sources: reduced livestock earnings due to lower cattle and hog prices, and mediocre earnings for crop producers, due to average crops and poor prices caused by slumping export demand.

Farm income may edge lower in the year ahead. Livestock profits will be weak as producers send record meat supplies to market at a time when consumer demand is growing slowly. Crop prices, on the other hand, may

Chart 4

Growth in Income in Tenth District States



Notes: (See notes, Chart 2.)
Source: Data Resources, Inc.

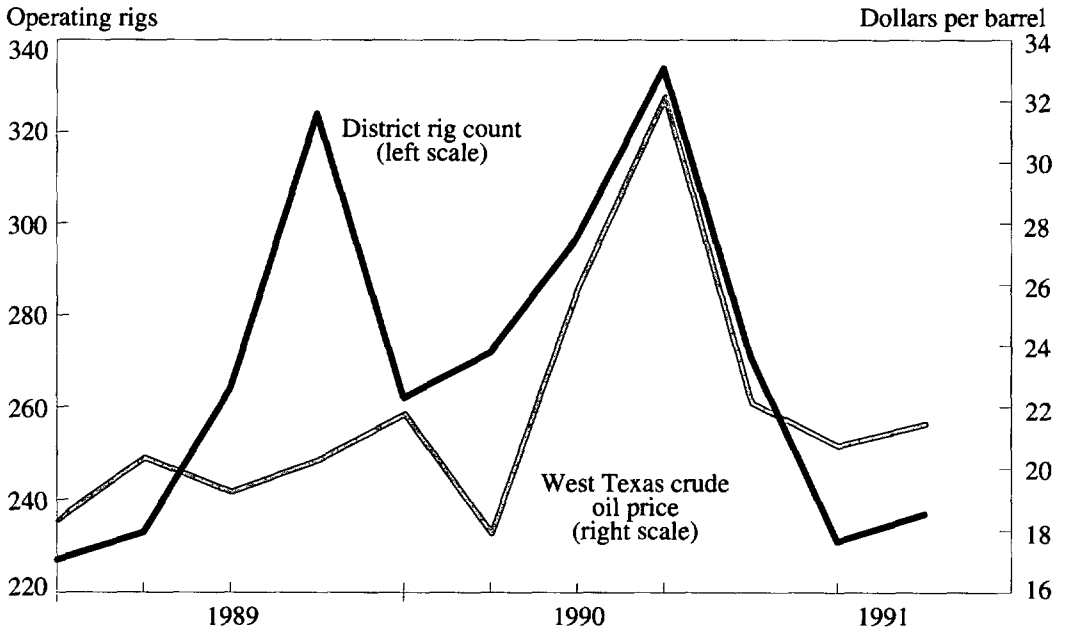
continue to rise from low levels in 1991. Grain stocks are tight, setting the stage for much higher grain prices if export demand rises unexpectedly. All in all, while agriculture is unlikely to power strong growth in the district economy, it will continue to provide a solid base for growth (Drabenstott and Barkema).

The district's up-and-down *mining* industry was down again in 1991. Following 3.3 percent expansion in 1990, mining employment in the district dropped 3.0 percent in the first three quarters of 1991—close to the national rate of decline (Table 1).

Mining activity in the district is dominated by the energy sector—oil, natural gas, and coal. The region produced about 5 percent more coal in the first nine months of 1991 than in the same period a year earlier, compared with a small decline in total U.S. production. The limited data available on the district energy industry suggest less strength in the production of oil and gas in the district.

Mining activity responds significantly to changes in energy prices. After events in the Persian Gulf pushed oil prices to their most recent peak in the fourth quarter of 1990, oil prices plunged about a third by the third quarter of 1991. Natural gas prices followed a similar pattern. Consequently, the number of gas and oil rigs operating in district states fell from 334 at the end of 1990 to 237 in the third quarter of 1991 (Chart 5).

Chart 5
Crude Oil Price and District Rig Count



Source: Hughes Tool Company and Platt's.

The energy industry, so important to the district economy, is unlikely to give a significant boost to overall business activity in 1992. Low prices for oil and natural gas—and little prospect for significant, sustained increases—hold little hope for large increases in either development or production. Consequently, the mining sector will probably contribute little if anything to total employment growth in the region.

District *manufacturing* activity slumped dramatically in 1991 after falling off in 1990, a two-year performance much like the nation's industrial sector. Manufacturing employment in the district fell nearly three times as fast in 1991 as the year before (Table 1). Still, the district lost factory jobs at a slower pace than did the nation.

Factory job losses in the district were concentrated in the durable goods industries. Jobs in the transportation equipment industry again dropped substantially, as new car sales and output stayed in the doldrums. Production at district automobile assembly plants in the 1991 model year was 21 percent below 1990 output. And even with the entire industry suffering hard times, the district's share of total U.S. production fell from 13.6 percent in 1990 to 11.6 percent in 1991. General aviation manufacturing in the district also showed some weakness in 1991. Dollar sales in the first three quarters of 1991 were up only modestly from the same period a year earlier, while unit shipments were down.

Nondurables manufacturing in the district

slowed in 1991 but remained stronger than durables manufacturing. Job growth in the region's two major nondurables industries—food processing and printing and publishing—moved in opposite directions. Employment at food processing plants grew substantially faster in 1991 than in 1990. But printing and publishing employment declined in 1991, after posting solid growth in 1990.

Manufacturing typically helps lead the economy out of recession. As consumers seek to satisfy their pent-up demands and businesses strive to restore their inventories, the pace of factory production quickens. But in this recovery, consumer debt burdens are high and businesses are keeping inventories lean. Thus, the manufacturing rebound may well be attenuated in both the nation and the district.

The more cyclically sensitive durable goods sector may see relatively more growth in the district than the less sensitive nondurables sector. But the substantial presence of auto assembly plants and defense industries in some district states may hold down growth overall. On the other hand, should foreign economic growth accelerate and U.S. goods hold their competitiveness, export markets could support some areas of district manufacturing growth this year.

Construction, one of the few pluses for district economic activity in 1991, nevertheless slowed its pace from the year before. Construction jobs continued to grow, but more slowly than in 1990. The value of total construction contracts awarded in the first three quarters of 1991, however, was nearly 10 percent above the same period a year earlier.

Residential construction in the district rose sharply in 1991, partly in response to lower mortgage rates. Total housing permits soared at a 30 percent annual rate in the first three quarters of the year, after plunging 24 percent in 1990. Single-family dwellings accounted for nearly all of the rise, as multifamily building remained depressed. Residential construction growth in the district roughly paralleled the nation's.

Table 1

Growth in nonagricultural employment by sector, Tenth District states

	Percent change	
	1990*	1991†
Manufacturing	-.5	-1.4
Durable goods	-1.9	-2.6
Transportation equipment	-6.3	-4.8
Nondurable goods	1.4	.4
Food processing	2.6	3.7
Printing and publishing	1.8	-.8
Mining	3.3	-3.0
Construction	2.3	1.5
Services	3.9	1.5
Wholesale trade	-.2	-1.1
Retail trade	1.0	-.1
Federal government	-.7	.8
State and local government	2.5	3.5
Transportation	.6	-.3
Finance, insurance, real estate	.5	-.2

* From fourth quarter 1989 to fourth quarter 1990.
† First three quarters, seasonally adjusted annual rate.

Source: Bureau of Labor Statistics.

Nonresidential construction was also stronger in 1991, as the value of nonresidential building contracts rose slightly. Nonresidential building construction in the district is still restrained by high office vacancy rates in major metropolitan areas. The region's industrial vacancy rates tend to be relatively low, however. The small increase in nonresidential building contracts in the district in 1991 contrasted with a substantial national decline.

Construction, especially home building, also typically helps lead the economy into recovery. As in the case of manufacturing, however, there is reason to believe that construction's contribution may be less in this recovery. The erection of

single-family dwellings is the only construction category likely to come close to its usual role. Earlier overbuilding and the resulting high vacancy rates have depressed the construction of new nonresidential buildings and multifamily housing structures. As a result, construction growth in the district will probably be limited in the year ahead.

The *service* sector is not immune to recession, as was proved again in 1991. While service employment continued to grow in both the nation and the region, the pace of growth slackened substantially. Still, services was one of only two private nonfarm sectors in the district to record employment gains in 1991. And service jobs continued to grow rapidly in some states, such as Nebraska.

The *trade* sector did not fare as well as the services sector. The number of retail jobs in district states decreased slightly in 1991 after a small gain the year before, while the number of wholesale jobs fell faster in 1991 than in 1990.

Modest overall economic growth in the district and the nation in 1992 is likely to limit growth in the trade and services sectors. Relatively slow growth in personal income is expected to limit retail growth. Services spending, generally less variable than spending for goods, should still grow somewhat faster this year than last. Both trade and services activity will benefit from tourism in the district.

Government, which now accounts for about 20 percent of district nonfarm jobs, has long provided an important underpinning for the economies of Tenth District states. Government employment grew faster than any other category in 1991 (Table 1). Nearly all of the increase was at the state and local government level.

Despite the growth of government employment, fiscal stress was common among district states in 1991, due mainly to the weakness in economic activity. A simple yet meaningful indicator of a state's fiscal health is the size of its general fund balance in relation to its general fund spending. According to this indicator, fiscal conditions improved in 1991 in only one district state, stayed about the same in one other, and deteriorated in the remaining five.[6] But fund balances remained above 5 percent of general fund spending in five states, a level of reserves considered desirable by both private and public analysts.

With another tough budget year ahead, government will probably not be the fastest growing sector in the district again in 1992. Defense spending is on a downward track, and federal employment in the region will probably change little from last year. Nor is the recent rapid growth of state and local government employment likely to be maintained. State fiscal conditions are expected to stabilize after a difficult year, but officials are cautious about further expansion. In most district states, fund balances as a percent of general fund spending are projected to be smaller or unchanged in 1992, compared with 1991. Four states are projected to maintain balances greater than 5 percent of spending, however (Eckl and others).

Mixed Performance in District States

Growth in most district states was weak in 1991. Employment grew faster than in 1990 only in Nebraska, and declined in Missouri and Wyoming. Only Missouri's weakness surpassed that of the nation. Once again, differences in industrial structure accounted for much of the difference in state performances.

Nebraska

Economic performance in Nebraska improved again in 1991. The state's employment growth led the district and the nation by a wide margin, as it did in 1990 (Chart 3). And, while Nebraska's unemployment rate in the third quarter of 1991

edged up from the end of 1990, it remained just 2.7 percent of the labor force. Real nonfarm personal income also grew somewhat faster in the first half of 1991 than in 1990 (Chart 4).

Nebraska's manufacturing employment growth slowed in 1991 but still outpaced the district as a whole. Factory jobs increased 2.7 percent in Nebraska, while manufacturing employment in the district eroded at a 1.4 percent rate. Nondurables manufacturing, buttressed by the state's strong food processing industry, fueled most of the sector's growth in Nebraska.

Nebraska's relatively small construction sector improved markedly during the year, as employment soared at a double-digit pace. Nonbuilding construction and single-family home building strengthened the rise, while losses in multifamily residential and nonresidential building weakened it.

The trade and services sectors made major contributions to Nebraska's employment growth. Retail trade employment grew more rapidly than in 1990, and faster than in any other district state. Jobs in Nebraska's business and personal services industries were added even faster, although not at the 1990 pace. Employment also grew significantly in the financial sector, a weak area in other district states.

In the year ahead, Nebraska's economy should continue to be among the fastest growing in the district. Nondurables manufacturing and services, anchors of the state's nonfarm economy, are likely to do well as the national economy recovers slowly. And while farm incomes will probably not match earlier peaks, agriculture is likely to serve as a solid support for the Nebraska economy.

Kansas

Kansas economic growth was slow in 1991, but it still outpaced growth in most other district states. Employment growth was essentially unchanged from the year before, while the state's unemployment rate drifted down from 4.8 percent in the fourth quarter of 1990 to 4.6 percent in the third quarter of 1991 (Chart 3). Nonfarm real personal income grew slightly in the first half of the year, after remaining steady in 1990 (Chart 4).

Manufacturing employment stayed sluggish in 1991. A modest rise in nondurables jobs barely offset a drop in durables manufacturing employment. Reflecting the nationwide woes of the automobile industry, new car production at the Kansas City General Motors plant fell 21 percent from the 1990 to the 1991 model year. Manufacturers of general aviation aircraft in Wichita recorded a modest rise in net billings but a similarly modest fall in shipments in the first three quarters of 1991, compared with the same period a year earlier.

Kansas mining activity in 1991 mirrored a decline in the district and the nation. Mining employment fell 5 percent in 1991, after climbing more than 8 percent in 1990. As oil and gas prices weakened, the number of active drilling rigs dwindled from 50 in the fourth quarter of 1990 to 32 in the third quarter of 1991. And coal production in the state was 8 percent lower in the first nine months of 1991 than in the same period a year earlier.

Performance in other sectors of the Kansas economy was somewhat mixed. The value of total construction contract awards edged up in 1991, but employment was flat. The number of housing permits jumped through the first three quarters, following a 1990 slump. Within the broad trade and services sector, private employment in 1991 was virtually unchanged from the year before, except among business and personal services industries. Services employment grew faster in Kansas than in either the district or the nation, but the 1991 pace was off from 1990. Government employment, however, grew more slowly in Kansas than in most district states.

Looking ahead, the Kansas economy should

record at least moderate growth in 1992. Modest improvement in the state's manufacturing sector should accompany the nation's economic recovery, but mining activity is unlikely to rebound strongly. Although farm incomes have come off their record highs, agriculture should still bolster the Kansas economy. Agriculture could provide an even bigger boost to the state if grain prices move higher, a development that is quite possible due to low stocks of grain as 1992 began.

New Mexico

The New Mexico economy also continued to grow slowly in 1991. Employment increased 1.2 percent, equal to the rate posted for 1990 (Chart 3). And the state's 6.7 percent unemployment rate in the third quarter matched the level reached in the fourth quarter of 1990. Nonfarm personal income increased somewhat faster in the first half of 1991 than in the year before (Chart 4).

New Mexico's important mining sector weakened in 1991. Employment declined slightly following a moderate rise the year before. The 35 drilling rigs operating in the third quarter were only about half the number operating in the fourth quarter of 1990. And coal production in the first nine months of the year was 7 percent below the amount mined in the same period a year earlier.

Manufacturing activity in New Mexico deteriorated following a weak 1990, but construction turned around. Job ranks thinned sharply in durable goods factories and slightly in nondurable goods plants. Both nonresidential and residential construction improved, and total construction employment was unchanged from the year before. Within the residential sector, permits for new single-family dwellings far outstripped those for multi-family units.

Sluggishness also invaded the state's trade and services sectors. The number of jobs in retail trade establishments grew only slightly, while growth in services employment was only half that of 1990. This sluggishness in trade and services growth persisted in spite of New Mexico's continued popularity as a tourist destination and an extended summer tourist season.

In 1992, New Mexico's economy may once again experience slow growth. A minimal impact from reductions in defense spending and a stronger mining sector would likely be needed to reinvigorate New Mexico's economic growth in 1992, but both appear unlikely. Strength in tourism should help overcome this year's sluggishness in the trade and services sectors, thereby supporting overall economic activity in the state.

Colorado

Colorado's economy slowed in 1991. Employment growth stalled after setting a moderate pace in 1990, and the state's 4.7 percent unemployment rate in the third quarter was unchanged from its level at the end of 1990. Growth in Colorado's real nonfarm personal income also slowed from 1990 (Chart 4). Strong construction activity kept the state's economic performance from slowing further.

Colorado's manufacturing sector, which slumped in 1990, deteriorated further in 1991. Total manufacturing employment fell 1.4 percent. Most of the state's factory jobs are in plants that produce durable goods, where employment dropped significantly for the second consecutive year. The decline more than offset a modest increase in employment in nondurables manufacturing.

Colorado shared in the national and district declines in mining activity. The state's mining employment tumbled 4 percent in 1991, following a slight rise the year before. The number of drilling rigs operating in the state dipped slightly from the end of 1990 to the third quarter of 1991. Coal production, however, expanded somewhat over the same period.

Construction was a bright spot for the

Colorado economy in 1991. Construction employment grew twice as fast in the first three quarters of the year as in 1990, with all parts of the sector participating in the improvement. Nonbuilding construction, led by such projects as the Denver airport, contributed substantially to the overall advance. Nonresidential building activity also contributed significantly. Office vacancy rates in Denver remain high but have fallen over the past couple of years. Residential construction picked up in 1991, as increases in permits for single-family dwellings more than offset further declines for multifamily structures.

Trade and services provided less support to the Colorado economy in 1991 than the year before. Retail trade employment fell after growing moderately in 1990, and services employment growth slowed substantially. The slower growth in trade and services employment may reflect slower growth in tourism. For example, the number of skier visits in Colorado in the 1990-91 season was virtually unchanged from the season before.

In 1992, the Colorado economy will likely record moderate growth. Manufacturing gains will reflect the continuing, albeit slow, national recovery. Construction activity appears to have turned the corner and should contribute to overall growth. A pick-up in the trade and services sector may also be a significant factor in 1992. Tourism's contribution will be vital, as the new ski season begins with large snowfalls and aggressive marketing efforts in the United States and abroad.

Oklahoma

Slow economic growth persisted in Oklahoma in 1991. Real nonfarm personal income grew only at 0.4 percent, after increasing just 0.6 percent in 1990 (Chart 4). The civilian unemployment rate crept up from 6.3 percent at the end of 1990 to 6.5 percent in the third quarter of 1991. And employment growth at 0.7 percent was just half the pace of growth in 1990 (Chart 3). The leading sources of growth in the state in 1991 were manufacturing and government.

After falling in 1990, manufacturing employment increased at about 2 percent in 1991. Unlike most other district states, Oklahoma's job growth in manufacturing was centered in the state's durable goods factories. The jump in durable goods jobs brought such employment back to its 1989 level. But nondurables manufacturing jobs declined slightly in 1991.

Government employment in 1991 increased faster in Oklahoma than in any other district state except Nebraska. All of the increase came in the state and local government sector, as federal government employment in Oklahoma declined for the second straight year. Oklahoma added state and local government workers to payrolls faster than any other district state and much faster than state and local governments nationwide.

As in other district states and the nation, Oklahoma's energy sector shrank in 1991. Mining jobs fell 4.2 percent, erasing the employment gains made in 1990. The number of drilling rigs operating in the state dropped from 134 in the fourth quarter of 1990 to 98 in the third quarter of 1991. And coal production in the first nine months of the year slipped nearly 9 percent below its level in the same period a year earlier.

Construction activity also worsened in Oklahoma in 1991. Construction industry jobs fell sharply in the first three quarters of the year after edging downward in 1990. While the value of nonbuilding construction contract awards plunged in the first three quarters of the year, nonresidential building construction suffered an even steeper relative decline. Although continuing to improve slowly, Oklahoma City's office vacancy rate remains among the highest

for major metropolitan areas in the nation. Only in homebuilding did Oklahoma post a gain in construction activity. Single-family dwellings accounted for all of the relatively substantial increase in the number of housing permits issued in the first three quarters of the year.

The trade and services sectors suffered from the generally sluggish behavior of the Oklahoma economy. Employment in retail establishments inched upward in the first three quarters of the year, while employment in the business and personal services industry dropped. Oklahoma was the only state in the district to record a services employment decline in 1991.

Economic growth in Oklahoma may pick up slightly in 1992, compared with its slow pace in 1991. To do so, the state's manufacturing sector will at least have to maintain its 1991 pace and get some help from other industries. While agriculture may be expected to provide some support, Oklahoma's energy sector is unlikely to bounce back sharply. Oil industry participants expect prices to rise only modestly if at all over the next year, despite supply uncertainties and an anticipated small increase in demand.

Wyoming

Wyoming's economy skidded in 1991, following moderate growth in 1990. Employment dipped slightly but retained most of the gains of 1990 (Chart 3). Despite the loss of jobs, the state's unemployment rate also fell—from 5.6 percent in the fourth quarter of 1990 to 4.7 percent in the third quarter of 1991—due to the effects of a shrinking labor force. Real nonfarm personal income in Wyoming climbed 0.9 percent in 1991, much slower than the 2.4 percent rise in 1990 (Chart 4).

Modest improvement in Wyoming's important mining sector provided support for the state's economy again in 1991. Mining employment advanced 1.5 percent in 1991, not much different from its 1990 pace. The number of oil and gas drilling rigs operating in the state—already at a low level—crept downward from the close of 1990 to the third quarter of 1991. Coal production, on the other hand, was nearly 7 percent higher in the first nine months of 1991 than in the same period a year earlier.

The construction sector turned in a mixed performance again in 1991. Residential building activity climbed, while nonresidential construction fell. The number of housing permits issued swelled after little change for several years. Nonresidential building contracts fell back, however, after several years of improvement. And nonbuilding construction slipped somewhat, returning to 1989-90 levels. Despite these variations within the sector, construction employment in Wyoming posted the same 5 percent gain in 1991 that it had in 1990.

Non-goods-producing sectors of the Wyoming economy were generally sluggish in 1991. A small rise in wholesale trade employment was more than offset by a loss of jobs at retail establishments. Services employment, which increased moderately in 1990, barely rose in 1991. And Wyoming was the only district state to suffer a decline in government employment in 1991.

Wyoming appears to be facing another year of slow growth at best. Achieving even moderate growth would likely require a strong rebound in the livestock sector and a boost to the state's natural gas industry. Tourism may sustain Wyoming's trade and services sectors in some parts of the state.

Missouri

Missouri's overall economic performance in 1991 generally ran counter to that of the rest of the district, more closely resembling that of

the nation. Missouri's 6.8 percent unemployment rate in the third quarter matched the nation's and was 0.8 percentage point above the district average. The number of nonfarm jobs in Missouri fell 1.2 percent, matching the national decline and exceeding the district average (Chart 3). And the fall in Missouri's nonfarm income in the first half of 1991 was closer to the nation's small drop than to the district's modest increase (Chart 4). Such comparisons are not surprising. Missouri's economy—heavily weighted toward manufacturing—is more like the nation's than any other district state.

The 1990 downturn in Missouri manufacturing continued in the first three quarters of 1991. Factory jobs fell 3.8 percent in the state, faster than the decline in national manufacturing employment in 1991 and faster than in the state the year before. Employment in durable goods plants plunged 6 percent in 1991. Nondurables employment also fell over the same period, but more slowly—at a 1 percent rate. A sagging defense industry and slumping automobile production played a large part in manufacturing's decline. The number of new cars assembled in Missouri slipped 19 percent from 1990 to 1991.

Missouri's construction sector was weak in 1991. As in other district states in the first three quarters of 1991, housing rebounded with permits for single-family dwellings leading the way. But the value of nonresidential building contracts fell even more sharply than in 1990, in spite of modest declines in commercial and industrial vacancy rates in Kansas City and St. Louis. Overall, construction employment fell 1.2 percent in 1991, after rising slightly in 1990.

Weak trade and services sectors reflected the overall weakness in the Missouri economy in 1991. Employment in wholesale and retail trade fell faster in the first three quarters of 1991 than in 1990. Missouri's rate of decline in trade employment matched the nation's and exceeded that of any other district state. The comparative performance of Missouri's services sector was even worse. The state's 0.3 percent increase in services employment was well below the modest rise of 1.5 percent in both the nation and the district.

Because its economic performance so closely parallels the nation's, Missouri's road to recovery is likely to be slow paced. While manufacturing activity should pick up as firms again add to inventories, auto assembly may still be restrained and production of defense-related goods is likely to be further diminished. Strong growth in other sectors of the Missouri economy will probably be limited until manufacturing regains its health.

Summary

The Tenth District economy outperformed the U.S. economy in 1991, a year of national recession and slow recovery. But economic growth in district states was generally slower in 1991 than the year before. The farm recovery lost momentum, the energy sector fell back, and manufacturing activity slumped further. Only Nebraska's economy was able to swim against the tide, as the district felt the drag of the national downturn.

As the nation continues a relatively slow economic recovery in 1992, the district is likely to find itself in its familiar role of just about matching the national pace. Such a relationship suggests somewhat stronger growth in district states than was recorded in 1991. To be sure, neither agriculture nor the energy sector appears likely to be a powerful locomotive of faster growth. But gains in manufacturing, services, and perhaps construction, should permit the district to join the nation on its slow return toward prosperity.

Endnotes

[1] This view reflects the consensus estimate published in the January 10, 1992, *Blue Chip Economic Indicators*. The estimate is for real GDP growth of 1.6 percent in 1992.

[2] This article assesses district economic performance using the most recent data available at the time of writing. Preliminary employment data are available for the first three quarters of 1991; income data, for the first two quarters. Other data are available for various time periods.

[3] Discussions of employment growth in this article are based on growth for 1990, calculated from the fourth quarter of 1989 to the fourth quarter of 1990, and growth for 1991, calculated as the annual rate of growth from the fourth quarter of 1990 to the third quarter of 1991. The employment data are from the Bureau of Labor Statistics, seasonally adjusted at the Federal Reserve Bank of Kansas City.

[4] Discussions of income growth in this article are based on growth for 1990, calculated from the fourth quarter of 1989 to the fourth quarter of 1990, and growth for 1991, calculated as the annual rate of growth from the fourth quarter of 1990 to the second quarter of 1991. The income data are seasonally adjusted real nonfarm personal income data from Data Resources, Inc.

[5] For more detail on district and national performance in recession and early recovery periods, see Miller.

[6] Balances in 1991 were considerably higher than in 1990 in Wyoming, about the same in Nebraska, and significantly lower in the other five states. Balances were larger than 5 percent of general fund spending in all district states except Colorado and Missouri (Eckl and others).

References

Eckl, Corina L., Anthony M. Hutchison, and Ronald K. Snell. 1991. *State Budget and Tax Actions - 1991*, Legislative Finance Paper no. 79, National Conference of State Legislatures, October.

Miller, Glenn H. Jr. 1991. "Recession and Recovery in the Tenth District," Federal Reserve Bank of Kansas City, *Regional Economic Digest*, Third Quarter.

Drabenstott, Mark, and Alan Barkema. 1992. "The Farm Economy Turns Down," Federal Reserve Bank of Kansas City, *Economic Review*, First Quarter.

The Farm Economy Turns Down

By Mark Drabenstott and Alan Barkema

After more than four years of robust recovery, the farm economy turned down in 1991 and the slump seems likely to continue in 1992. Farm income slipped more than 5 percent due to a drop in livestock profits and just an average year for crop producers. The earnings slide came after farm income posted record highs in three of the past four years. Farmland values stalled in 1991 after four years of solid gains, further underscoring the end of the farm recovery.

Despite the backslide in 1991, the farm economy remains on solid financial footing. Farm balance sheets remain healthy after more than five years of high income and debt reduction. Most farm lenders have very few problem loans heading into 1992. And even though farm income may edge a bit lower, crop prices are improving and could soar if exports strengthen or bad weather cuts crop yields. Thus, U.S. agriculture seems likely to endure at least two years of downturn—but is well positioned to do so.

The Farm Downturn of 1991

The 1991 farm downturn was widely shared in U.S. agriculture, but livestock producers felt the biggest blow. Strong livestock prices were the main strength of farm income the past three years, so a sharp break in cattle and hog prices in late summer hit one of the pillars of the farm recovery. Crop producers, meanwhile, contended with a wet spring and dry summer but managed to harvest average crops overall. As farm income slipped and farmland values stalled, farm balance sheets weakened.

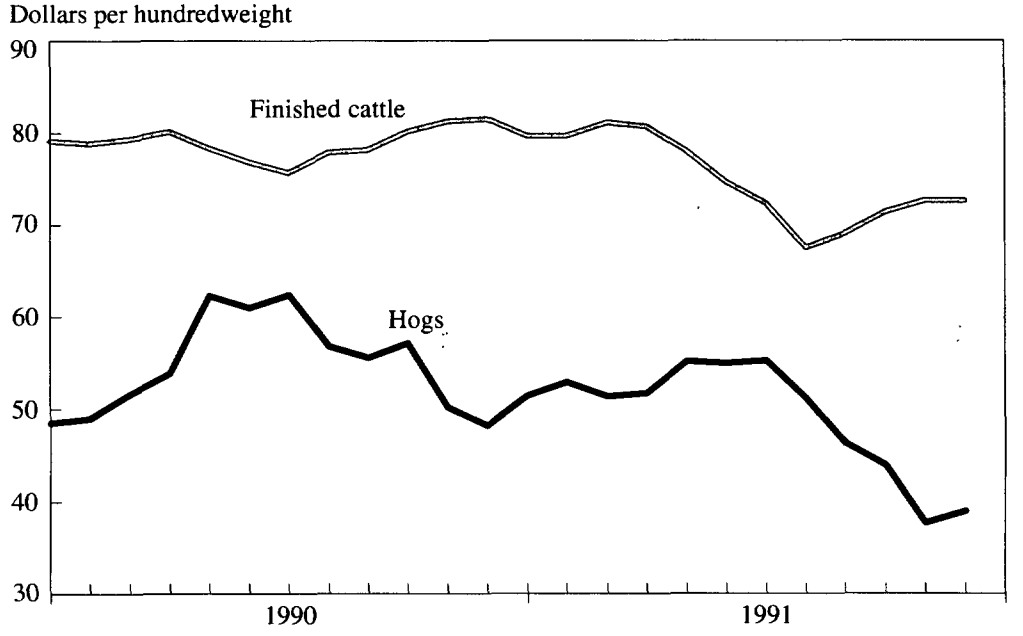
A sharp drop in livestock profits

The slump in livestock prices was a tale of supply and demand (Chart 1). Meat supplies rose 3 percent to a record high, while consumer

Mark Drabenstott is a vice president and economist at the Federal Reserve Bank of Kansas City. Alan Barkema is a senior economist at the bank. Julie Stanley, an assistant economist at the bank, helped prepare the article.

Chart 1

Livestock Prices



Source: U.S. Department of Agriculture, Economic Research Service.

demand weakened due to the recession. Consumers shopped for value, but per capita consumption still climbed to a record 215.6 pounds. The drop in cattle and hog prices was especially pronounced. An unusual surge in fed cattle marketings caused cattle prices to fall nearly 15 percent in August before recovering somewhat later in the year. Hog prices fell about a third from summer to fall as producers expanded production after two years of wide profit margins.

Beef production increased 1 percent in 1991 amid signs that producers were expanding the nation's cattle herd for the first time in many years. The main reason for the rise in beef output was that producers sent heavier cattle to market. In late spring, feedlot operators began holding back marketings, hoping for higher prices. Soon, a backlog of heavy cattle developed. Prices fell sharply in late summer as producers sent a large wave of cattle to market. By fall, the backlog had been worked off, and prices recovered somewhat. For the year as whole, beef carcass weights averaged almost 700 pounds, shattering the old record.

Year-average cattle prices fell in 1991, but not as much as the summer sell-off would suggest. Finished cattle prices climbed to a record high in the first quarter and remained fairly strong through most of the summer. Prices for choice steers at Omaha averaged $75 a hundredweight, down $3.50 from 1990 (Table

Table 1

U.S. farm product price projections

(December 11, 1991)

Crops	Marketing years 1989-90	1990-91*	1991-92†	Percent change
Wheat	$3.72/bu.	$2.61/bu.	$2.85-3.05/bu.	13.03
Corn	$2.36/bu.	$2.28/bu.	$2.20-2.60/bu.	5.26
Soybeans	$5.69/bu.	$5.75/bu.	$5.25-5.75/bu.	-4.35
Livestock	Calendar years 1990	1991*	1992†	Percent change
Choice steers	$78.56/cwt.	$74-75/cwt.	$73-79/cwt.	2.01
Barrows & gilts	$54.45/cwt.	$48-49/cwt.	$39-45/cwt.	-13.40
Broilers	$.55/lb.	$.51-.52/lb.	$.47-.53/lb.	-2.91
Turkeys	$.63/lb.	$.60-.61/lb.	$.56-.62/lb.	-2.48
Lamb	$55.54/cwt.	$53-54/cwt.	$49-55/cwt.	-2.80
Milk	$13.68/cwt.	$12.20-12.25/cwt.	$11.85-12.85/cwt.	1.02

* Estimated.

† Projected.

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

1). High prices for feeder cattle and huge losses in the third quarter caused most feedlots to lose money in 1991.

Feeder cattle prices were surprisingly strong in 1991, making ranching one of U.S. agriculture's strongest performers for the year. Large financial losses in cattle feeding in the second half of the year pushed feeder cattle prices down only modestly because feeder cattle remained in tight supply. Prices for feeder steers at Oklahoma City averaged $93, up from $92 in 1990. Ranching profits have stayed strong for three to four years. A rise in cattle inventories in 1991, the first increase since 1982, suggests that ranchers are beginning to expand in response to the string of profits.

Pork producers expanded aggressively in 1991, boosting pork production 4 percent. Long anticipated, the expansion received a cool market reception. In July, before the expansion hit full swing, prices averaged more than $55 a hundredweight. By November, prices had fallen to just $38. For the year as a whole, prices for barrows and gilts at the seven major markets averaged $49, down more than $5 from the year before. Wide profits in 1990 turned into sizable losses by late 1991.

Poultry producers continued their lengthy expansion in 1991, as total poultry production grew 5 percent. Broiler output jumped 7 percent, while turkeys edged up 3 percent. Consumer demand remained strong for poultry

Table 2

U.S. agricultural supply and demand estimates

(December 11, 1991)

	Corn (bu.)			Feedgrains (mt.)		
	Sept. 1-Aug. 31			June 1-May 31		
	1989-90	1990-91	1991-92	1989-90	1990-91	1991-92
Supply						
Beginning stocks	1,930	1,344	1,521	65.9	45.5	47.7
Production and imports	7,528	7,937	7,488	222.3	231.9	219.9
Total supply	9,458	9,281	9,009	288.2	277.4	267.6
Demand						
Domestic	5,745	6,034	6,200	173.0	178.2	181.6
Exports	2,369	1,727	1,575	69.7	51.5	47.0
Total demand	8,113	7,761	7,775	242.7	229.7	228.6
Ending stocks	1,344	1,521	1,234	45.5	47.7	39.0
Stocks-to-use ratio	16.57	19.60	15.87	18.75	20.77	17.06

	Soybeans (bu.)			Wheat (bu.)		
	Sept. 1-Aug. 31			June 1-May 31		
	1989-90	1990-91	1991-92	1989-90	1990-91	1991-92
Supply						
Beginning stocks	182	239	329	702	536	866
Production and imports	1,927	1,928	1,967	2,060	2,773	2,020
Total supply	2,109	2,167	2,296	2,762	3,309	2,886
Demand						
Domestic	1,247	1,281	1,331	992	1,376	1,247
Exports	623	557	650	1,233	1,068	1,225
Total demand	1,870	1,838	1,981	2,225	2,444	2,472
Ending stocks	239	329	315	536	866	414
Stocks-to-use ratio	12.78	17.90	15.90	24.09	35.43	16.75

Note: Data represent millions of bushels or metric tons.

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

products, as poultry increased its share of total meat sales to 44 percent. Nevertheless, large meat supplies overall and weak consumer income led to a fall in broiler prices. Prices at the 12 city markets averaged 52 cents a pound, down from 55 cents in 1990. Despite lower prices, broiler producers still made profits, thanks in part to moderately priced feeds. Turkey prices averaged 61 cents a pound in 1991, down 2 cents from the year before.

A mixed year for crop producers

A wet spring, dry summer, and early frost threatened crops in 1991, but ultimately production of most crops fell much less than expected. Periodic fears of a fall in production made prices volatile during the growing season. Those fears proved unfounded, however, and farmers harvested an average crop overall. Still, weather was unusually spotty across the farm belt, creating a quiltlike pattern of good and bad crops. Despite weaker farm exports, total U.S. grain inventories declined in 1991.

Wheat prices softened in the first half of the year but moved higher in the second half. U.S. wheat production plunged more than a fourth due to adverse weather and smaller acreage (Table 2). Such a fall in output normally leads to sharply higher prices, but large supplies of wheat worldwide limited the price advance. The European Community (EC) harvested a record wheat crop in 1991, and the Canadian crop was only slightly less than the 1990 record.

As 1991 wore on, U.S. wheat prices increased about a dollar a bushel. The rise was due to low U.S. wheat stocks, dry growing conditions for the 1992 winter wheat crop, and expectations of subsidized sales to the Soviet Union. Average farm prices for the 1990-91 marketing year that ended June 30 were $2.61 a bushel, more than a dollar lower than the previous year.

Feedgrain production fell 5 percent in 1991 due to spotty dry weather across the Corn Belt. The corn crop was 7.5 billion bushels, down about 6 percent from the year before. But demand also fell in 1991, swelling corn stocks to 1.5 billion bushels. Foreign demand was especially weak, as corn exports fell more than 600 million bushels. For the 1990-91 marketing year ended August 31, farm-level prices averaged $2.28 a bushel, down slightly from the previous year and the lowest in four years.

Soybean production in 1991 was unchanged from 1990, despite a dry summer and an early autumn freeze in the northern Corn Belt. Production netted 1.9 billion bushels for the third year in a row. Competing world supplies were quite large in 1991, while world demand was sluggish. Soybean prices shot up in midsummer when dry weather threatened the crop. But as evidence mounted that weather damage was much less than expected, prices eased through the fall harvest. For the 1990-91 marketing year ended August 31, farm prices averaged $5.75 a bushel, narrowly higher than the year before.

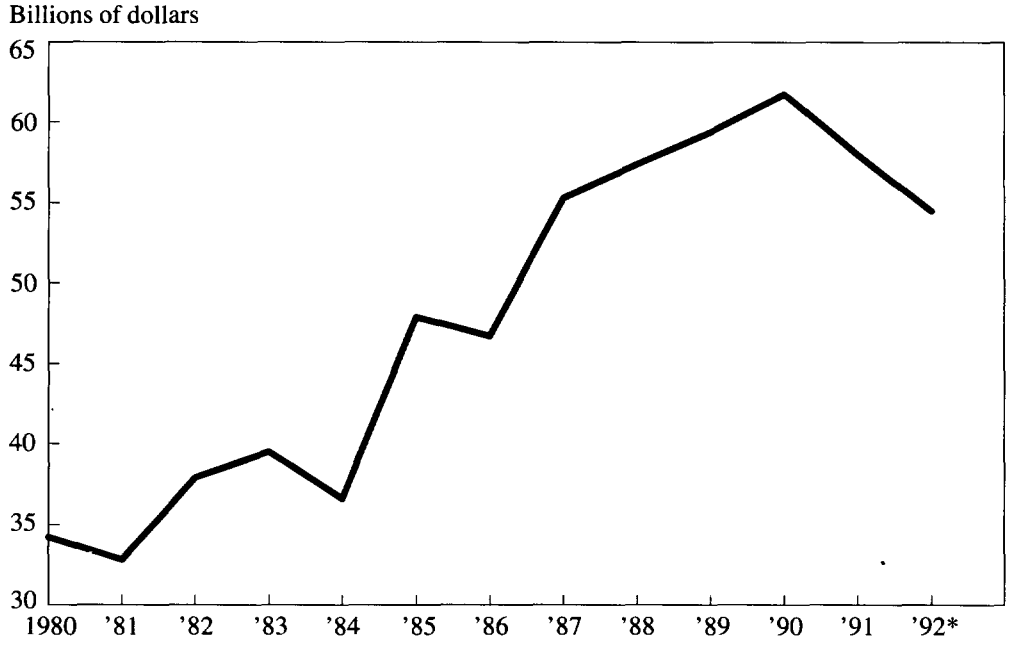
Farm financial conditions

Farm financial conditions worsened in 1991 for the first time in several years. The farm recovery that began in early 1987 had proven quite strong. Farm income was high and financial gains were broadly shared across different types of farms and different regions of the country. The recovery gave both farmers and lenders an opportunity to pay down debts while asset values rebounded. Thus, the 1991 downturn must be viewed against a backdrop of sizable financial gains during the farm recovery.

Farm income fell in 1991 due to a drop in livestock receipts and a mediocre year for crops (Chart 2). The extent of the drop, however, remains uncertain. The U.S. Department of

Chart 2

Net Cash Farm Income



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

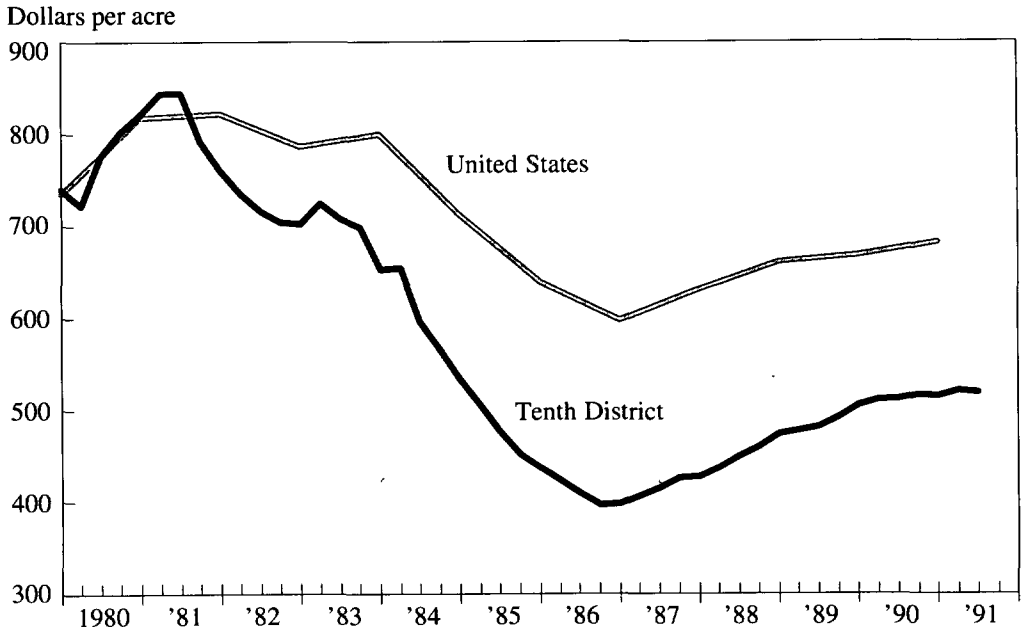
Agriculture currently estimates that 1991 net cash income—gross receipts for the sector less gross cash expenses—was $58 billion, a 6 percent decline from a record $61.8 billion in 1990. If the $58 billion income estimate holds, it would mark agriculture's third-best year ever.

But the current income estimate may not fully describe the softening that occurred in the Midwest farm economy. The USDA estimate includes a strong 14 percent jump in sales of fruits, vegetables, and horticultural products—all products of little importance to the Midwest.[1] Livestock losses in the last half of the year were an important factor to the Midwest, and the size of those losses is still being counted. Finally, the 1991 income estimate may have been boosted by a dollar-a-bushel advance in wheat prices in the second half of the year. Anecdotal evidence suggests, however, that the rise has not yet helped producers' incomes. Many farmers sold at harvest, before prices rose. Those that held on to their crop postponed sales to 1992 for tax reasons or because they thought prices would move even higher. Overall, 1991 farm income could turn out weaker than currently estimated. Moreover, midwestern farms appear to have suffered a greater income decline than national indicators suggest.

Farm asset values stalled in 1991 after more than four years of solid advances (Chart 3). During the first three quarters of 1991, farmland values in the Tenth District increased a meager

Chart 3

Farmland Values



Sources: U.S. farmland values from U.S. Department of Agriculture, *Agricultural Outlook;*
Tenth District land values from Federal Reserve Bank of Kansas City, *Agricultural Credit Survey.*

1.4 percent, less than half the gain in the same period the year before. Most of the gain came early in the year, as land values stayed essentially flat in the second and third quarters. At the end of the third quarter, values were up about a third from the market low at yearend 1986.

Reflecting sluggish land values, the farm balance sheet softened in 1991 (Table 3). For the nation as a whole, farm assets increased slightly more than 1 percent, while debt was essentially unchanged. Farm net worth, therefore, edged up a little more than 1 percent. After adjusting for inflation, however, net worth actually slipped about 3 percent. The sector's debt-asset ratio edged down to 16.2 percent, the lowest since the mid-1960s.

A Lackluster Year Ahead

The downturn in the farm economy that began last year will continue in 1992. A sluggish export market may limit gains in crop prices, despite crop inventories that are quite small by historical standards. And livestock prices will stay well below the record levels of recent years due to a slow recovery in consumer demand and expanding supplies of beef, pork, and poultry. The dim outlook for crops and livestock signals a further decline in farm income in 1992. Nevertheless, agriculture's balance sheet remains in sound condition after more than four years of solid gains.

Table 3

Farm balance sheet excluding operator households and CCC loans on December 31
(Billions of dollars)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Assets												
Real estate	785.6	750.0	753.4	661.7	586.1	542.2	578.6	599.4	605.1	614.4	624	630
Nonreal estate	197.2	195.1	190.6	195.4	186.5	182.4	194.2	205.6	214.6	220.2	221	226
Total assets	982.8	945.1	944.0	857.1	772.6	724.6	772.5	805.1	819.7	834.6	845	855
Liabilities												
Real estate	98.8	101.8	103.2	106.7	100.1	90.4	82.4	77.6	75.3	73.4	73	74
Nonreal estate	83.6	87.0	87.9	87.1	77.5	66.6	62.0	61.7	61.8	63.1	64	65
Total liabilities	182.4	188.8	191.1	193.8	177.6	157.0	144.4	139.4	137.1	136.5	137	139
Proprietor's equity	800.4	756.3	752.9	663.3	595.0	567.6	628.1	665.8	682.6	698.2	708	715
Debt-to-asset ratio	18.6	20.0	20.2	22.6	23.0	21.7	18.7	17.3	16.7	16.4	16.2	16.3

Note: Figures represent billions of dollars. Figures for 1991 and 1992 are forecast.
Source: U.S. Department of Agriculture, Economic Research Service, *Agricultural Outlook.*

Farm income and financial conditions

Weaker farm income is likely again in 1992 (Chart 2). While income will be down overall, the outlook is somewhat brighter for crop producers than for livestock producers. Tighter grain inventories promise to support prices and income for grain producers, while pushing up feed costs for livestock producers. Profit margins in the livestock industry will tighten further as a surge in red meat and poultry production pushes down livestock prices. Meanwhile, the cost of farm inputs will continue to creep up, boosting production costs 1 to 3 percent. Together, steady farm receipts and slightly higher expenses could push down net cash income to a range of $52 to $57 billion, about 6 percent below the 1991 level.

The two-year downturn in farm income may dampen gains in farmland values. Sharply lower interest rates have pushed down rates of return on most financial assets and focused attention on farmland as an alternative investment. Nevertheless, as 1991 ended, gains in farmland values had slowed to a crawl. Some regions may see further modest gains in farmland values, especially for high-quality land that has remained in strong demand. But values will be flat to down in other regions. Overall, land values are not likely to keep pace with inflation in 1992.

Farm credit conditions will probably weaken in 1992. Interest rates on farm loans may edge down further as the heavy spring borrowing season approaches, following declines in interest rates in national money markets late in 1991. But with farm income eroding, farmers will borrow more cautiously. Farm loan demand

will probably remain slack, leaving agricultural lenders with a surplus of loanable funds and continued low loan-deposit ratios. Weaker income may also tighten farm liquidity, slowing repayment rates on farm loans. Thus, farm lenders may struggle to maintain the strong earnings recorded in recent years.

Food prices outlook

Food prices should rise only slightly in 1992. Modest increases are expected in processing, packaging, and distribution costs—which account for about 70 percent of retail food costs—as inflation slows in the national economy. A sluggish economic recovery will also limit growth in consumer income, holding food demand in check.

Meanwhile, record large supplies of red meat and poultry will push down prices at the meat counter. Fresh fruit prices may also ease, as production in California continues to recover from its crippling freeze in December 1990. But other food prices may creep up. A serious whitefly infestation promises to cut yields of fresh vegetables in California, Arizona, and northern Mexico, boosting prices this winter. And dairy product prices will rise modestly in the year ahead, now that the glut of milk that pushed down dairy prices last year has passed through the market.

Overall, food prices are likely to rise 2 to 4 percent in 1992. The rise is about equal to the 3 percent increase last year but is well below the nearly 6 percent annual increases in 1989 and 1990.

Farm policy outlook

The year ahead may be uneventful for domestic farm policy, but it may be critical internationally. The Uruguay Round of talks under the General Agreement on Tariffs and Trade (GATT) is scheduled to end in 1992, one way or another.

The Round collapsed in December 1990, when the European Community rejected proposals for cutting agricultural subsidies. Negotiations were essentially suspended in early 1991 as Congress weighed whether to extend fast track authority, originally set to expire in June 1991. Fast track authority limits Congress to a thumbs-up, thumbs-down vote without opening the agreement to amendment. After long deliberation, Congress extended fast track authority for two years. Notwithstanding that time span, GATT principals have agreed to end the Uruguay Round in 1992, with or without an agreement.

Agriculture will determine the success of the Uruguay Round, despite brighter prospects for agreement on other trade issues. The Round appears to be nearing success in achieving path-breaking agreements on services and intellectual property—both issues of critical importance to the United States.[2] But the inability of the EC and the United States to reach an acceptable compromise on farm trade still threatens the entire Round.

The EC and the United States have generally agreed that reductions in three kinds of trade-distorting farm policies are needed: export subsidies, domestic farm subsidies, and import barriers. Last November, a compromise appeared close at hand that would cut export subsidies 35 percent and farm subsidies and import barriers 30 percent over five or six years. But the negotiators have been unable to agree on how to achieve those reductions.[3] The EC favors cutting budget outlays, while the United States favors cutting the quantity (or tonnage) of subsidized farm exports. Another sticking point in the negotiations is that the Europeans want to "rebalance" tariffs if they agree to any reductions. Rebalancing would require new tariffs on U .S. soybeans and corn gluten feed entering Europe, products that now enter the EC

duty free. The United States, of course, resists the new tariffs.

Thus, after five years of exhaustive negotiations, the Uruguay Round seems more likely to end with a whimper than a bang. If a compromise on farm subsidies and trade is struck, it is likely to bring only modest benefits to U.S. agriculture, and the benefits will unwind slowly. But a compromise on farm trade may pave the way to meaningful agreements on other important trade issues.

Export outlook

Exports of U.S. farm products may rebound slightly in 1992 after falling last year. The outlook for exports of red meat and poultry—about a seventh of all U.S. farm exports—is relatively bright. Sales of U.S. beef and pork to Mexico and the Pacific Rim nations, especially Japan and South Korea, are expected to climb steadily in 1992. Stronger exports to the Middle East, Japan, and Mexico could boost broiler exports to a new high. Overall, red meat and poultry exports may climb 5 percent in 1992.

Exports of U.S. grains and oilseeds—about three-fifths of all U.S. farm exports—may strengthen slightly in 1992. Higher export volume and higher prices will boost U.S. wheat exports. And exports of soybeans and soybean products will be much stronger due to last year's poor crop in South America, a major competitor in the world market. But weak corn exports will offset much of the gains in wheat and soybean sales.

The disintegration of the Soviet Union accounts for much of the overall sluggishness in U.S. grain exports. During most of the past two decades, the Soviet Union was a leading buyer of U.S. grain. But during the past two years, the Soviet Union became a credit-only customer as its economy fell apart. With Ukraine and other Soviet republics opting for independence from the central government, the disintegration of the Soviet Union now seems assured.[4]

Exports to the Soviet Union will depend on credit backed by the U.S. government. Since December 1990, the United States has granted export-credit guarantees backing the sale of about $3.75 billion of U.S. farm products—primarily grain—to the Soviet Union.[5] The last $1.25 billion of credit, announced last November 20, will be allocated in four increments: $600 million immediately, $200 million each on February 1 and March 1 of 1992 and $250 million on April 1.

Whether additional credit guarantees are extended remains an open question that will add uncertainty to grain markets in the year ahead. The need for food assistance will stay great while the former Soviet republics adjust to a new market economy. But getting food assistance to the regions that need it most will be difficult due to the worsening distribution problems within and among the republics.

Crop outlook

Crop inventories are low, but sluggish export markets may limit gains in crop prices in the year ahead. Even more than in recent years, the outlook hinges on exports and weather. Large crops in other producing nations and the Soviet economic disarray will limit U.S. grain exports. With exports slow, prices may rise very little despite low U.S. crop stockpiles. Still, wheat and corn inventories are precariously low, and dry weather has already threatened the winter wheat crop across the heart of the U.S. wheat belt. An unexpected surge in exports or unfavorable weather this winter and spring could send prices soaring.

The wheat outlook has changed markedly from a year ago, when a surge in the world's wheat production pushed inventories up and prices down. This year, a much smaller world

wheat crop will shrink the world inventory.

In the United States, wheat use will fall to about 1.25 billion bushels, down nearly 10 percent from a year ago due to a sharp drop in wheat feeding. Following the harvest last summer, low wheat prices spurred extensive feeding of the new crop. But by autumn, tightening wheat inventories had pumped up wheat prices, allowing cheaper corn to quickly replace wheat in cattle rations.

A modest rebound is in prospect for U.S. wheat exports. Smaller crops in the United States and the Soviet Union account for most of the decline in global wheat production. Meanwhile, discount pricing of large wheat crops from the EC and Canada will keep the world marketplace fiercely competitive. Thus, extensive use of export subsidies under the Export Enhancement Program (EEP) and government credit guarantees will be required to boost U.S. wheat sales. About 40 percent of the latest $1.25 billion credit guarantee for grain sales to the Soviet Union—an unexpectedly large share—was allocated to wheat sales. As a result, U.S. wheat exports could be up 15 percent from last year's depressed level.

Despite the sharp drop in domestic use, the modest rebound in exports will shrink the U.S. wheat inventory to just 414 million bushels, the smallest stockpile since the mid-1970s. The tighter inventory will boost wheat prices to an average of $2.85 to $3.05 a bushel, well above last year's average of $2.61 a bushel (Table 1).

The U.S. corn stockpile will also shrink in the year ahead (Table 2). A small crop and large domestic use will tighten inventories, but the boost in prices due to tight supplies will be dampened by smaller corn exports. The world corn harvest was the largest on record, flooding the world market.

In the United States, domestic corn use will be the biggest ever. Feed for the nation's growing cattle and hog herds and poultry flocks will account for most of the increase in domestic corn use. But food and industrial uses of corn will consume nearly a fifth of the nation's 1991 corn crop, due to steady gains in the production of high-fructose corn syrup, glucose, and starch.

Competition in the world marketplace, however, dampens prospects for U.S. corn exports. Corn production rebounded in the EC and Eastern Europe in 1991 after poor crops the year before. China—the largest foreign corn exporter—produced its second largest crop on record in 1991. Large supplies of barley and feed wheat from the EC, Canada, and Australia will also compete effectively with U.S. corn exports in key markets, including South Korea and the republics of the Soviet Union. In sum, U.S. corn exports may shrink nearly 9 percent to the smallest level in five years.

The smaller domestic corn crop, combined with steady gains in domestic use, will shrink the U.S. corn inventory to about 1.2 billion bushels, the smallest since a drought and the government's PIK program drew down inventories in 1983. Higher corn prices will ration the dwindling inventory. With inventories tight, unexpected strength in exports or disappointing production prospects next spring could send corn prices soaring. More likely, however, corn prices will rise only modestly above last year's average. Corn prices are expected to average $2.20 to $2.60 a bushel during the 1991-92 marketing year, bracketing last year's average of $2.28 a bushel.

The outlook for soybeans suggests supplies will be adequate to meet strong demand both at home and abroad. But prospects differ sharply for soybean meal and soybean oil, the two major products obtained when soybeans are crushed. More soybean meal will be fed to the nation's expanding hog herd and poultry flock, shoring up meal prices. But the world market is already saturated with supplies of vegetable oils, which will push down prices for soybean oil.

Strong domestic and foreign demand for U.S. soybean meal will boost the domestic soybean crush to a record 1.24 billion bushels. The feed needs of the nation's expanding hog herd and poultry flock will boost domestic meal consumption to a new record, and meal exports will be the largest in four years.

Prospects for exports of whole soybeans are also much brighter than a year ago. Drought reduced the size of the South American crop, easing competition in the world market—at least until the second half of the marketing year when the next South American crop is harvested. Meanwhile, government-guaranteed credit will support larger soybean sales to the Soviet Union. While up sharply from a year ago, soybean exports will remain about 30 percent below the peak a decade ago, when competition from South American growers began.

The U.S. soybean stockpile will be drawn down only slightly, however, despite the larger domestic feed needs and the modest rebound in exports. An ample projected inventory of 315 million bushels will hold the season average soybean price in a range of $5.25 to $5.75 a bushel, which extends well below last year's average of $5.75 a bushel. Strong demand will boost the average price of soybean meal to $165 to $185 a ton, up from $170 a ton last year. With a further buildup in inventories, however, the average price of soybean oil will fall to 17.5 cents to 20.5 cents a pound, down from 21 cents a pound last year.

Livestock outlook

The livestock outlook suggests bigger supplies of beef, pork, and poultry are headed for the nation's supermarkets in 1992. How market prices respond to the expanded supplies depends on the health of consumer income. If the economy remains sluggish, demand for meat and poultry may be weak, pointing to sharply lower prices at the meat counter and on farms and ranches. If the economy gains momentum, however, demand may strengthen, prompting only modest price declines to induce consumers to buy the larger meat and poultry supplies.

Slightly more beef will appear at grocery stores in 1992. The nation's cattle herd began growing again in 1991, after shrinking to the smallest size in nearly three decades. But lingering memories of the farm financial crisis and dry pastures and rangelands in the late 1980s have slowed the pace of expansion. The small herd will produce just over 40 million calves in 1992, still too few to fill feedlots and fully replenish breeding herds. Imports of feeder cattle from Canada and northern Mexico will again augment the relatively tight supply of young cattle. Meanwhile, gradual changes in technology and management practices have produced more beef from fewer animals. Overall, the gradually expanding beef industry will produce 23.3 billion pounds of beef, up nearly 1.5 percent from a year ago.

A small but growing portion of the nation's beef will be sold to foreign customers. Beef exports are expected to surge more than 8 percent to 1.2 billion pounds. Japan will remain the largest buyer of U.S. beef. But other markets are growing as income rises in Mexico, import quotas rise in South Korea, and food-service demand rises in Canada.

The lion's share of the nation's huge beef production, however, will be shipped to domestic grocery stores. The large beef supplies, as well as competition from expanding supplies of pork and poultry, will hold retail beef prices in 1992 well below the record of nearly $3 a pound set last spring. Retail prices may average about $2.90 a pound for the year as a whole, slightly below last year's average. With only a slight decline in retail prices and keen competition from other meats, per capita beef consumption will stay almost unchanged from a year ago at 67.5 pounds. Steady

consumption should support cattle prices well above the lows recorded late last summer. Thus, the outlook suggests an average fed cattle price of $73 to $79 a hundredweight, little changed from $75 a hundredweight in 1991.

Pork producers recently launched a major expansion that promises to outpace the modest expansion in the beef industry. Two years of solid profits have encouraged pork producers to gear up for record-breaking output in 1992. Hog producers have increased their breeding herd 7 percent from a year ago, setting the stage for large pork supplies in 1992. At 17.2 billion pounds, pork output is expected to be up 7 percent from a year ago.

The enormous supply of pork will compete with large supplies of beef and poultry for space in retail meat counters. As a result, lower retail prices will encourage consumers to eat more pork, boosting per capita consumption to 54.4 pounds, up 4 pounds from 1991. The lower retail prices will also push down hog prices to break-even levels or below, slowing the pace of expansion in the second half of the year. For the year as a whole, slaughter hog prices may average $39 to $45 a hundredweight, sharply lower than $49 a hundredweight in 1991.

The poultry industry is also expected to expand in 1992, although at a slower pace than in recent years. Smaller profits will rein in the expansion. Larger competing supplies of beef and pork promise to hold down broiler prices, while higher feedgrain and soybean meal prices will push up feed costs, squeezing profit margins. Broiler production could be up 4 percent, well below the industry's 5.5 percent annual rate of increase during the past decade. Turkey production will also expand in 1992, but at a relatively cautious pace. Low profit margins in the last half of 1991 are likely to discourage expansion plans in the year ahead. Turkey production may increase only 2.5 percent in 1992.

The larger poultry supplies suggest increased poultry consumption and lower poultry prices. Per capita poultry consumption could increase 3 pounds, as poultry products maintain their high level of consumer acceptance. But with large quantities of beef and pork competing for a place in the consumer's shopping cart, poultry prices are likely to slip. Broiler prices may average 47 cents to 53 cents a pound and turkey prices 56 cents to 62 cents a pound, both down a few cents from a year ago.

Conclusion

The farm economy dipped in 1991 for the first time in five years. Farm financial conditions softened due to a 5 to 10 percent drop in farm income and a stall in farmland values. After being the engine of farm recovery the past few years, livestock prices fell in 1991 as meat supplies hit a new record high. Despite eroding financial conditions, agricultural lenders closed 1991 with few problem loans, thanks mainly to an aggressive pruning of bad loans early in the farm recovery.

The farm downturn will probably continue in 1992. Farm income will move lower due to further weakness in livestock prices and only moderately higher crop prices. Meat supplies will climb again in 1992, and prices will depend heavily on the strength of the economy. Crop inventories are small entering 1992, and thus crop prices are poised to move much higher if weather is bad or export demand is unexpectedly strong. But with chaotic conditions in the Soviet Union and weakening economies in other parts of the world, U.S. farm exports will probably grow little in 1992. Overall, nothing seems likely to arrest a mild downturn in the farm economy in the year ahead. But the industry should be able to ride out the downturn on its solid financial reserves.

Endnotes

[1] Fruit and vegetable prices soared in early 1991 due to adverse weather. Horticultural products, meanwhile, have benefitted from strong export demand.

[2] Agriculture is only one of several trade areas at issue in the Uruguay Round. A year ago, the Round was stymied when the Cairns Group—several agricultural producing nations—refused to discuss liberalization of trade in services or intellectual property unless the EC compromised on farm trade. An agreement on services would liberalize trade in banking and other financial services, insurance, transportation, and telecommunications, and an agreement on intellectual property would harmonize protection internationally for patents, copyrights, and trademarks. For a more detailed account of the issues in the Uruguay Round, see Alan Barkema, "Tenth District Agriculture and the Current International Trade Negotiations," Federal Reserve Bank of Kansas City, *Regional Economic Digest*, First Quarter 1991.

[3] Arthur Dunkel, director general of the GATT, recently proposed a compromise that would cut budget outlays 36 percent and subsidized quantities 24 percent during a six-year period beginning in 1993 and measured against a base period of 1986-1990. Dunkel's proposal would also convert all import restrictions to tariffs. The tariffs would then be cut 36 percent and domestic supports would be cut 20 percent during the six-year period. The negotiators will consider the merits of Dunkel's compromise when they return from the holiday recess on January 13.

[4] The political and economic linkages that may emerge among the republics of the former Soviet Union remain uncertain. This article uses the expression "Soviet Union" to describe collectively the republics that previously comprised the nation.

[5] The amount of credit guaranteed thus far is large relative to the annual size of the Soviet market for U.S. farm products. During the past five years, Soviet purchases of U.S. farm products averaged about $2.1 billion. For a more detailed account of farm trade with the Soviet Union, see Alan Barkema, "How Will Reform of the Soviet Farm Economy Affect U.S. Agriculture?" Federal Reserve Bank of Kansas City, *Economic Review*, September/October 1991.

The Reconstruction Finance Corporation: Would It Work Today?

By William R. Keeton

With the deposit insurance fund continuing to shrink, some banking experts argue that the government should invest in weak banks to nurse them back to health. According to this view, government investment can avoid the unnecessary closure of viable banks, benefiting both the taxpayer and the economy as a whole. Other experts argue that weak banks should be promptly shut down or that government investment has no advantage over forbearance.

Advocates of government investment in weak banks often point to the success of the Reconstruction Finance Corporation (RFC) in the Great Depression as evidence the approach would also work today. By purchasing preferred stock in thousands of banks, the RFC is claimed to have spurred a strong recovery in banking. But no one has examined the evidence in detail. Was the RFC really that successful in revitalizing the banking industry? And even if government investment did work in the 1930s, does such an approach make sense in the very different circumstances faced by banks today?

This article argues that the RFC did help many viable banks survive in the 1930s but that government investment should be used with caution today. The first section of the article reviews the current debate over government investment, describing recent proposals and summarizing arguments for and against the approach. The second section reexamines the record of the RFC in the 1930s. The section explains how the preferred stock program came into existence and presents evidence that the program worked better than prompt corrective action or forbearance. The last section considers the implications of the RFC experience for the current debate in light of key differences between the 1930s and today.

William R. Keeton is a senior economist at the Federal Reserve Bank of Kansas City. Jim LeVoir, an assistant economist at the bank, helped prepare the article.

The Current Debate

The high rate of bank failures and the sharp decline in the bank insurance fund over the last several years have intensified debate over the best way to deal with poorly capitalized banks. One option is prompt corrective action. Under this approach, regulators would allow the bank to remain open only if it could raise enough capital to satisfy minimum capital requirements within a short period of time. While raising the additional capital, the bank would also be subject to tighter regulation. A second option is forbearance. In this case, regulators would allow the bank to continue operating with low capital and few additional restrictions on its behavior on the condition that it gradually rebuild its capital. The final option is government investment. Under this approach, the government would supply part or all of the capital the bank needed to comply with minimum capital requirements.

Some banking experts and government officials have argued that government investment is the best of the three alternatives because it minimizes the costs of bank failures to the FDIC and society as a whole. This section describes recent proposals for government investment in weak banks, explains the rationale for government investment, and summarizes the major criticisms of the approach.

Recent proposals for government investment

Interest in government investment in weak banks increased in late 1990 in response to two closely related developments. First, bank failures seemed likely to remain high for several years due to the large number of troubled banks and the weak economy. And second, the Bank Insurance Fund (BIF) appeared in much worse shape than previously believed, suggesting the FDIC would soon run out of money to resolve failures. Some banking experts argued that government investment could alleviate these problems by helping temporarily troubled banks get back on their feet.

One way the government can invest in weak banks is through "open-bank assistance" by the FDIC. Current law permits such assistance if it would cost the FDIC more to close the bank and pay off insured depositors or if the continued operation of the bank is essential to the community.[1] Open-bank assistance usually consists of subordinated debt or preferred stock, both of which count toward bank capital requirements.[2] In some cases, the securities are convertible to common stock or accompanied by options to buy common stock, allowing the FDIC to share in the bank's profits if it recovers. The securities cannot carry voting rights.

Support for open-bank assistance increased in late 1990. Throughout the 1980s, open-bank assistance was largely confined to cases in which the FDIC considered it impractical to first close the bank and then arrange a merger with a healthy bank.[3] But as banking problems intensified, some experts argued that the approach should be used more widely, a view the FDIC appeared to accept (Seidman 1990; Rehm 1991a). According to press reports, the FDIC saw open-bank assistance as especially promising in states like New Hampshire where a downturn in the local economy had contributed to banking problems (Nagle 1991).

As open-bank assistance was gaining support, proposals surfaced for a special investment fund similar to the RFC. During the debate over recapitalizing the BIF, both the FDIC and representatives of the banking industry strongly supported such a fund (Rehm 1991b). The four major bank trade groups agreed to include an RFC fund in their formal plan for recapitalizing the BIF (American Banker 1991). And in Congress, Senator Dixon introduced a bill to implement the idea (BNA Banking Report 1991a;

Congressional Record).[4] Banking experts advanced their own plans, including a special fund to purchase $25 billion in preferred stock in troubled but "economically solvent" banks (Bryan, ch. 13).[5]

Enthusiasm for government investment waned in the spring and summer of 1991 but showed signs of reviving by the end of the year. Momentum in Congress shifted toward prompt corrective action as the best way to deal with weak banks. And, coinciding with this shift in attitude, the FDIC quit espousing government investment.[6] When Congress finally passed a banking bill in November, it endorsed prompt corrective action. But the bill also included a provision encouraging regulators to use open-bank assistance whenever it was cost effective (BNA Banking Report 1991c). And, as the condition of the BIF worsened in late 1991, support for government investment picked up. Chairman Reigle of the Senate Banking Committee wrote to the President backing an RFC fund (Labaton), while Governor Cuomo of New York suggested the Federal Reserve purchase equity in major banks (Murray). Regulators began to speak more favorably of government investment in troubled banks.[7] And outside of government, a small but vocal minority of banking experts continued to support the general approach (Isaac; Mingo; BNA Banking Report 1991b).

The case for government investment

The argument for government investment begins with the premise that some weak banks should be left open because they are viable. According to this view, some troubled banks have valuable intangible assets, such as long-term relationships with depositors and borrowers, which would enable them to return to profitability over time. If such banks were forced to close, some of these intangible assets would be lost, even if the banks were later resold to healthier banks. For example, the FDIC claims that the value of a troubled bank's assets falls 10 to 15 percent as soon as the bank is seized by the government (Seidman 1991a). This destruction of intangible assets would not only be a net loss to the economy but could also force the FDIC to take a loss in disposing of the bank.[8] The government could avoid these costs by helping the bank restore its capital rather than shutting it down.

Proponents of government investment go on to argue that under prompt corrective action, weak but viable banks would be forced to close because they would not be able to raise enough capital to meet the minimum requirement.[9] In some cases, private investors may refuse to invest in a weak but viable bank because they lack information about the bank's true condition. From published financial statements, investors may be unable to determine whether a troubled bank's losses are temporary or permanent. In other cases, private investors may realize a troubled bank is well managed but refuse to invest out of fear that economic conditions will not improve fast enough to allow the bank to recover.

Proponents of government investment believe these obstacles to private investment need not apply to the government. Because regulators examine banks on a regular basis, the government is usually in a better position than private investors to determine which troubled banks are truly viable. Also, the government may have more reason than private investors to assume economic conditions will improve fast enough for weak banks to recover. For example, the government may believe that by investing in enough banks simultaneously, it can help revive the local or national economy. Or the government may plan other steps to revive the economy, ensuring that the banks in which it invests do indeed recover.

These arguments establish the case for government investment over prompt corrective action. But even if it were true some weak banks should be kept open, government investment would not be the only way to achieve that result. An alternative approach would be to exercise forbearance—that is, to let the banks operate below the minimum capital requirement while they gradually restore their capital through retained earnings or win back the confidence of outside investors.

One argument against forbearance is that it gives weak banks a strong incentive to go for broke by taking big risks. By switching to a riskier investment strategy, a bank increases both the chance of heavy profits and the chance of high losses. But if the riskier strategy is unsuccessful, the loss to the bank's owners will be limited to their investment in the bank. Thus, compared to the owners of a well capitalized bank, the owners of a poorly capitalized bank have less to lose from a riskier investment strategy but just as much to gain.[10]

Some forms of government investment can lower this incentive to gamble by reducing the potential gains to the bank's private owners. Suppose, for example, that the government buys common stock in a weak bank on the condition the bank use the funds to replace deposits. If the bank adopts a riskier investment strategy and the strategy fails, the loss to the bank's private owners will still be limited to their investment in the bank. But if the strategy succeeds, the owners will have to share the bank's profits with the government, reducing their expected gain. Alternatively, the government can invest in preferred stock or subordinated debt that is convertible to common stock or accompanied by options on common stock. In this case, the government will be able to share in any extraordinary profits the bank earns by converting its securities to common stock or exercising its options. Thus, as before, the bank will have less to gain from a risky strategy that increases the chance of high profits.

Another argument for government investment over forbearance is that government investment can do more to promote the recovery of weak but viable banks by helping them attract uninsured deposits. Under forbearance, a poorly capitalized bank must pay a high interest rate to its uninsured depositors to compensate them for the bank's high risk of failure. If the government invests in the bank, uninsured depositors will be at less risk because the new capital will help absorb any losses the bank suffers. Thus, the bank will be able to pay a lower rate on its uninsured deposits, allowing it to return to profitability faster than it could without the capital infusion.[11]

The case against government investment

A common criticism of government investment in weak banks is that it would lead to excessive government ownership and control of the banking industry (Barth and others). Even if the government were restricted to nonvoting stock, its joint status as regulator and major shareholder could encourage it to interfere with basic management decisions. And if a bank failed to turn around, the government might be tempted to seize and operate the bank itself in an effort to salvage its investment. Critics argue that such government control would be both economically inefficient and politically undesirable.

A second criticism is that the government would prop up many nonviable banks because it would be unable to single out troubled banks that are viable (U.S. House of Representatives 1991a). According to this argument, which has also been used against forbearance, the government does not have any better information than private investors about banks' true condition. Thus, if a troubled bank is unable to raise private capital, the government should assume

the bank is nonviable. Keeping such banks open through an infusion of government capital just delays the inevitable. When the banks ultimately do fail, they are likely to cost the FDIC more money to resolve. And in the meantime, they use up scarce resources that would be better employed at well managed banks.[12]

A third criticism is that government investment may fail to benefit weak banks by reassuring their uninsured depositors because those depositors already believe their funds are safe. About 75 percent of deposits now fall under the statutory insurance limit of $100,000. And in most recent bank failures, the FDIC has protected deposits above the limit by arranging a merger with a healthy bank.[13] To the extent the depositors of a weak bank already believe they are fully protected, government investment will have no tendency to speed the bank's recovery by reducing its cost of funds.

A final criticism is that some forms of government investment may have just as much tendency as forbearance to encourage weak banks to gamble. For government investment to reduce a bank's incentive to take risk, it must reduce the potential gains to the bank's private owners from a riskier investment strategy. But if the investment takes the form of nonconvertible preferred stock or subordinated debt and does not involve options to buy common stock, the government will not share in any extraordinary profits the bank earns. Thus, the bank's private owners will still capture all the gains from a riskier investment strategy, leaving the bank's incentive to gamble unchanged.

Who is right, the proponents or critics of government investment? To help answer this question, the rest of this article will focus on the record of the RFC during the Depression. Most proponents of government investment in weak banks take for granted that this approach worked in the 1930s. But did government investment really work better than prompt corrective action or forbearance? And to the extent it did, how confident can we be that the same approach would work today?

The RFC Reexamined

The RFC was a powerful agency that provided many forms of financial assistance to business and government during its 25-year existence. Besides helping banks and other financial institutions, the RFC made direct loans to businesses, financed emergency relief and public works projects, and helped fund mobilization for World War II. From its birth in 1932 to its termination in 1957, the RFC loaned or invested more than $40 billion (U.S. Treasury, p. 45). A small part of these funds came from an initial capital subscription by the Treasury Department. The rest was borrowed from Treasury and the public.[14]

Our concern is with a particular aspect of the RFC's operations—the purchase of preferred stock in poorly capitalized banks. This section reviews the background of the preferred stock program and evaluates empirical evidence on its success.

Background of the preferred stock program

The preferred stock program was established in the midst of the greatest banking crisis in the nation's history. The rate of bank failures had been high throughout the 1920s but increased much further in 1930-33, the first four years of the Great Depression (Table 1). As borrowers defaulted on their loans and the value of banks' securities fell, more and more banks were unable to meet normal deposit withdrawals. And as failures increased, depositors began to lose confidence and withdraw their funds to hold in the form of currency. Throughout most of this period, the Federal Reserve failed to use open-market pur-

Table 1

Average Annual Failure Rates of Commercial Banks

	Percent of banks[a]	Percent of deposits[b]
1921-29	2.2	.4
1930-33	10.7	4.1
1934-40[c]	.4	.1

[a] Average annual failures divided by average number of banks in operation at beginning of year.

[b] Average deposits of failed banks divided by average deposits of banks in operation at middle of year.

[c] Insured banks only. Total failures over the period include 225 banks closed and placed in receivership and 128 banks merged with FDIC aid.

Source: *Federal Reserve Bulletin*, Board of Governors, and FDIC Annual Reports.

chases or discount-window loans to offset the decline in bank reserves. Thus, the banking system as a whole had to contract, resulting in the forced sale of securities and further declines in the value of banks' assets.[15]

In early 1932, President Hoover tried to reverse the surge in bank failures by establishing the RFC to shore up troubled banks.[16] However, the RFC was not authorized to make capital investments in banks. All it could do was make fully secured, short-term loans at above-market interest rates. At first, these loans seemed to restore confidence in the banking system by providing banks an additional source of funds to meet withdrawals. But the terms of the loans were so strict that many weak banks could not take advantage. Also, the loans did nothing to offset the decline in bank capital caused by loan defaults and falling bond prices. Thus, by the end of 1932, failures reached new highs and runs on banks resumed, forcing some states to declare banking holidays. Among other recommendations for dealing with the crisis, Hoover's advisers urged that the RFC be authorized to purchase preferred stock in undercapitalized banks. But Hoover resisted and the crisis continued.

When President Roosevelt assumed office in March 1933, one of his first official acts was to declare a nationwide banking holiday while his advisers formulated a plan for restoring order to the financial system. The result of these deliberations was the Emergency Banking Act, which Congress approved later the same month. Incorporating ideas already worked out by Hoover's advisers, this act established procedures for reopening sound banks and resolving hopelessly insolvent banks. To help weak banks rebuild their capital, the act also allowed the RFC to purchase preferred stock in both national and state-chartered banks. These securities were not convertible to common stock but carried voting rights. Some states prohibited their banks from selling the kind of preferred stock authorized by the legislation. To accommodate these banks, Congress amended the law shortly

after passage to allow the RFC to purchase subordinated debt as well as preferred stock.[17]

The preferred stock program got off to a slow start. At first, most of the RFC purchases were to reorganize banks that failed to reopen after the national banking holiday (Upham and Lamke, p. 198). Those banks that did reopen after the holiday showed little interest in the program. Some banks may have feared their depositors would interpret participation as a sign of weakness. Others may have worried they would be unable to meet the dividend payments on the preferred stock (Olson 1988, p. 73).

Given this lack of interest in RFC investment, the Administration became concerned that many banks would not have enough capital to qualify for deposit insurance. When Congress enacted federal deposit insurance in June, it stipulated that only solvent banks would be admitted on the starting date of January 1, 1934. But by fall of 1933, thousands of open banks were still insolvent in the sense that the market value of their assets was less than their liability to depositors.[18] Administration officials feared that if large numbers of banks failed to qualify for deposit insurance, the public's confidence in the banking system would collapse and another banking panic would ensue. Accordingly, officials put increased pressure on banks to restore their capital through RFC investment.

RFC investment increased sharply in late 1933 in response to Administration pressure and then remained high through the first half of 1934 (Chart 1). Over the next year, new RFC investment tapered off and healthier banks began retiring their obligations, causing the amount of RFC capital outstanding to turn downward. The RFC ended up spending a total of $1.2 billion on the program. At the peak in June 1935, the RFC held $892 million in bank capital—$869 million in commercial banks and the rest in mutual savings banks. The investment in commercial banks accounted for 14 percent of the industry's total book capital and involved 5,685 banks—40 percent of all insured banks.[19]

Did government investment work?

The Roosevelt Administration had two goals in adopting the preferred stock program. The first goal was to keep poorly capitalized banks open and help them recover. The second goal was to revive the economy by making banks willing to lend to businesses instead of investing all their funds in safer assets like cash and U.S. government securities. Most observers agree the RFC failed in its second objective (Olson 1988; Chandler pp. 150-51).[20] But while stimulating bank lending was an important goal of the RFC, it is not the main argument given for government investment today. Accordingly, this article will focus on the first goal of the RFC, rescuing weak banks.[21]

It is now widely accepted that the RFC's efforts to rescue weak banks helped restore the health of the banking system. Not surprisingly, the strongest statement of this view comes from Jesse Jones, who headed the agency for 13 years:

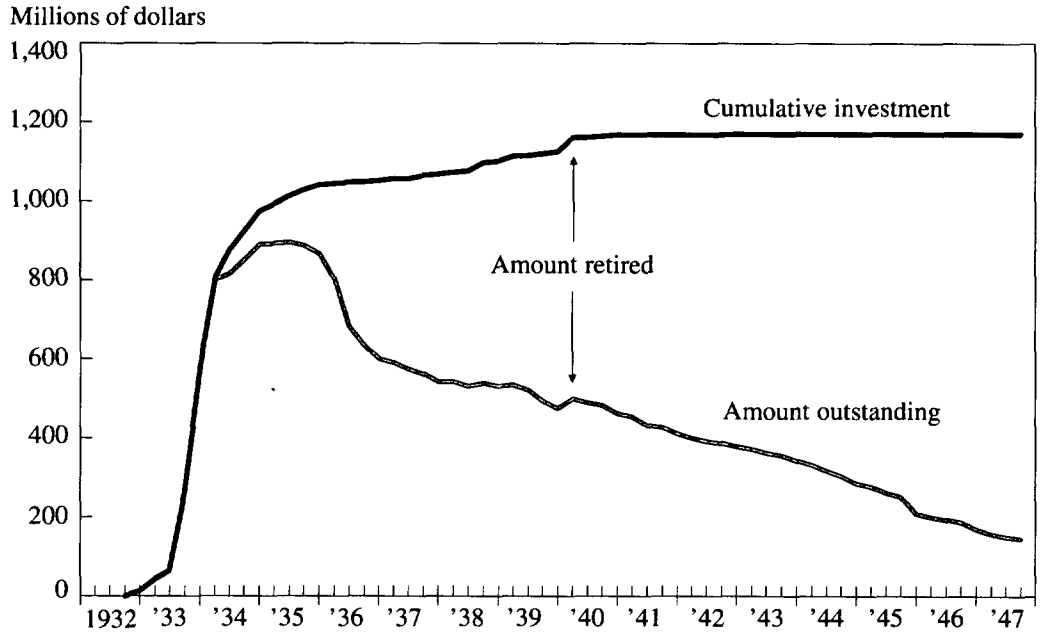
> The program of putting capital into banks prevented the failure of our whole credit system ...If the system as a whole had not been assisted by the injection of a large amount of new capital ...the collapse would have become so widespread that few, if any, banks could have continued operating (Jones, pp. 26, 34).

More dispassionate observers also speak approvingly of the rescue effort. For example, Friedman and Schwartz say the RFC "played a major role in the restoration of the banking system" (p. 427). And Chandler notes that RFC aid, while failing to stimulate bank lending, "did increase the liquidity and solvency of banks" (p. 150).

Was the preferred stock program as effective as generally believed? Our earlier discussion of the pros and cons of government

Chart 1

Capital Investment by RFC in U.S. Banks



Note: Totals include mutual savings banks.

Source: U.S. Treasury Department.

investment suggests four criteria for evaluating the program.

First, did the program lead to significant government ownership and control of the banking industry? If so, either prompt corrective action or forbearance might have been better ways to deal with weak banks.

Second, did the program help viable banks remain open, or did it merely prolong the life of nonviable banks? If the latter, prompt corrective action would have been preferable to government investment.

Third, did the program help viable banks recover any faster than they would have without new capital? If not, forbearance would have worked just as well as government investment with less interference in private affairs.

Fourth, by allowing banks to operate with low private capital, did the program encourage excessive risk-taking? If so, the government would have been better off using prompt corrective action or structuring its investments so it shared more fully in banks' profits.

The rest of this section will examine three forms of evidence on the success of the RFC—the retirement of government capital, the rate of bank failures, and the rebuilding of private capital. Each of these forms of evidence will help answer one or more of the above questions.

Retirement of government capital

Observers who believe the RFC was successful frequently cite the favorable record of repayment by banks receiving RFC investment. Chart 1 shows that after 1935, banks steadily

reduced their outstanding RFC capital. By the end of 1947, only $146 million remained on banks' books out of a total investment of $1.2 billion. Furthermore, very little of the reduction in outstanding capital was due to writeoffs, as the RFC charged off only $11 million from 1933 to 1947. Repayments continued over the next ten years. Thus, when the agency was finally abolished in 1957, only $5 million in two banks remained unpaid (U.S. Treasury, pp. 55-56, 176).

What can we conclude from this evidence? The fact that the RFC suffered such few losses suggests that most of the banks in which it invested were viable and refrained from taking excessive risks. And banks' success in retiring their RFC capital means that the government did not end up owning and controlling a substantial portion of the banking industry.

Critics of the program could argue that the government still exercised too much control over the operations of the banks in which it invested, especially in the first years of the program. In contrast to current FDIC investments, the RFC's preferred stock carried voting rights. And apparently the RFC did not hesitate to exercise those rights by replacing executive officers or directors (Upham and Lamke, pp. 234-42). However, RFC involvement in bank management was at least temporary.

Bank failures

The favorable view most observers have of the RFC is also based on the steep decline in bank failures after 1933. During the 1930s a bank could fail in two ways. Regulators could close the bank and place it in receivership. Or regulators could leave the bank open and the FDIC could pay a healthy bank to take over its deposits and some or all of its assets. Table 1 shows that when both types of failure are included, an average of 0.4 percent of banks failed each year during the period 1934-40, down sharply from 1920-29 and especially from 1930-33. Similarly, the deposits of failed banks averaged only 0.1 percent of total deposits in 1934-40, significantly less than in either 1920-29 or 1930-33.

The above data support the view that most banks receiving RFC funds were viable and refrained from taking excessive risks. At the peak, banks with RFC capital accounted for 40 percent of the total. If these banks had failed in large numbers, the total failure rate could not have declined as much as it did. But the aggregate data cannot tell us how low the failure rates were for banks with RFC capital—either in absolute terms or relative to other banks. While disaggregated data are limited, Tables 2 and 3 help answer this question.

Table 2 compares the ratio of RFC capital to assets at open banks with the ratio at failed banks, including both closures and assisted mergers. For every year except 1935, failed banks had significantly more RFC capital relative to assets than open banks.[22] These data imply that banks with high RFC capital were more likely to fail than banks with low RFC capital. However, the data do not reveal how high the RFC failure rate was in absolute terms.

Table 3 compares the percent of banks with and without RFC capital that failed through closure. These closure rates are reported both for all banks and for banks not belonging to the Federal Reserve System—the group accounting for most of the closures. Throughout the period, a higher percent of banks with RFC capital were closed than of banks without RFC capital. Even among nonmember banks, however, the closure rate for banks with RFC capital never rose above 1.2 percent, the level reached in 1938.

Data do not exist on the percent of banks with and without RFC capital that failed through merger, but some inferences can be

Table 2

Ratio of RFC Capital to Assets at Insured Commercial Banks

(percent)

	1934	1935	1936	1937	1938	1939	1940
Failed banks (closed or merged with FDIC aid)	3.4	1.3	3.4	3.4	6.5	4.6	4.7
Open banks[a]	1.8	1.8	1.5	1.1	1.0	.9	.7

[a] Ratio for all banks in operation at middle of year.

Source: FDIC Annual Reports and Call Reports for Insured Banks.

made from the aggregate data. Given total mergers, the merger rate for RFC banks could not have been low enough relative to that for non-RFC banks to offset the difference in closure rates in Table 3. Even under the most extreme assumptions, however, the merger rate for RFC banks remained well below 1 percent each year of the period.[23] Thus, taking into account both closures and mergers, banks with RFC capital failed at a higher rate than banks without RFC capital but at a lower rate than banks in either the 1920s or early 1930s.

What conclusions can be drawn from this evidence? The fact that banks with high RFC capital failed at a higher rate than other banks suggests that a greater fraction of RFC banks were nonviable or took excessive risk than in the industry as a whole.[24] However, the fact that the failure rate of RFC banks was not very high in absolute terms suggests that the fraction of nonviable banks or risk-prone banks was also not very high. Thus, while the RFC may have propped up some nonviable banks that later failed, it may have rescued an even greater number of viable banks that later recovered. If so, the preferred stock program was a better way to deal with weak banks than prompt corrective action, though not necessarily superior to forbearance.

Rebuilding of private capital

A final source of evidence is the ability of banks to rebuild their private capital from the low levels reached in 1933. Two pieces of evidence will be considered: the change in private capital in the industry as a whole, and the change in private capital in states or cities with different amounts of RFC capital.

Improvement in industry as a whole. If the RFC helped restore the health of the banking industry, as supporters claim, the industry's private capital position should have improved. Determining whether such an improvement occurred is complicated by the sharp divergence between the book value and market value of banks' assets. The first column in Table 4 reports the ratio of private book capital to book assets for all insured banks, where private book capital is defined as total book capital minus

Table 3

Percent of Insured Commercial Banks Closed

	1935	1936	1937	1938	1939	1940
1. All banks						
with RFC capital[a]	.3	.5	.7	.7	.5	.2
without RFC capital[b]	.1	.1	.2	.2	.1	.1
2. Nonmember banks						
with RFC capital[a]	.4	.9	1.1	1.2	.6	.3
without RFC capital[b]	.2	.3	.2	.3	.2	.2

[a] Number of closed banks with RFC capital as a percent of number of banks in operation at beginning of year with RFC capital.

[b] Number of closed banks without RFC capital as a percent of number of banks in operation at beginning of year without RFC capital.

Source: FDIC Annual Reports and Call Reports for Insured Banks.

RFC capital. This ratio actually fell four percentage points from the end of 1933 to the end of 1936. However, the table shows that banks also charged off 1 percent or more of their assets each year from 1934 to 1936. Comparing the second and third columns, it can be seen that these chargeoffs more than explain the decline in the capital-asset ratio over the same period. Furthermore, it is widely agreed that most of the assets that banks wrote off in 1934-36 were already worthless in 1933 (FDIC 1934, pp. 47-53; Hart, pp. 53-55).[25] Thus, if the assets on banks' books had been properly valued, the private capital-asset ratio would probably show a substantial increase after 1933 rather than a decrease.

Chart 2 provides more direct evidence that banks' true capital position improved after 1933, using data on nonmember banks.[26] For this set of banks, the chart compares the ratio of private book capital to book assets with the ratio of private sound capital to sound assets. Private sound capital and sound assets are computed by subtracting examiners' estimate of worthless and doubtful assets from private book capital and book assets, respectively. The chart shows that while the ratio of private book capital fell sharply from 1933 to 1936, the ratio of sound private capital rose sharply. After 1936, the two capital measures moved more or less in tandem and much more gradually. Unfortunately, examiners' estimates of unsound assets are unavailable by year for the other two major categories of banks—national banks and state member banks. Like nonmember banks, however, these banks took very high chargeoffs in 1934-36. Thus, there is every reason to believe their sound capital also increased much more than their book capital during these years.[27]

Does this improvement in the capital position of the banking industry imply that government investment worked in the 1930s?

Table 4

Capital Position of Insured Commercial Banks, 1933-39

	Private capital-asset ratio (end of year)[a]	Change from previous year	Chargeoff rate[b]
1933	14.2		
1934	11.5	-2.7	2.6
1935	10.5	-1.0	1.4
1936	10.1	-.4	1.0
1937	10.8	.7	.7
1938	10.4	-.4	.8
1939	9.6	-1.2	.8

[a] Total book capital minus RFC capital as percent of total book assets.

[b] Gross chargeoffs as percent of total book assets at beginning of year.

Source: FDIC Annual Reports.

Supporters of government investment could argue that such an improvement could not have occurred unless most of the 6,000 banks in which the RFC invested were viable and refrained from taking big risks. However, proponents of prompt corrective action could argue that most of the banks were really nonviable and that the industry's private capital rose only because the other 8,000 banks benefited from the rebound in the economy.[28] Alternatively, proponents of forbearance could argue that banks receiving RFC aid were viable but that these banks and the industry as a whole would have improved just as much without the aid. Thus, while suggestive, the aggregate data do not completely answer the basic questions posed earlier.

Differences across cities and states. These ambiguities in the aggregate data can be resolved by seeing if banks in areas with high RFC investment showed more improvement in private capital than banks in areas with low RFC investment. Such a comparison can be made for two samples—nonmember banks in different states and national banks in different states and cities. For each sample, regressions were used to estimate the relationship between RFC investment and improvement in private capital.

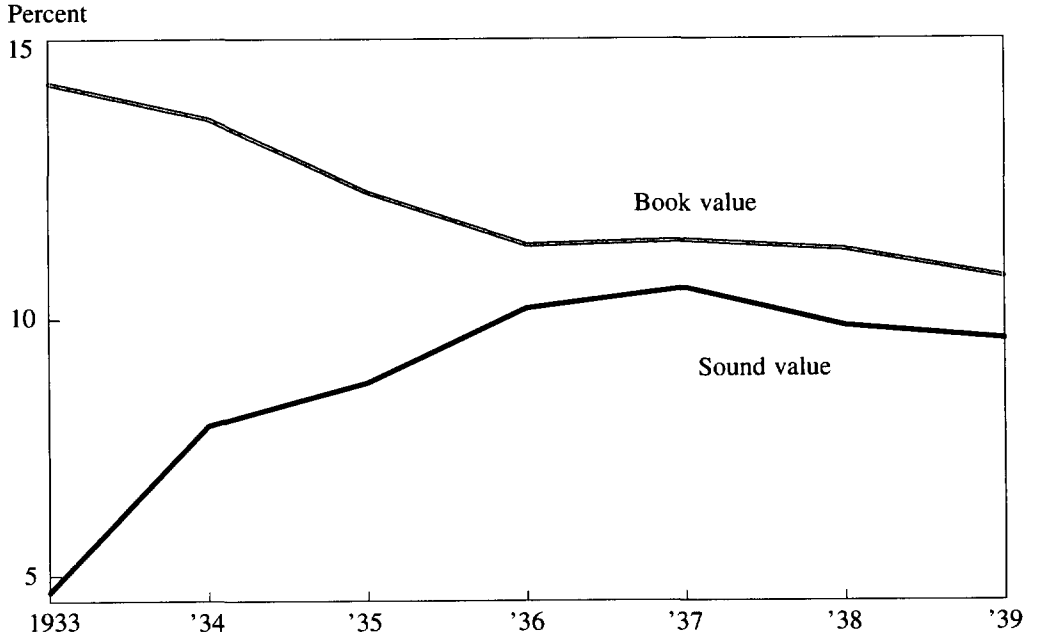
Table 5 reports regression results for nonmember banks in 44 states for the period from December 1934 to December 1938. This period includes the severe recession in 1937-38. Thus, the results reflect banks' ability to weather a downturn as well as their ability to rebuild capital during the early years of recovery.

The first regression in Table 5 appears to confirm that RFC investment helped weak banks rebuild their private capital. Equation 1 shows that the ratio of sound private capital to sound assets increased more in states with high initial RFC capital than in states with low initial

Chart 2

Private Capital-Asset Ratios

Nonmember Banks



Source: FDIC Annual Reports.

RFC capital. In particular, an extra percentage point of initial RFC capital was associated with an extra increase of 0.64 points in the private capital-asset ratio.

One problem with the first regression is that it fails to control for other factors affecting the improvement in private capital. Because the RFC invested in poorly capitalized banks, the states with the most RFC capital in 1934 were also the ones with the least sound private capital. States with high RFC capital may have improved more than other states only because a) their banks started out with less private capital, and b) banks with low private capital tended to catch up with banks with high private capital, regardless of how much RFC capital they had. On the other hand, banks receiving RFC aid also started out with high levels of slow loans—loans classified as sound but believed to have an unduly high chance of loss.[29] This factor would have worked in the opposite direction, causing states with high RFC capital to show less improvement in private capital than other states.

The second regression in Table 5 provides a better test of the effectiveness of RFC investment by controlling for both the initial level of sound private capital and the initial level of slow loans. The negative coefficient on initial private capital confirms that states with low private capital tended to catch up with other states, regardless of how much RFC capital they had. On the other hand, the negative coefficient on slow loans suggests that states with high levels of slow loans had more difficulty attracting outside capital or rebuilding capital through retained earnings. For our purposes, the impor-

Table 5

Change in Private Capital of Nonmember Banks, 1934-38

Cross-Section Regression Results

	Ratio of RFC capital, Dec. 1934[a]	Ratio of sound private capital, Dec. 1934[a]	Ratio of slow loans, Dec. 1934[a]	Adj. R^2
1)Total change in capital-asset ratio[b]	.64* (4.38)			.30
2)Total change in capital-asset ratio[b]	.64* (3.68)	-.29* (3.63)	-.20* (3.40)	.59
3)Change in capital-asset ratio due to asset growth[c]	-.07 (.80)	-.28* (6.81)	-.01 (.23)	.58
4)Change in capital-asset ratio due to capital growth[d]	.71* (4.32)	-.01 (.17)	-.19* (3.47)	.39

* Significant at 1 percent level (absolute value of t-statistic in parentheses).

[a] Percent of sound assets in December 1934.

[b] Change from December 1934 to December 1938 in ratio of sound private capital to sound assets.

[c] Initial capital-asset ratio times -g/ (1+g), where g is growth in sound assets per bank. Represents amount ratio would have declined if capital per bank had not changed.

[d] Change in sound private capital per bank from December 1934 to December 1938 divided by end-of-period assets per bank.

Note: Data are from FDIC Annual Reports and Call Reports for Insured Banks.

tant result is that the coefficient on the RFC variable remains unchanged and statistically significant. Thus, states with higher RFC capital still show greater improvement in private capital when we control for their initial position.

A final possibility that must be considered is that states with high RFC capital had bigger increases in capital-asset ratios only because their banks expanded their assets more slowly or even shrank. If the bigger increase in capital-asset ratios was due to slower asset growth rather than faster capital growth, it would be hard to argue that RFC investment helped viable banks return to profitability or attract new investors.

To investigate this possibility, the total change in the capital-asset ratio was decomposed into two parts—the change due to asset growth and the change due to capital growth. In equations 3 and 4, these two components were then regressed against the same variables as in equation 2. The results show that the bigger increase in capital-asset ratios in states with high RFC capital was not due to slower asset growth. In equation 3, the coefficient on RFC capital is close to zero, implying that asset growth had the same tendency to reduce capital-asset ratios in

states with high RFC capital as in states with low RFC capital. And in equation 4, the RFC coefficient is positive and significant, showing that states with high RFC capital were more successful than other states at boosting their capital-asset ratios by adding capital.[30]

Table 6 reports the regression results for the second sample, which consists of national banks in 90 cities and states for the period from June 1934 to June 1938.[31] The amount of unsound assets in 1934 was proxied by total chargeoffs over the next two years, on the assumption that the assets written off during this period were already worthless in 1934. The change in capital position was then measured by the book private capital-asset ratio at the end of the period minus the estimated sound private capital-asset ratio at the beginning of the period.

The results for national banks are similar to those for nonmember banks, except that the relationship between RFC capital and the improvement in private capital is smaller. Equation 1 indicates that an extra percentage point of RFC capital was associated with an extra increase of 0.32 points in the private capital-asset ratio. Equation 2 shows that this relationship continues to hold when we control for the initial capital-asset ratio, though the RFC coefficient becomes smaller and less significant. Finally, equations 3 and 4 show that the tendency for capital-asset ratios to increase more in areas with high RFC capital was not due to slower asset growth in those areas. From equation 3, these areas suffered just as great a decrease in capital-asset ratios due to asset growth. And from equation 4, they enjoyed a noticeably bigger increase in capital-asset ratios due to capital growth.

What do the two sets of regression results tell us about the impact of RFC investment? In both cases, banks in areas with high RFC capital tended to increase their private capital-asset ratios more than banks in areas with low RFC capital—a relationship that was not due to a general tendency for weak banks to catch up with strong banks or for banks with high RFC capital to shrink. If banks with high RFC capital were nonviable or prone to gamble, they should have been less successful in rebuilding their private capital than other banks. And if banks with high RFC capital were viable but no better off as a result of RFC aid, they should have experienced the same improvement in private capital as other banks. Thus, the fact that banks in areas with high RFC capital were more successful in restoring their private capital suggests that government investment was a more effective way of dealing with weak banks than either prompt corrective action or forbearance.

Implications for the Current Debate

On balance, the evidence in the previous section suggests that government investment worked in the 1930s. But that success may have been partly due to special circumstances not present today. To determine what lessons, if any, the RFC experience has to offer, it is useful to return to the four basic questions posed earlier.

1) Would government investment lead to excessive government ownership and control of the banking industry? The successful repayment record by banks receiving RFC aid would suggest that government investment need not lead to permanent control of the banking industry. Critics could argue that even the temporary control the RFC exercised over banks in the mid-1930s would be undesirable. But the RFC acquired voting rights in banks—something the FDIC cannot do today and something a new RFC fund could be prohibited from doing. Critics could also argue that government investment would be more likely to lead to permanent government control today because many weak banks are not viable and would be unable to repay the investment. This argument

Table 6

Change in Private Capital of National Banks, 1934-38

Cross-Section Regression Results

	Ratio of RFC capital, June1934[a]	Ratio of sound private capital, June 1934[a]	Adj. R^2
1)Total change in capital-asset ratio[b]	.32* (3.23)		.10
2)Total change in capital-asset ratio[b]	.21† (2.06)	-.15* (3.43)	.19
3)Change in capital-asset ratio due to asset growth[c]	-.08 (.89)	-.11* (2.81)	.06
4)Change in capital-asset ratio due to capital growth[d]	.28* (3.96)	-.04 (1.25)	.19

* Significant at 1 percent level (absolute value of t-statistic in parentheses).

† Significant at 5 percent level.

[a] Percent of estimated sound assets in June 1934.

[b] Ratio of private book capital to book assets in June 1938 minus estimated ratio of sound private capital to sound assets in June 1934.

[c] Initial capital-asset ratio times -g/ (1+g), where g is growth in sound assets per bank. Represents amount ratio would have declined if capital per bank had not changed.

[d] Change in private capital per bank from June 1934 to June 1938 divided by end-of-period assets per bank.

Note: Data are from Annual Reports of the Comptroller of the Currency.

is more telling and leads to the second question.

2) Would government investment help viable banks remain open, or would it merely prolong the life of nonviable banks? On balance, the evidence suggests that most banks in which the RFC invested were viable. But because the decline in economic activity from 1929 to 1933 was so severe, regulators could be relatively confident that most troubled banks were victims of circumstances beyond their control.[32] The economic decline made it hard for all banks to collect on their loans, regardless of how prudent they had been. And some banks suffered losses only because they had to sell illiquid assets to meet withdrawals by panicky depositors. Finally, by increasing uncertainty, the Depression made investors more reluctant to take risk. This shift in preferences not only depressed the prices of banks' marketable assets but also prevented banks from raising new capital to offset their losses.[33]

Today, regulators cannot be as confident that troubled banks are victims of external circumstances. Because economic declines tend to

be smaller, banks suffering sharp declines in capital are more likely to be victims of their own mismanagement or propensity to gamble. To be sure, some regions have suffered economic downturns even as the national economy has continued to grow. But in contrast to a national downturn, banks suffering from a regional downturn can be faulted for overspecializing in loans to local industry, increasing their risk of failure. As interstate banking spreads, regional slumps will become still less of a justification for aiding troubled banks, because such banks will have less excuse than now for failing to diversify their loan portfolios.

Given the risk of propping up nonviable banks, a good case can be made for restricting government investment to national recessions, when even well-managed banks may find their capital depleted. In such situations, the government could still have difficulty distinguishing viable banks from nonviable banks. But because a relatively high percentage of weak banks would be viable, the government would not have to worry as much about rescuing more nonviable banks than viable banks.[34]

3) Would government investment help viable banks recover any faster than they would without a capital infusion? In the 1930s, government investment appears to have helped weak banks rebuild their private capital. One way the investment could have helped weak banks is by reassuring uninsured depositors about the safety of their funds. Because the insurance limit was initially $2,500, only a third of deposits were insured when deposit insurance went into effect.[35] Without new capital, the uninsured depositors of weak banks might have demanded higher rates or withdrawn their funds, making it harder for the banks to return to profitability or attract new capital.

Because deposit insurance coverage is much higher today, this beneficial effect of government investment would be smaller. A much higher proportion of deposits are formally covered—75 percent. And uninsured depositors can be more confident than in 1934 that they will receive de facto protection from the FDIC if their bank fails. Thus, government investment would have less tendency to benefit weak banks by reducing the cost or increasing the availability of uninsured funds.

4) Finally, by allowing banks to operate with low private capital, would government investment encourage excessive risk-taking? In the 1930s, government investment was not the type that could be expected to reduce a bank's incentive to gamble. In particular, the investments were neither convertible to common stock nor accompanied by options to buy common stock, giving the RFC no share in banks' future profits. Despite this fact, banks with RFC capital showed no signs of taking excessive risks.

There is good reason to believe that the form of government investment would matter more today. In 1933, regulators could be confident that most weak banks were in trouble due to the economic decline rather than a propensity to gamble. Also, with unemployment so high, bank managers who still had jobs would have been especially reluctant to risk those jobs by "betting the bank." Finally, throughout most of the 1930s, opportunities for banks to earn big profits at high risk were probably few and far between.

Today, regulators have more reason to worry about weak banks' incentive to gamble. Banks with low capital are more likely to be aggressive banks that gambled and lost—the last banks that should be allowed to operate with low capital. And because insurance coverage is higher, weak banks do not have to worry as much about losing their deposits if they gamble. Thus, if weak banks are kept open, it is more important than in the 1930s for the government to avoid forbearance and forms of investment that preserve banks' incentive to

gamble. Instead, the government should invest in securities, like convertible preferred stock, that give it a share of the banks' future profits.

To summarize, the favorable record of the RFC suggests that government investment can sometimes work better than either prompt corrective action or forbearance. In particular, government investment can help viable banks recover without nationalizing the banking industry, propping up large numbers of nonviable banks, or encouraging excessive risk-taking. However, the many differences between the 1930s and today also suggest that government investment should be used with caution. Above all, two conditions should be met. First, given the difficulty of identifying viable banks, the state of the national economy should be sufficiently poor to leave little doubt that most weak banks are victims of external circumstances. And second, government investment should always be provided in a form that reduces banks' incentive to gamble by forcing them to give up a share of their future profits.

Endnotes

[1] The FDIC's official policy has been to apply a stricter cost test than required by law. If not justified on grounds of essentiality to the community, open-bank assistance must be cheaper, not only than paying off insured depositors, but also than closing the bank and merging it with another bank (*Federal Register*).

[2] Subordinated debt is debt that can be repaid only after uninsured depositors have been paid in full. Preferred stock is stock with a predetermined dividend that must be paid before any dividends on common stock can be paid. Under the new risk-based capital requirements, subordinated debt and preferred stock with cumulative dividends count as Tier 2 capital and preferred stock with noncumulative dividends counts as Tier 1 capital (Keeton).

[3] For example, the FDIC chose open-bank assistance for Continental Illinois because it believed the bank would have to remain closed a long time as a merger partner was sought. In the meantime, the FDIC feared, the bank's value would erode. Changes in banking law in the late 1980s have made it easier for the FDIC to arrange closed-bank mergers—for example, by operating a failing bank as a "bridge bank" while a permanent solution is sought. Thus, before the recent resurgence of interest in open-bank assistance, some experts predicted the approach would fall into disuse (Secura Group).

[4] In both the industry plan and the Dixon bill, the money was to come from the idle reserves banks hold at the Federal Reserve. Because the Fed hands over its surplus earnings to the Treasury, any losses it suffered on investments in weak banks would be borne by the Treasury. Thus, the government would be the ultimate source of financing. Under both plans, banks had to raise some private capital to qualify. In the industry plan, the fund was to be used solely to finance mergers of troubled banks. In the Dixon bill, the fund was to give priority to mergers but could also invest in troubled banks that remained independent. The investment was to take the form of preferred stock in the industry plan but could be either subordinated debt or preferred stock (plus options on common stock) in the Dixon bill.

[5] Under the Bryan plan, the government would invest one dollar for every dollar of private capital the bank raised. Also, the bank would be required to place its problem assets in a separate bank and avoid certain risky investments such as commercial real estate loans. For other proposals by private banking experts, see Rohatyn and Cutler; Jacobe.

[6] Testifying before the House Banking Committee in April, Chairman Seidman said, "We find very few cases today where [open-bank assistance] appears to be the lowest-cost solution" (U.S. House of Representatives 1991b). Shortly thereafter, Seidman stated that mandatory closure of undercapitalized banks would be desirable over the long term even though it could cause "short-term disruption and increased short-term costs" (Seidman 1991b).

[7] The new FDIC Chairman, William Taylor, suggested that new techniques, including government investment, might be needed to hold down the FDIC's costs. And in early December, the Office of Thrift Supervision announced a formal program of open-bank assistance for troubled S&Ls (BNA Banking Report 1991d).

[8] Suppose, for example, that a bank had $1,000 of insured deposits, $800 of marketable assets, and $400 of intangible assets. Then if the bank were closed and the $400 of

intangible assets were completely lost, the FDIC would incur a net cost of $200. If instead the bank were able to recover on its own, the FDIC would incur no cost whatsoever. Of course, by closing weak banks sufficiently early—when their marketable assets still exceeded their liabilities—the FDIC might be able to avoid any loss. But in that case, there would still be a net loss to society from the destruction of viable banks' intangible assets.

[9] One way a bank could meet the minimum capital-asset ratio would be to shrink—that is, to sell assets and use the proceeds to retire deposits. But few banks could rely solely on this method because too many of their assets are tied up in illiquid loans. Thus, under prompt corrective action, the only way most weak but viable banks could remain open would be to raise capital from private investors. Some proponents of government investment argue that even if it were possible, it would be undesirable for banks to meet the minimum requirement by shrinking because such liquidation could lead to a damaging credit crunch (Bryan, pp. 141-42; Rohatyn and Cutler).

[10] Fixed-rate deposit insurance contributes to the problem in a crucial way by allowing poorly capitalized banks to retain or even expand their deposits despite their incentive to gamble. Without deposit insurance, depositors would be aware of weak banks' incentive to gamble and would either demand high rates as compensation or refuse to invest in the banks at all.

[11] In principle, the same effect could be achieved by issuing "net worth certificates" to weak banks, a procedure used to keep many undercapitalized thrifts afloat in the 1980s. Under this program, thrifts exchanged their own IOUs for net worth certificates bearing an identical rate of interest. If the thrift failed, the net worth certificate became an obligation of the government to the bank's uninsured depositors and general creditors, reducing their potential loss. It is important to note, however, that net worth certificates do not reduce the potential gains to a bank's owners from riskier loans and investments. Thus, in contrast to government investment, net worth certificates cannot reduce a weak bank's incentive to gamble.

[12] Some critics concede the government has superior information about troubled banks. However, they argue that the government would not use the information optimally because, unlike private investors, government officials would not suffer adverse consequences from wrong decisions. Thus, a better way to ensure that viable banks remained open would be to release the information to the public and let private investors supply the needed capital.

[13] The new banking bill limits the FDIC's ability to protect uninsured deposits at failed banks. However, such protection can still be provided if it is cost effective or if the President, Secretary of the Treasury, and FDIC agree that losses by uninsured depositors "would have serious adverse effects on economic conditions or financial stability."

[14] The RFC started out with $500 million in capital from Treasury and authority to borrow an additional $1.5 billion from Treasury or the public. The latter limit was gradually increased to $16 billion through subsequent legislation. The RFC ended up borrowing a total of $51.3 billion from Treasury and $3.1 billion from the public (U.S. Treasury Department, pp. 21, 33).

[15] Economists disagree on the timing and relative importance of the various factors contributing to higher bank failures. Friedman and Schwartz argue that the Fed's failure to offset the decline in bank reserves following an initial wave of failures in late 1930 was responsible for the high rate of failures in 1931 and 1932. According to this view, corporate bond prices began falling only after the contraction in deposits forced widespread liquidation of assets by banks (pp. 356-57). In contrast, Temin argues that the decline in economic activity was the main cause of high failures in 1931 and 1932. He agrees that the collapse in bond prices contributed to the failures but argues that the price decline started long before deposits began to contract (pp. 84, 105-10).

[16] The following account draws on two interesting and highly readable histories of the RFC by Olson (1977, 1988). The most thorough explanation of RFC programs to assist troubled banks is a contemporary study by Upham and Lamke.

[17] The RFC could also invest in the banks indirectly by making loans to private shareholders for the purchase of preferred stock. Prior to the Emergency Banking Act, the only kind of stock that national banks and most state-chartered banks could issue was common stock subject to "double liability." Under double liability, the shareholders of a failed bank could be assessed an amount up to their initial investment to cover losses by depositors. The Emergency Banking Act authorized national banks to sell preferred stock without double liability. Half the states immediately passed laws allowing their banks to do the same. However, the other states continued to prohibit any form of bank stock not subject to double liability, preventing their banks from selling preferred stock to the RFC (Upham and Lamke, pp. 108, 189-91).

[18] The FDIC reported that 10 percent of the nonmember banks it approved for deposit insurance were insolvent when they applied, while another 10 percent had ratios of sound capital to deposits below 5 percent (FDIC 1934, p. 51). Jesse Jones, the head of the RFC, later claimed that 2,000 banks with $8 billion in deposits were still insolvent

in December 1933 and required a capital infusion to qualify for deposit insurance. According to Jones, the assets of these banks were worth only 75 percent of their deposits and other liabilities. Jones said that he and Secretary of the Treasury Morgenthau resolved the crisis by agreeing the RFC would make up the capital shortfall within six months if the Secretary would certify all 2,000 banks as solvent on January 1 (Jesse Jones, pp. 27-30).

[19] Some sources overstate the share of RFC capital in the industry's total book capital. For example, both Friedman and Schwartz (p. 427) and Olson (1988, p. 82) say RFC investment was a third of total capital. This figure could be correct only if capital were measured at par value—that is, only if surplus and retained earnings were excluded.

[20] Despite the large infusion of RFC capital, total bank lending continued to stagnate. And the author's own research suggests that lending was just as weak at banks with high RFC capital as at banks with low RFC capital.

[21] As noted earlier, some experts do argue that government investment can alleviate a credit crunch by making it unnecessary for banks to contract to meet the minimum capital requirement (n. 9). However, most of the current interest in government investment stems from the decline in the BIF and the desire to reduce FDIC costs.

[22] For the period as a whole, the ratio of RFC capital to assets was almost identical for the two types of failed banks—4.7 percent for closed banks and 4.6 percent for merged banks. Note that a bank could be insolvent even with substantial RFC capital if its true private capital were sufficiently negative.

[23] For example, 40 percent of nonmember banks had RFC capital at the beginning of 1938 and 0.25 percent of nonmember banks were merged during the year. Thus, even if all the banks merged in 1938 had RFC capital, the merger rate for banks with RFC capital was only 0.63 percent (0.25/0.40). Under the more likely assumption that the percent of merged banks with RFC capital was the same as the percent of closed banks with RFC capital—74 percent—the merger rate for banks with RFC capital was only 0.47 percent in 1938 (0.74 x 0.63).

[24] Note, however, that the fact that RFC banks failed at higher rates than other banks in later years does not necessarily mean that the RFC initially invested in a disproportionate number of nonviable banks. Suppose, for example, that banks starting out the period with high RFC capital were no more likely to be nonviable than other banks. Then banks that still had high RFC capital in later years would be more likely to be nonviable than other banks—and thus more likely to fail—simply because nonviable banks would have been less able to retire their RFC capital. This argument cannot explain why RFC banks also had higher failure rates than other banks in early years.

[25] According to the FDIC, banks had written off most of the assets made worthless by the Depression by the end of 1936 (FDIC 1936, p. 43).

[26] At the end of 1933, nonmember banks accounted for 54 percent of all insured banks. Because of their small average size, however, they accounted for only 15 percent of total bank assets.

[27] The 1937 *Annual Report* of the Comptroller of the Currency does report that the unsound loans of examined national banks fell from $547 million in 1934 to $151 million in 1937. When these figures are subtracted from the numerator and denominator of the ratio of private book capital to book assets, the new ratio shows an increase of 1.3 percentage points from 1934 to 1937 instead of a decrease of 0.2 percentage points. Taking into account the change in other unsound assets would presumably cause the ratio to show even more of an improvement between the two years.

[28] Other factors that may have helped promote banking recovery after 1933, besides economic growth, were the enactment of deposit insurance, the weeding out of inefficient banks during 1930-33, and the prohibition of interest on demand deposits (Hart, pp. 65-66; Upham and Lamke, p. 206).

[29] Some critics of bank regulation during the 1930s claimed that examiners also included loans that were slow in the literal sense of having a long maturity (FDIC 1938, pp. 62-64).

[30] The regression results are influenced by the two states with the highest RFC investment, North Dakota and Vermont. When these states are dropped from the sample, RFC investment becomes less important in explaining the change in capital positions. In equation 2, the RFC coefficient drops to 0.38 and the t-statistic to 2.18. And in equation 4, the RFC coefficient falls to 0.47 and the t-statistic to 2.82. It should also be noted that the results are unchanged when growth in personal income is included as a right-hand variable. These regressions are not reported because unobservable factors boosting bank capital could also stimulate economic growth, biasing the coefficients.

[31] Some of the observations are for city banks in a particular city, some are for country banks in a particular state, and some are for both country and city banks in a particular state. RFC capital was measured by the amount of class A preferred stock.

[32] For a clear statement of the view that weak banks were victims of external circumstances, see Homer Jones (pp. 184-86). Not everyone shared this view. Some experts believed weak banks had been badly managed. Others

thought weak banks should be closed because liberal chartering and restricted branching had led to overcapacity in the banking industry—in particular, too many small, undiversified banks (Burns; Bremer; Willis and Chapman).

[33] The spread between Baa corporate bonds and long-term U.S. government bonds rose over three percentage points from 1929 to 1932. Since bonds classified as Baa are supposed to have constant default risk, the increase in the spread suggests that investors were demanding greater compensation per unit of risk. Temin argues that this shift in investors' risk preferences caused much of the depreciation in bank assets (Temin, pp. 108-10).

[34] To see how the optimal scale of government investment depends on the fraction of weak banks that are viable, suppose the government can distinguish only imperfectly between viable weak banks and nonviable weak banks. Then, as the government lowers the standard for admission to the program, it will not only approve a higher fraction of the viable banks but also approve a higher fraction of the nonviable banks. The higher the fraction of weak banks that are viable, the greater will be the total benefit to society from the first effect and the smaller will be the total cost to society from the second effect. Thus, the higher the fraction of weak banks that are viable, the lower the government should set the admission standard. If the proportion of viable banks were very high, it could even be optimal for the government to admit all weak banks to the program.

[35] When the insurance limit was increased to $5,000 in the second half of 1934, the percent of insured deposits rose to 44 percent (FDIC 1934, pp. 60-61). De facto coverage turned out to be much greater. For example, from 1934 to 1938, the FDIC protected 96 percent of all deposits at failed banks by making liberal use of open-bank mergers (FDIC 1938, p. 10). But in 1934, uninsured depositors had no way of knowing their funds would be safe. The FDIC could have relied exclusively on payoffs to resolve bank failures, forcing uninsured depositors to suffer losses. Or the insurance fund could have run out of money, preventing the FDIC from protecting any depositors of failed banks.

References

American Banker. 1991. "Text of Letter from Banking Trade Groups to FDIC Chairman L. William Seidman," February 14, p. 7.

Barth, James R., Dan R. Brumbaugh, and Robert E. Litan. 1990. "The Banking Industry in Turmoil: A Report on the Condition of the U.S. Banking Industry and the Bank Insurance Fund," study for the Financial Institutions Subcommittee of the House Committee on Banking, Housing, and Urban Affairs, December 17, pp. 146-47.

Board of Governors of the Federal Reserve System. 1943. *Banking and Monetary Statistics, 1919-1941*.

BNA Banking Report. 1991a. Washington: Bureau of National Affairs, Inc., January 14, p. 44.

_____. 1991b. July 22, p. 134.

_____. 1991c. December 9, p. 970.

_____. 1991d. December 16, pp. 1010 and 1019.

Bremer, C. D. 1935. *American Bank Failures*. New York: Columbia University Press, pp. 137-38.

Bryan, Lowell L. 1991. *Bankrupt: Restoring the Health and Profitability of Our Banking System*, Harper Business.

Burns, Helen M. 1974. *The American Banking Community and New Deal Banking Reforms, 1933-35*, Westport, Conn.: Greenwood Press, p. 121.

Chandler, Lester. 1970. *America's Greatest Depression, 1929-1941*. New York: Harper & Row.

Comptroller of the Currency. *Annual Report*. Various issues.

Congressional Record. 1991. Vol. 137, no. 16, January 24, pp. S1170-71.

Federal Deposit Insurance Corporation. *Annual Report*. Various issues.

Federal Register. 1990. Vol. 55, no. 65, April 4.

Federal Reserve Bulletin. 1937. September, p. 887.

Friedman, Milton, and Anna Jacobson Schwartz. 1963. *A Monetary History of the United States, 1867-1960*. Princeton, N.J.: Princeton University Press.

Hart, Albert Gailord. 1938. *Debts and Recovery*. New York: Twentieth Century Fund.

Isaac, William M. 1991. "Open-Bank Assistance Can Work," *American Banker*, July 25, p. 4.

Jacobe, Dennis. 1988. "Reviving the Reconstruction Finance Corporation Could Renew Financial Stability," *Savings Institutions*, July.

Jones, Homer. 1940. "An Appraisal of the Rules and Procedures of Bank Supervision, 1929-39, *Journal of Political Economy*, April.

Jones, Jesse H., with Edward Angly. 1951. *Fifty Billion Dollars*. New York: Macmillan Co.

Keeton, William R. 1989. "The New Risk-Based Capital

Plan for Commercial Banks," Federal Reserve Bank of Kansas City, *Economic Review,* December.

Labaton, Stephen. 1991. "Bank Aid Is Called Insufficient," *New York Times*, November 29, p. C3.

Mingo, John. 1991. "Open-Bank Assistance Can Work for All Stakeholders," *American Banker,* September 9, p. 5.

Murray, Alan. 1991. "As the Economy Sags, Washington Scrambles for Ways to Fix It," *Wall Street Journal,* December 9, p. A4.

Nagle, Reid. 1991. "FDIC Setting Precedents in New Hampshire," *American Banker*, May 1, p. 15.

Olson, James Stuart. 1977. *Herbert Hoover and the Reconstruction Finance Corporation, 1931-33*. Ames, Iowa: Iowa State University Press.

_____. 1988. *Saving Capitalism: The Reconstruction Finance Corporation and the New Deal, 1933-1940.* Princeton, N.J.: Princeton University Press.

Rehm, Barbara A. 1991a. "Seidman: Aid Banks on Way to Failure," *American Banker*, January 10, p. 1.

_____. 1991b. "FDIC Is Likely to Buy Shares in Weak Banks," *American Banker*, January 17, p. 1.

Rohatyn, Felix G., and Lloyd N. Cutler. 1991. "Revitalize the Federal Reserve System," *Congressional Record.* Vol. 137, no. 16, January 24, p. S1171.

Secura Group. 1989. *Deposit Insurance Reform: A Framework for Analysis.* Paper prepared for the Association of Reserve City Bankers, September 22, p. 41.

Seidman, L. William. 1990. Testimony on Status of the Bank Insurance Fund Before the Subcommittee on Financial Institutions, Supervision, Regulation and Insurance of the Committee on Banking, Finance and Urban Affairs, U.S. House of Representatives. December 17, pp. 7-9.

_____. 1991a. "The Facts About the FDIC," *Wall Street Journal*, June 5.

_____. 1991b. Letter to Representative John L. LaFalce, June 20.

Temin, Peter. 1976. *Did Monetary Forces Cause the Great Depression?* New York: W. W. Norton & Co.

Upham, Cyril B., and Edwin Lamke. 1934. *Closed and Distressed Banks.* Washington: Brookings Institution.

U.S. House of Representatives, Committee on Banking, Finance and Urban Affairs. 1991a. Comments by Robert Reischauer in "Hearing on Congressional Budget Office Estimated Recapitalization of the Bank Insurance Fund." January 29, pp. 46, 50, 59.

_____. 1991b. Comments by William Seidman in "Hearing on the Condition and Recapitalization of the Bank Insurance Fund." April 11, p. 19.

U.S. Treasury Department. 1959. *Final Report on the Reconstruction Finance Corporation.* Washington: Government Printing Office.

Willis, H. Parker, and John M. Chapman. 1934. *The Banking Situation.* New York: Columbia University Press, pp. 105-13.

Will the Real Price of Housing Drop Sharply in the 1990s?

By C. Alan Garner

Home ownership has long been part of the American dream. From the mid-1960s to the late 1970s, the wealth of home owners rose substantially due to increases in the real price of housing—the price of housing adjusted for inflation. As a result, many people came to believe that buying a home was the safest and highest yielding investment that a household could make. But a drop in the real price of housing in the early 1980s challenged this view, and a further drop during the recent recession has raised concerns that home owners may face declining real home prices throughout the decade.

Analysts differ about the outlook for real housing prices in the 1990s. Some observers argue that real housing prices may drop because the "baby-boom" generation is being followed into the housing market by a smaller "baby-bust" generation (Laing; Mankiw and Weil). The resulting weaker growth in housing demand may put downward pressure on the real price of housing. Other analysts argue, however, that such economic factors as real income growth and reduced home supply will offset these adverse demographic factors (DiPasquale and Wheaton; Downs).

This article argues that economic factors in the housing market are likely to prevent a severe decline of real housing prices in the 1990s. The first section shows why some observers are concerned that the baby bust may depress future housing prices. The second section shows that demand-side economic factors also have important effects on real housing prices. In fact, some of the past increases in the real price of housing that have often been attributed to the baby boom may have been due to such factors. The third section discusses supply-side economic factors and explores the outlook for real housing prices in the 1990s.

C. Alan Garner is a senior economist at the Federal Reserve Bank of Kansas City. Carrie Ross, a research associate at the bank, helped prepare the article.

Baby Booms and Busts

Recent concern about future housing prices has been fueled partly by sharp declines in housing prices in such cities as Boston and San Francisco.[1] But changes in metropolitan housing prices often reflect unique local factors in addition to national economic conditions. Fears of a prolonged fall in real housing prices at the national level are more realistically based on demographic factors, particularly the effect of the baby bust on future housing demand. Postwar experience shows that baby booms and busts have an important effect on the housing market.

The real price of housing has fluctuated significantly over the postwar period. The real price of housing can be measured by the GNP deflator for residential investment divided by the GNP deflator for all goods and services (Chart 1). Because this measure represents the price of housing relative to the general price level, the real price of housing falls if observed housing prices increase more slowly than the prices of other goods and services.[2] Although the real price of housing has fluctuated over the postwar period, Chart 1 shows no evidence of a persistent upward or downward trend.

Changes in the real price of housing can be interpreted in a simple supply and demand model of the housing market (Figure 1). The real price of housing is measured on the vertical scale, and the quantity of housing on the horizontal scale. The upward-sloping line S represents the supply curve of housing.[3] In the short run, changes in the price of housing induce only small changes in the quantity of housing offered on the market. The downward-sloping line D_1 represents the initial demand curve for housing. The demand curve is downward sloping because a rise in the real price of housing reduces the quantity of housing demanded, other factors held constant.

A change in the birth rate influences the real price of housing by shifting the demand curve. After a period of years, a baby boom increases the quantity of housing demanded at any given real price of housing. As a result, the housing demand curve shifts to the right—for example, from D_1 to D_2 in Figure 1. The supply and demand model implies that such an increase in housing demand bids the real price of housing upward from P_1 to P_2. Similarly, a baby bust shifts the housing demand curve to the left after a period of years, reducing the real price of housing.

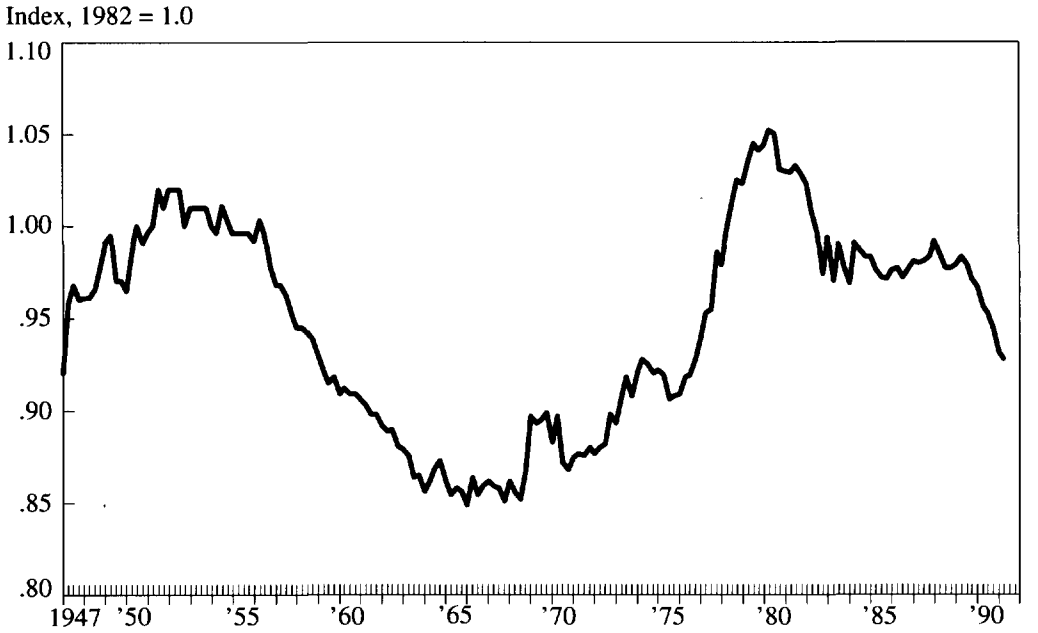
This simple supply and demand analysis of how baby booms and busts affect the housing market accords well with movements of real housing prices over much of the postwar period.[4] A drop in the real price of housing in the 1950s and the early 1960s can be blamed partly on fewer young people entering the housing market in these years. Changes in the population aged 25-44 years and in the real price of housing are presented in Chart 2. Many people form households and buy their first home while they are between 25 and 44 years of age. The population aged 25-44 years fell slightly in the late 1950s and the first half of the 1960s. The population decline in this age group reflected lower birth rates during the depression of the 1930s.

The entry of the baby-boom generation into the housing market coincided with a rebound in the real price of housing in the 1970s. Birth rates rose sharply in the United States from the late 1940s to the early 1960s. As a result, the first wave of the baby-boom generation began entering the housing market in the early 1970s. Over the course of the decade, the number of people between 25 and 44 years of age grew at a 2.5 percent average annual rate.

But the close relationship between population growth and real housing prices weakened somewhat in the late 1970s and the 1980s. For

Chart 1

The Real Price of Housing



Source: U.S. Department of Commerce, Bureau of Economic Analysis.

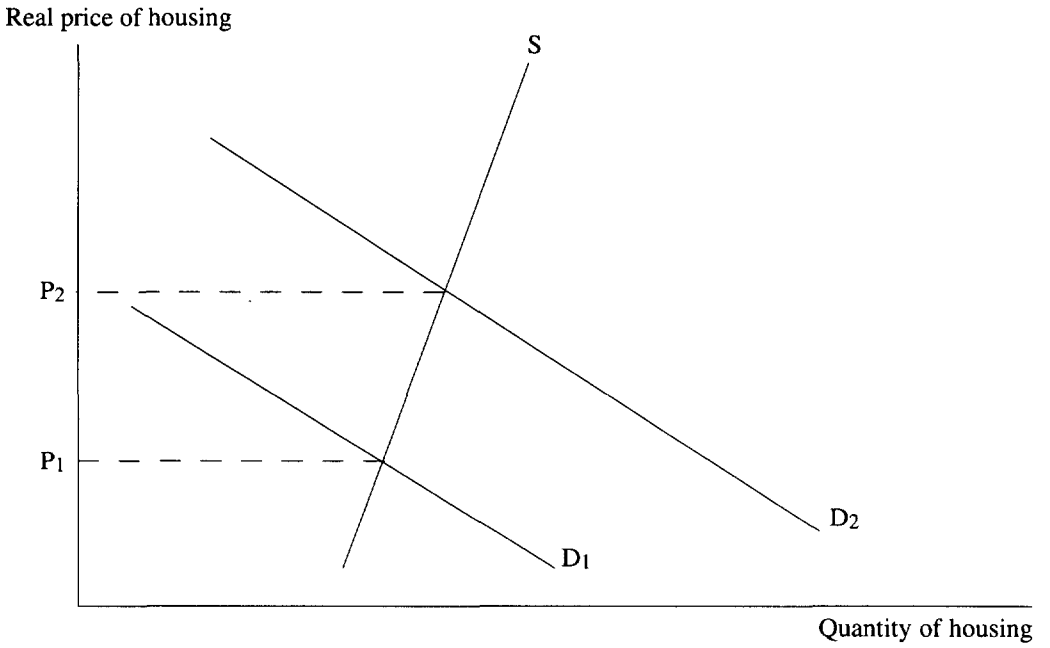
example, the sharpest gains in real housing prices occurred at the end of the 1970s, well after the baby-boom generation began entering the market. The timing of these large increases in real housing prices suggests that factors other than the baby boom were exerting a major influence on the housing market.

Other factors apparently also dominated the effect of the baby boom on the real price of housing in the 1980s. The real price of housing reached a peak around 1980 but dropped as the economy experienced back-to-back recessions in the early 1980s. The real price of housing then remained on a plateau in the mid-1980s before declining recently. Yet the number of people between 25 and 44 years of age grew at a 2.8 percent annual rate in the 1980s, slightly faster than in the 1970s. The growth of this age group slowed at the end of the decade, reflecting declining birth rates in the 1960s. But despite this slowdown, the population aged 25-44 years was still growing about as fast as in the early 1970s, a period when the real price of housing was rising.

Why did the relationship between population growth and real housing prices weaken in the late 1970s and the 1980s? Other demographic factors may have played a role by increasing the number of households relative to the population, raising the demand for housing.[5] During most of the postwar period, the number of single-person households increased dramatically because of a later average age for first marriages, a rising divorce rate, and a greater tendency for elderly people to live alone (Miller). Young adults also became more likely

Figure 1

An Increase in Housing Demand



to live outside their parents' homes.[6] But such factors are probably not an adequate explanation for the unusual strength of housing prices in the 1970s; nor, of course, can they explain the weakness in the 1980s. Accordingly, the next section explores another important set of factors, demand-side economic influences.

Demand-side Economic Influences

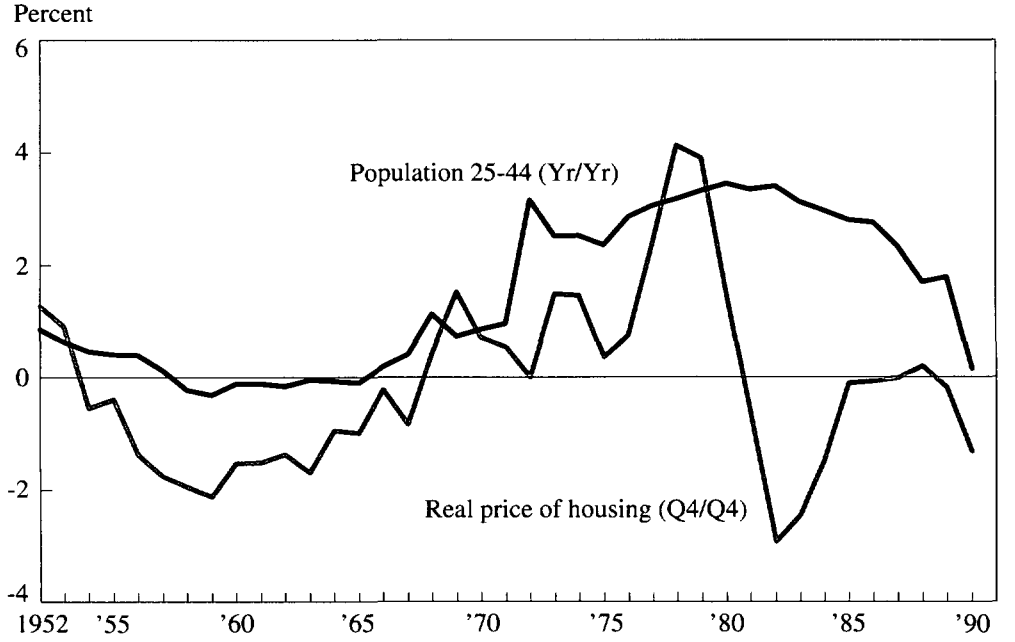
While demographic factors clearly have been an important influence on the housing market, demand-side economic factors have also been important. Much of the increase in real housing prices in the late 1970s, as well as the relative weakness since then, was caused by demand-side economic factors.

Two demand-side factors play an important role in shifting the housing demand curve. The first factor is real income movements. An increase in real income raises people's ability to afford housing, shifting the housing demand curve to the right. Real disposable income is the after-tax spendable income of the household sector. An increase in real disposable income makes it easier for households to afford mortgage payments and the other expenses of home ownership. Higher real disposable income also makes it easier for households to save for the downpayment on a house.

Real income growth helps to explain some fluctuations in the real price of housing in the postwar period. Because housing prices reflect many factors, real disposable income and real housing prices have not always moved together. For example, the real price of housing rose

Chart 2

Changes in the Population Aged 25-44 Years and in the Real Price of Housing



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

faster in the 1970s than in the 1960s even though real income growth slowed over this period. But real disposable income provides a better explanation for real housing prices in the 1980s. Real income growth slowed from the 1970s to the 1980s, helping explain the relative weakness of housing prices in the 1980s. And weak real income growth in the latest recession, as well as the recessions in the early 1980s, contributed to recent declines in the real price of housing.

The second demand-side factor is the real user cost of housing. An increase in the cost of owning and maintaining a house shifts the demand curve to the left. The real user cost of housing is the out-of-pocket expenses and foregone income associated with owning or renting a home. The user cost of housing reflects such factors as mortgage interest expenses, depreciation, and expected capital gains or losses from home ownership.[7] Changes in the real user cost of housing help explain fluctuations in the real price of housing in the 1970s and 1980s.

Several economic factors in the 1970s contributed to the increase in housing prices by reducing the real user cost of housing. Low real interest rates, interest rates adjusted for expected inflation, pushed down the user cost of housing and shifted the housing demand curve to the right. Although interest rates rose substantially in the 1970s as inflation accelerated, real interest rates were low—sometimes, even negative. As a result, homebuyers had a strong incentive to borrow to purchase a home.

Inflation and the U.S. tax system interacted in the 1970s to reduce the real user cost of

housing. Inflation raised the current-dollar incomes of households and often lifted them into higher tax brackets.[8] For such households, "bracket creep" increased the marginal tax rate, the tax rate on an additional dollar of income. The higher marginal tax rate cut the user cost of housing by increasing the value of the mortgage interest deduction to home owners. Thus, the housing demand curve shifted to the right.

The expectation of large real capital gains on housing also lowered the user cost of housing in the 1970s. With home prices increasing because of various demographic and economic factors, many Americans came to expect continuing large gains in the real price of housing. And sharp gains in real housing prices in particular regions, such as California, were widely reported in the nation's press. Thus, the expectation of continuing capital gains from home ownership shifted the housing demand curve to the right.

Many of these same economic factors helped drive down the real price of housing in the 1980s by increasing the real user cost of housing. Mortgage rates declined more slowly than the general inflation rate in the 1980s, keeping real interest rates high by historical standards. Large cuts in personal income tax rates also raised the real user cost by reducing the value of the mortgage interest deduction.[9] And expectations of large capital gains from home ownership were dampened because the real price of housing slipped over much of the decade. Such economic factors in the 1980s raised the user cost of housing and shifted the housing demand curve to the left.

The previous discussion has shown that fluctuations in real housing prices depend on both demographic and economic influences. The baby bust will clearly be exerting downward pressure on the real price of housing in the 1990s. Are there likely to be any offsetting factors?

Outlook for the 1990s

One reason the real price of housing may not drop sharply in the 1990s is that other demand-side influences could partly offset the effects of the baby bust on housing demand. A second reason is that supply-side economic influences may gradually reverse any decline in the real price of housing caused by the baby bust. This section develops these reasons in greater detail and then presents formal forecasts of real housing prices over the decade.

Housing demand in the 1990s

The outlook for real housing prices is clouded by the impending entry of the baby-bust generation into the housing market in the 1990s. The Census Bureau projects that the number of people between 25 and 44 years of age will grow at a sluggish 0.4 percent annual rate in 1991-95 and drop at a 0.5 percent rate in 1996-2000 because of the baby bust. The decline of this age group in the latter period will be more severe than in 1960-64, when real housing prices fell. The imperfect historical relationship between the real price of housing and population growth suggests, however, that other influences must be considered.

Other demographic influences may partly offset the effect of the baby bust on housing demand. In particular, the number of single-person households may continue to grow in the 1990s, as it has throughout the postwar period. Young adults and the elderly are likely to continue living apart from their families if economic conditions permit. If real disposable income grows as expected over the next decade, the number of single-adult households will probably rise. In addition, advances in medical care and longer life expectancies may increase the number of elderly people living alone.

Increasing real disposable income in the

1990s should encourage greater household formation and raise the amount of housing demanded by the typical household. Although real disposable income has fallen during the recent recession, it has an upward trend because of long-run increases in employment and labor productivity. The baby bust may lead to a slowdown in employment growth since fewer young people will be entering the labor force. But real disposable income per person will probably increase in the 1990s because higher labor productivity will allow employers to pay higher wages.[10] Although the gains in real disposable income may be weak by postwar standards, such gains should partly offset any effect of the baby bust on housing prices.

The outlook for the real price of housing in the 1990s should also consider possible changes in the user cost of housing. Inflation is likely to stay relatively low in the 1990s, which may eliminate much of the inflation-induced incentive to buy a home. But real interest rates also may slip from the unusually high levels of the 1980s if the federal government cuts the budget deficit later in the decade. And if income tax rates are raised to cut the deficit, higher marginal tax rates will increase the tax advantages of home ownership. Thus, movements in the real user cost of housing may deter home ownership less than in the 1980s, when a rising user cost often discouraged home purchases.

Supply-side influences

Changes in other demand-side influences are therefore likely to moderate the effects of the baby bust on housing demand. The entry of the baby-bust generation into the housing market may, nevertheless, shift the housing demand curve to the left and reduce the real price of housing. But Chart 1 suggested there has been no trend in the real price of housing in the postwar period. Although past shifts in the housing demand curve initially changed the real price of housing, some other influence apparently reversed the price changes over the long run. The explanation lies in supply-side economic factors that moderate and largely reverse swings in the real price of housing over time.

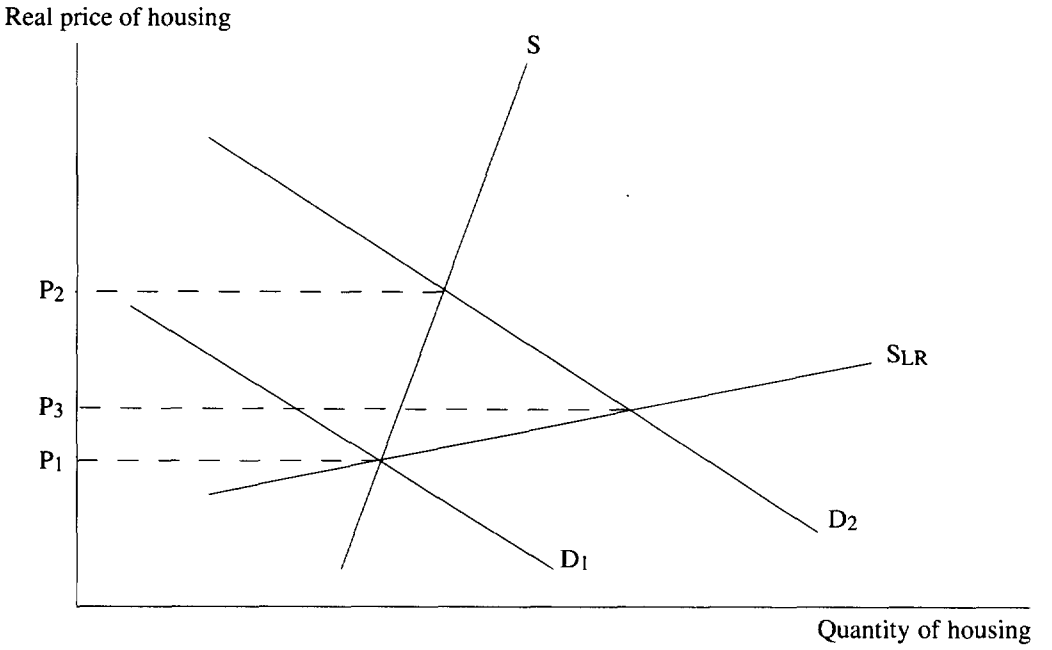
The housing supply curve. The real price of housing may change substantially in the short run when the housing demand curve shifts. The housing supply curve appears in Figure 1 as a steep upward-sloping line, reflecting the limited scope for increasing the quantity of housing in response to a rise in the real price of housing. It takes several years to make large adjustments in the housing stock because, even in a year when housing starts are strong, the net addition to the quantity of housing is a small fraction of the existing stock. As a result, a shift in the housing demand curve primarily affects the real price of housing in the short run.

Over a longer time horizon, the supply of housing can expand more in response to an increase in the price of housing. As the real price of housing rises, home builders can afford to pay higher wages to construction workers. Construction workers may, at first, be bid away from nonresidential construction projects. If construction wages are high enough, some workers may even quit jobs outside the building industry to become construction workers. A higher real price of housing also allows home builders to bid more aggressively for construction materials and equipment. The flow of resources into the construction industry ultimately permits a substantial increase in the quantity of housing in response to a higher real price of housing.

As a result, the supply curve for housing is likely to be much flatter in the long run. Figure 2 shows how important the slope of the supply curve can be in analyzing the effects of a shift in the demand curve on the real price of hous-

Figure 2

Short-Run and Long-Run Supply Responses to an Increase in Housing Demand



ing. Supply curve S is the same steeply sloped curve as in Figure 1. But suppose the long-run supply curve is the flatter line S_{LR}. In this case, a shift of the demand curve from D_1 to D_2 caused by a baby boom or an increase in real disposable income would produce a smaller long-run increase in the real price of housing. Instead of rising to P_2, the real price of housing would increase modestly in the long run to P_3.

A relatively flat long-run supply curve also implies that the baby bust would have little long-run effect on the real price of housing. The entry of the baby-bust generation into the housing market would, holding all other factors constant, shift the housing demand curve to the left. Such a shift in the demand curve would reduce the long-run quantity of housing and could have a large effect on the home building industry. The real price of housing could also be reduced temporarily because of the steepness of the short-run housing supply curve. But if the long-run supply curve is relatively flat, the real price of housing would not fall sharply over a period as long as a decade.

Empirical evidence. Recent empirical studies support the view that the long-run supply curve for housing is relatively flat. In one study, for example, Follain assumes that the housing supply curve is a function of the price of housing, a price index of construction materials, the wage rate of construction workers, and the interest rate. The interest rate is included in the supply function because builders often borrow to undertake new con-

struction, making the level of interest rates a determinant of construction costs. Estimates obtained by Follain using a variety of statistical techniques imply that the long-run supply curve has been nearly flat in the postwar period.[11]

A forthcoming article by Holland also shows empirically that the long-run housing supply curve is flat. Holland tests for long-run relationships between the growth in housing demand, real residential investment, and the real price of housing.[12] He finds that the growth of housing demand caused by the baby boom "appears to be the major factor behind increased real residential investment, but does not appear to be the major factor behind increased real housing prices." Such results are exactly what would be expected with a long-run housing supply curve that is flat—shifts in the housing demand curve would, in the long run, change the quantity of housing but not the real price.

Finally, a recent study by DiPasquale and Wheaton also finds that the long-run housing supply curve is relatively flat. This study develops a supply and demand model of the aggregate housing market in which the quantity of housing adjusts slowly to changes in demand. Unlike Follain, DiPasquale and Wheaton find some upward slope to the housing supply curve. But the supply curve is still flat enough that sizable changes in the level of new home construction moderate changes in the real price of housing over the long run. As a result, the baby bust would be expected to have little long-run effect on the real price of housing.

Formal forecasts

The flatness of the housing supply curve clearly has strong implications about long-run changes in the real price of housing. But it is also useful to examine formal forecasts of housing prices in the 1990s, because such forecasts take account of both demand-side and supply-side influences.

A prominent study by Mankiw and Weil is often cited to justify concerns about a sharp decline in the real price of housing. Mankiw and Weil develop a housing demand measure based on the age distribution of the adult population. This measure is projected to grow 0.7 percent annually in the 1990s, down from 1.3 percent in the 1980s and 1.7 percent in the 1970s. An equation is then estimated relating the real price of housing to the housing demand measure, real GNP, the after-tax interest rate, and a time trend. Forecasts with this equation imply the real price of housing could drop 3 percent annually over the next decade, producing a cumulative drop of 30 percent in the 1990s.

Mankiw and Weil's predictions have been widely criticized, however. In a special report by the National Association of Home Builders, Apgar argues that Mankiw and Weil's single-equation model of real housing prices ignores the long-term links between housing prices and construction costs. He states that "it is unlikely that the asset price of the existing housing stock will fall substantially in the years ahead since it is unlikely that housing construction costs will decline significantly." And Holland argues that Mankiw and Weil's empirical results may be spurious because of the statistical properties of their housing demand and real housing price series.[13]

Statistical models, called Bayesian vector autoregressions (BVARs), forecast a smaller decline in the real price of housing than do Mankiw and Weil. Such models forecast housing prices on the basis of past statistical relationships. For purposes of this article, the real price of housing was predicted with two BVARs using different measures of the adult population (see box). The first BVAR predicted a 17 percent cumulative drop in real housing prices in the 1990s. Although such a drop would be considered severe by most home owners, a

similar fall occurred from 1956 to 1964. The U.S. economy was able to adjust to this decline and entered a prolonged expansion in the 1960s. The second BVAR predicted relatively stable real housing prices in the 1990s, with a cumulative decline of only 2 percent over the decade.

Although such forecasts suggest real housing prices will not fall as sharply as predicted by Mankiw and Weil, the BVAR forecasts leave substantial uncertainty about future real housing prices. Additional evidence can be obtained by looking at forecasts from other economic models.

Using such a model, DiPasquale and Wheaton reject the view that the real price of housing will fall sharply in the 1990s. Their model of the national housing market contains a more complete demand equation as well as an explicit housing supply equation. Assuming smooth but slow economic growth in the 1990s, DiPasquale and Wheaton forecast a small increase in real housing prices through 1993, followed by a slight decline through 1999. In 1999, the real price of housing is projected to be 0.6 percent higher than in 1989. An alternative cyclical forecast projects real housing prices will fall 2 percent by 1993 but then rise 7 percent from 1993 to 1999.

DRI/McGraw-Hill also forecasts that the real price of housing will be relatively stable in the 1990s. Because of the recession and past increases in mortgage rates, the real price of housing is projected to fall in 1991. But the real price of housing is expected to recover because of declining interest rates and future growth in employment and income. As a result, DRI/McGraw-Hill predicts a cumulative increase of about 1 percent in the real price of housing over the course of the decade.

Conclusion

The real price of housing is an important economic variable because it affects the wealth of home owners. Some observers have become concerned that the baby bust will cause the real price of housing to drop sharply in the 1990s. Indeed, the entry of the baby-bust generation into the housing market will reduce housing demand. But other demographic influences, such as the growing number of single-person households, and economic influences, such as growing real income, may partly offset the effects of the baby bust.

Empirical evidence shows, moreover, that supply-side influences play a crucial role in determining the real price of housing over the long run. Falling housing demand may reduce the real price of housing temporarily, but the quantity of housing adjusts over time to keep prices in line with construction costs. The long-run supply curve for housing is relatively flat, implying that a decrease in housing demand has little long-run effect on the real price of housing.

Forecasts for the 1990s also suggest that any drop in the real price of housing is unlikely to be sharp or prolonged. A study by Mankiw and Weil predicts severe declines in the real price of housing as the baby-bust generation enters the housing market. But other researchers dispute their results. Alternative forecasts from BVAR models presented in this article predict less severe declines in the real price of housing. And other forecasters predict relatively stable real housing prices over the decade. Thus, although housing prices may experience short-term downward pressures, a sharp drop in the real price of housing in the 1990s seems unlikely.

Box

Forecasts from simple statistical models

For purposes of this article, two Bayesian vector autoregressions (BVARs) were developed to forecast the real price of housing through the year 2000. Such models express each variable in the model in terms of its own past values and the past values of the other variables in the model. The first BVAR used the population aged 25-44 years to measure the homebuying population. The second BVAR differed only in that it used the population aged 25-64 years to measure the homebuying population. Each BVAR also included several economic influences on the real price of housing: the after-tax mortgage rate, real disposable income, the GNP implicit price deflator, real residential investment spending, and the real wage of construction workers.[1]

The first model projects a sizable drop in the real price of housing in the 1990s.[2] The BVAR with the population aged 25-44 years projects the real price of housing will decline 3.7 percent in 1991, followed by small increases in 1992-95. As a result, the real price of housing would decline at a 0.5 percent annual rate in 1991-95 (Table I-1). But the BVAR projects a larger decline in the real price of housing from 1996 through 2000, averaging 2.9 percent annually. The cumulative decline in the 1990s would be 17 percent, about the same as occurred from 1956 to 1964.

But the projections of the real price of housing from the first BVAR may be unduly pessimistic. The second column of Table I-1 presents projections with the homebuying population measured by the number of people aged 25-64 years. Although many people form a family and buy housing between 25 and 44 years of age, the number of adults in older age groups also affects housing demand. In fact, this older group will swell in the 1990s as the baby-boom generation ages.

Table I-1

Projected Changes in the Real Price of Housing

(Average annual percent change)

	BVAR with population aged 25-44 years	BVAR with population aged 25-64 years
5-year periods		
1991-95	-.5	.8
1996-2000	-2.9	-1.2
10-year period		
1991-2000	-1.7	-.2

The second BVAR projects a much smaller decline in the real price of housing in the 1990s. The model projects a large drop in the real price of housing during the 1991 recession, followed by a strong rebound in housing prices over the next three years. On average, the real price of housing is projected to rise at an annual rate of 0.8 percent in 1991-95. The second BVAR also projects a decline in the real price of housing in 1996-2000 as the baby-bust generation enters the housing market. But the decline in the real price of housing is much smaller than in the first set of projections, and the cumulative decline over the decade is only 2 percent.

Box Notes

[1] Population was treated as deterministic because the population variables are largely predetermined by the birth rate 25 years earlier. Each equation also contained a constant and a deterministic dummy variable representing periods of credit rationing. The models were estimated with data from the first quarter of 1958 to the second quarter of 1991. Each equation included eight lagged values of population and of each endogenous variable. Population, the GNP deflator, residential investment, and real disposable income were in logarithmic form.

The after-tax mortgage rate was calculated from the 30-year rate on conventional fixed-rate mortgages and the average marginal tax rate. The average marginal tax rate is from Barro and Sahasakul, with updates by DRI/McGraw-Hill starting in 1981. The constant-dollar data had a 1982 base.

[2] These projections are unconditional in the sense that the BVARs predict the future values of all endogenous variables. However, it was necessary to supply the models with future values of the deterministic variables. Future population levels were calculated by the author based on the middle series projections in Bureau of the Census. Disintermediation and mortgage market rationing are assumed to have been eliminated by the financial deregulation in the 1980s.

Endnotes

[1] Even without adjusting for inflation, existing home prices fell 4 percent in Boston and 0.5 percent in San Francisco from 1989 to 1990 (National Association of Realtors). Case discusses the boom and bust in the Boston housing market.

[2] This measure of the real price of housing reflects the prices of multifamily structures as well as single-family homes. Several other measures of the real price of housing could be presented. This measure was chosen because it is used in Mankiw and Weil, an article that has raised concern about the outlook for real housing prices. Mankiw and Weil (pp. 247-48) report that this measure moves closely with other possible measures of housing prices, such as the median sales price of existing single-family homes collected by the National Association of Realtors.

[3] Dornbusch and Fischer distinguish between the stock supply and the flow supply of housing. In this approach, the stock supply—the quantity of housing at a particular point in time—is always a vertical line. Net additions to the housing stock over a short period are determined by the upward-sloping flow supply curve. To simplify the exposition, this article will not develop separate stock and flow supply curves. The discussion in the text is, however, consistent with Dornbusch and Fischer. In their analysis, an increase in the price of housing causes more residential construction and gradually shifts the stock of housing to the right. But only a small increase in the quantity of housing is possible in the short run, which is the message conveyed by the steeply upward-sloping supply curve in Figure 1.

[4] The adjustment over time of the real price of housing to demographic influences is more complex than the simple supply and demand model indicates. Housing prices may adjust sluggishly to shifts in demand because of high transactions costs and imperfect information in the housing market. In addition, the effect of the baby boom on housing demand was predictable long before the baby-boom generation entered the housing market. To the extent that such demographic pressures were anticipated, investors may have purchased housing units before the baby-boom generation reached the homebuying years in hope of reselling these units for a profit at a later date. Such speculative behavior may have bid up the real price of housing before the baby-boom generation entered the housing market.

[5] A household is defined as a person or group of persons occupying a housing unit, one of whom is identified as a householder. The number of people living together in a housing unit reflects a variety of demographic influences, such as the marriage rate, divorce rate, and tendencies for young adults and the elderly to live apart from their families.

[6] The trend toward young adults living separately from their parents has weakened in recent years (Carliner). The reason may be that the ability of young adults to afford separate housing depends on economic conditions. More young people may have been living with their parents lately because of reduced economic prospects.

[7] For a home owner, the real user cost per dollar of housing is $[(1-t)i - p^e] + d - g$, where t is the marginal income tax rate, i is the mortgage interest rate, p^e is the expected general inflation rate, d is the real depreciation rate of housing, and g is the expected real capital gain from owning housing.

The first term of this expression, $[(1-t)i - p^e]$, is the after-tax real cost of borrowing money to buy a house. The after-tax cost is relevant because U.S. tax laws allow home owners to deduct mortgage interest expenses from their taxable income. The second term, d, is the physical depreciation rate of the housing unit, a real cost borne by the owner. The depreciation rate may be an out-of-pocket expense if the owner repairs and renovates the house to offset the physical effects of time and use on the home's value. The third term, g, is the expected real gain to the owner from an increase over time in the value of housing. The expected real capital gain enters the formula with a negative sign because it reduces the cost to the household of owning and maintaining a home. Some costs of home ownership, such as property taxes, are omitted for simplicity.

[8] Bracket creep raised the average marginal tax rate for U.S. taxpayers from 24 percent in 1970 to 30 percent in 1980 (Barro and Sahasakul). According to Feldstein and Summers, higher inflation interacted with the nonindexed tax system in the 1970s to increase the equilibrium amount of housing and reduce the amount of business capital.

[9] Using Barro and Sahasakul's estimates as updated by DRI/McGraw-Hill, the marginal income tax rate fell from 30 percent in 1980 to 23 percent in 1990.

[10] Labor productivity can be expected to increase because of business investment in new plant and equipment as well as productivity-enhancing technological advances. DRI/McGraw-Hill predicts that employment growth will average 1.2 percent annually through 2000 (Probyn). But real disposable income is projected to increase at a 1.8 percent annual rate over this period, faster than either the adult population or total population. Productivity is expected to grow because of recoveries in business fixed investment and in research and development spending.

[11] Follain provides more evidence on the shape of the long-run housing supply curve by estimating an equation relating the real price of housing to demand-side and supply-side influences. A factor like household income that shifts only the demand curve should have no long-run effect on real housing prices if the supply curve is flat. Consistent with this hypothesis, household income has no long-run effect on real housing prices in Follain's study.

[12] Holland tests for cointegrating relationships among the real price of housing, the growth rate of housing demand, and real residential investment. Cointegration is a statistical concept implying that two or more variables move together in the long run. Holland finds that the growth rate of housing demand and real residential investment are cointegrated. But the growth rate of housing demand and the real price of housing are not cointegrated, implying no long-run relationship exists between the series. Such would be the case if the long-run housing supply curve were flat.

[13] Using Dickey-Fuller tests, Holland finds that the real price of housing and the growth rate of housing demand are nonstationary. Based on Granger and Newbold, nonstationarity suggests Mankiw and Weil's results may be spurious.

References

Barro, Robert J., and Chaipat Sahasakul. 1983. "Measuring the Average Marginal Tax Rate from the Individual Income Tax," *Journal of Business*, October.

Bureau of the Census. 1989. *Population Estimates and Projections*, U.S. Department of Commerce, Current Population Reports, Series P-25, no. 1018.

Carliner, Michael. 1991. "What Happened to Household Formations?" *Housing Economics*, National Association of Home Builders, February.

Case, Karl E. 1991. "The Real Estate Cycle and the Economy: Consequences of the Massachusetts Boom of 1984-87," Federal Reserve Bank of Boston, *New England Economic Review*, September/October.

DiPasquale, Denise, and William C. Wheaton. 1991. "Housing Market Dynamics and the Future of Housing Prices," Joint Center for Housing Studies, Harvard University, Working Paper W90-3, January.

Dornbusch, Rudiger, and Stanley Fischer. 1987. *Macroeconomics*, 4th ed. New York: McGraw-Hill.

Downs, Anthony. 1990. "What Will Happen to Home Prices in the 1990s?" Salomon Brothers, June.

DRI/McGraw-Hill. 1991. *Review of the U.S. Economy: Ten-Year Projections*, November.

Feldstein, Martin. 1982. "Inflation, Tax Rules and the Accumulation of Residential and Nonresidential Capital," *Scandinavian Journal of Economics*, no. 2.

Follain, James R., Jr. 1979. "The Price Elasticity of the Long-Run Supply of New Housing Construction," *Land Economics*, May.

Granger, C.W.J., and Paul Newbold. 1974. "Spurious

Regressions in Econometrics," *Journal of Econometrics*, July.

Holland, A. Steven. "The Baby Boom and the Housing Market: Another Look at the Evidence," *Regional Science and Urban Economics*, forthcoming.

Laing, Jonathan R. 1989. "Crumbling Castles: The Recession in Real Estate Has Ominous Implications," *Barron's*, December 18.

Mankiw, N. Gregory, and David N. Weil. 1989. "The Baby Boom, the Baby Bust, and the Housing Market," *Regional Science and Urban Economics*, May.

Miller, Glenn H., Jr. 1988. "Demographic Influences on Household Growth and Housing Activity," Federal Reserve Bank of Kansas City, *Economic Review*, September/October.

National Association of Home Builders. 1990. *Will Home Prices Collapse?*

National Association of Realtors. 1991. *Home Sales*, October.

Probyn, Christopher. 1991. "Slowing Down: The Trend Projection," *Review of the U.S. Economy: Long-Range Focus*, DRI/McGraw-Hill, Summer.

Summers, Lawrence H. 1981. "Inflation, the Stock Market, and Owner-Occupied Housing," *American Economic Review*, May.

Economic Review

First Quarter 1992, Vol. 77, No. 1

The *Economic Review* (ISSN0161-2387) is published quarterly 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.

Economic Review
Federal Reserve Bank of Kansas City
Kansas City, Missouri 64198-0001
First Quarter 1992, Vol. 77, No. 1