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Pieces of Eight

An Economic Perspective on the 8th District

THE FEDERAL RESERVE BANK of ST. LOUIS

THE EIGHTH FEDERAL RESERVE DISTRICT

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Pieces of Eight—An Economic Perspective on the 8th District is a quarterly summary of agricultural, banking and business conditions in the Eighth Federal Reserve District. Single subscriptions are available free of charge by writing: Research and Public Information Department, Federal Reserve Bank of St. Louis, Post Office Box 442, St. Louis, MO 63166. The views expressed are not necessarily official positions of the Federal Reserve System.

Bank Performance in 1989: The Pluses and Minuses

By Michelle A. Clark
Thomas A. Pollmann provided research assistance.

The 1989 performance of commercial banks in the Eighth Federal Reserve District, like that of their national counterparts, was marked by both positive and negative developments.[1] In contrast to U.S. banks of comparable size, District banks experienced an overall decline in profitability, but improvement in asset quality in 1989. A state-by-state analysis of the financial performance and condition of banks in Eighth District states is presented here.[2]

Statewide Performance

Arkansas

As table 1 indicates, Arkansas banks posted an average return on assets (ROA) of 1.02 percent and an average return on equity (ROE) of 11.89 percent in 1989.[3] Earnings totaled $196.06 million in 1989, up 12.7 percent from 1988 earnings of $173.98 million, and the largest increase of the District's seven states. The average net interest margin of 4.37 percent was down slightly from 1988, but was the highest margin in the District in 1989.

Profitability ratios rose in 1989 because of decreases in the net noninterest margin and the loan loss provision ratio. The net noninterest margin declined because of a decrease in noninterest expense (overhead), from 3.24 percent of assets in 1988 to 3.19 percent in 1989. The loan loss provision ratio continued to decline in 1989, and the year-end ratio of 0.33 percent was approximate-

Table 1
Earnings Analysis
United States and Eighth District States, 1987-89

	United States[1]	Eighth District	AR	IL	IN	KY	MS	MO	TN
Return on Assets									
1989	0.74%	0.88%	1.02%	0.86%	0.98%	1.01%	0.80%	0.88%	0.59%
1988	0.72	0.92	0.95	0.99	1.02	1.00	0.83	0.86	0.81
1987	0.54	0.80	0.91	−0.23	0.79	0.94	0.85	0.64	0.87
Return on Equity									
1989	10.25	11.26	11.89	13.60	12.75	12.65	9.87	11.64	8.13
1988	10.04	11.68	11.28	15.69	13.46	12.38	10.58	11.24	10.89
1987	7.54	10.24	10.96	−3.90	10.54	11.60	10.93	8.64	11.79
Net Interest Margin									
1989	4.44	4.13	4.37	3.64	4.19	4.09	4.24	4.12	4.34
1988	4.42	4.16	4.43	3.62	4.12	4.10	4.40	4.16	4.50
1987	4.48	4.27	4.70	3.61	4.22	4.12	4.70	4.29	4.71
Net Noninterest Margin									
1989	2.12	1.93	2.14	1.46	1.92	1.76	2.16	1.86	2.09
1988	2.17	1.99	2.19	1.54	1.92	1.87	2.19	1.96	2.07
1987	2.21	1.98	2.13	1.68	2.04	1.90	2.25	1.99	2.07
Loan Loss Provision									
1989	0.69	0.46	0.33	0.35	0.37	0.47	0.43	0.52	0.82
1988	0.59	0.38	0.40	0.27	0.34	0.43	0.41	0.48	0.62
1987	0.79	0.60	0.66	1.45	0.55	0.52	0.53	0.77	0.55

[1]Because all banks in the Eighth District have assets of less than $10 billion, this category includes only those banks in the United States with assets of less than $10 billion to allow for a meaningful comparison.

NOTE: State data are for whole state, not just the portion located within the Eighth District.

SOURCE: FFIEC Reports of Condition and Income for Insured Commercial Banks, 1987-1989

Table 2
Asset Quality and Capital Adequacy Analysis
United States and Eighth District States, 1987-89

	United States[1]	Eighth District	AR	IL	IN	KY	MS	MO	TN
Nonperforming Loans									
1989	2.20%	1.60%	1.90%	2.17%	1.41%	1.73%	1.42%	1.57%	1.82%
1988	2.10	1.62	2.10	2.40	1.19	1.53	1.48	1.67	1.41
1987	2.40	2.10	2.94	2.63	1.37	1.68	1.57	2.30	1.44
Net Loan Losses									
1989	0.83	0.67	0.56	1.37	0.60	0.65	0.69	0.70	1.03
1988	0.87	0.73	0.75	0.83	0.54	0.61	0.65	0.90	0.93
1987	0.89	0.70	1.24	0.73	0.66	0.64	0.84	0.73	0.60
Primary Capital									
1989	8.25	8.71	9.40	7.63	8.36	8.72	8.87	8.54	8.37
1988	8.12	8.72	9.21	8.03	8.29	8.78	8.61	8.60	8.35
1987	8.11	8.72	9.14	7.86	8.28	8.86	8.55	8.45	8.33

[1]Includes only U.S. banks with assets of less than $10 billion.

NOTE: State data are for whole state, not just the portion located within the Eighth District.

SOURCE: FFIEC Reports of Condition and Income for Insured Commercial Banks, 1987-1989

one-third its 1986 level. A decline in the ratio of nonperforming loans to total loans from 1988 to 1989 allowed banks to lower their loan loss provision ratios.

As table 2 illustrates, the nonperforming loan ratio of 1.90 percent in 1989, however, was still well above the District average of 1.60 percent; nonperforming real estate loans comprised almost 60 percent of total nonperforming loans at Arkansas banks compared with the 49 percent average for District and U.S. banks. The ratio of net loan losses to total loans fell by more than a quarter in 1989 to 0.56 percent, the lowest charge-off rate among District states.

For the third consecutive year, Arkansas banks registered the highest primary capital ratio of District states, averaging a ratio of 9.40 percent in 1989 compared with a District average of 8.71 percent. At year-end 1989, just three Arkansas banks failed to meet the minimum primary capital requirement of 5.5 percent.[4]

Illinois

After a substantial rebound in 1988, Illinois banks recorded lower profitability ratios in 1989: ROA of 0.86 percent and ROE of 13.60 percent, compared with 0.99 percent and 15.69 percent in 1988.[5] Despite the drop in profitability, Illinois banks still achieved the highest ROE of all District states.

Aggregate earnings fell 7.3 percent to $1.69 billion in 1989 primarily because of large additions to loan loss provisions by the state's largest banks, most of which are not located within the Eighth District. The loan loss provision ratio increased from 0.27 percent in 1988 to 0.35 percent in 1989, a ratio substantially lower than the 1.45 percent recorded in 1987 when the state's biggest banks set aside large sums to cover nonperforming foreign loans. Unlike the loan loss provision ratio, both the net interest margin and the net noninterest margin showed improvement over 1988. The net noninterest margin declined to 1.46 percent in 1989, as the state's banks were successful in lowering overhead.

Asset quality, as measured by the ratio of nonperforming loans to total loans, improved at Illinois banks in 1989 because of a large decline in the nonperforming loan ratio for the state's two largest banks. Nonperforming real estate loans as a percent of total nonperforming loans rose in 1989, but comprised little more than 21 percent of total nonperforming loans, less than half the District and national averages. The net loan loss ratio, however, rose more than 65 percent in 1989, primarily because the state's largest banks wrote off loans to lesser-developed countries (LDCs) that they had taken provisions for over the past several years. Foreign loan losses made up more than 56 percent of overall net loan losses in 1989.

For the third consecutive year, Illinois banks recorded the lowest average primary capital ratio of District states; the 1989 ratio of 7.63 percent was down from the 1988 ratio of 8.03 percent partially because of the large write-offs in 1989 that reduced the allowance for loan losses, a component of primary capital.

Indiana

Indiana banks earned $535.5 million in 1989, up 1.6 percent from 1988 earnings of $527.3 million. Aggregate profitability ratios were down from their 1988 levels, however, because asset and equity growth exceeded earnings growth. Indiana banks averaged ROA of 0.98 percent and ROE of 12.75 percent in 1989, ratios well above the District averages. The net interest margin rose 7 basis points as growth in interest income exceeded growth in interest expense. The net noninterest margin remained unchanged at 1.92 percent, a level identical to the District average. An increase in the loan loss provision from 0.34 percent of average assets in 1988 to 0.37 percent in 1989 dampened Indiana banks' aggregate earnings.

Overall asset quality deteriorated at Indiana banks in 1989 as both the average nonperforming loan ratio and the average charge-off ratio increased from 1988 levels. Nonperforming commercial and industrial loans made up the the largest share of total nonperforming loans at year-end 1989 at slightly more than 46 percent; nonperforming real estate loans rose to approximately one-third of total nonperforming loans in 1989. Indiana banks wrote off 60 cents for every $100 of loans on the books at year-end 1989 compared with 54 cents in 1988. Consumer loan losses comprised the highest share of net loan losses in 1989 at 43.5 percent.

Indiana banks on average were capitalized well above the minimum standards in 1989. The average primary capital ratio of 8.36 percent in 1989 was an improvement over the 1988 level, but was once again below the District average. Only two of Indiana's 310 reporting banks failed to meet the minimum primary capital ratio compared with one out of 336 reporting banks in 1988.

Kentucky

Kentucky's 335 reporting banks registered the second-largest increase in earnings of District states; earnings rose 9.1 percent in 1989 to $389.68 million. Kentucky banks also recorded the second-highest average ROA in 1989 at 1.01 percent and posted the third-best ROE at 12.65 percent. Despite the District's second-lowest net interest margin, Kentucky banks' earnings rose in 1989 because of a sharp drop in the net noninterest margin. The net noninterest margin of 1.76 percent was the second-lowest margin recorded among District states, and resulted from a rise in the noninterest income ratio and a fall in the noninterest expense ratio. A decline in asset quality prompted an increase in the loan loss provision, which rose from 0.43 percent of average assets in 1988 to 0.47 percent in 1989.

After two years of improvement, asset quality at Kentucky banks weakened in 1989. The nonperforming loan ratio increased more than 13 percent in 1989 to 1.73 percent. Nonperforming real estate loans to total nonperforming loans rose from 39.4 percent in 1988 to 42.9 percent in 1989, while the share of nonperforming commercial loans fell from 47.5 percent to 39.2 percent. Net loan losses increased from 0.61 percent of total loans in 1988 to 0.65 percent in 1989. Commercial loan losses once again made up the greatest share of net loan losses, followed by consumer losses and real estate losses. One Kentucky bank fell short of the minimum primary capital ratio in 1989.

Mississippi

Mississippi banks earned $158.46 million in 1989, up just 0.2 percent from 1988 earnings. Weak earnings growth coupled with relatively strong asset growth (5 percent) led to lower profitability ratios for Mississippi banks in 1989: 0.80 percent ROA and 9.87 percent ROE compared with ratios of 0.83 percent and 10.58 percent in 1988. A lower net interest margin and higher loan loss provision ratio accounted for the relatively flat earnings growth at Mississippi banks. Interest income as a percent of average earning assets rose 5.4 percent, but the interest expense ratio increased 12.7 percent, leading to the decline in the net interest margin. Although it fell slightly in 1989, Mississippi banks still recorded the highest net noninterest margin of all District states.

Asset quality continued to improve in 1989, as the nonperforming loan ratio fell for the third consecutive year. Nonperforming real estate loans made up slightly more than 46 percent of total nonperforming loans in 1989, but unlike District and national trends, the ratio declined from 1988 when it was more than 50 percent. Mississippi banks' charge-off rate increased to 0.69 percent in 1989. Commercial loan losses comprised the largest portion of net loan losses (45.5 percent), followed by consumer loan losses at 33.4 percent.

Mississippi banks improved their capital adequacy in 1989 and registered the second-highest average primary capital ratio among District states at year-end 1989, 8.87 percent, compared with 8.61 percent in 1988. All of Mississippi's 123 reporting banks met the minimum capital requirements in 1989.

Missouri

Missouri's banks increased their earnings 9 percent in 1989 to $500.67 million. Greater earnings growth than asset growth boosted ROA from 0.86 percent in 1988 to 0.88 percent in 1989, while ROE increased from 11.24 percent to 11.64 percent. The average net interest margin declined 4 basis points in 1989 while the net noninterest margin declined more than 5 percent from 1988,

because of a drop in the ratio of noninterest expense to average assets. The loan loss provision ratio edged above the District average to 0.52 percent in 1989.

Overall asset quality improved at Missouri banks in 1989 as both the nonperforming loan ratio and the net loan loss ratio declined. The nonperforming loan ratio of 1.57 percent at year-end 1989 was the lowest ratio recorded in three years. Nonperforming real estate loans increased from 38.5 percent of total nonperforming loans in 1988 to 55.8 percent in 1989, surpassing both District and national averages. Other nonperforming loans, which includes loans to foreign governments, declined from 12.6 percent of total nonperforming loans in 1988 to 4.1 percent in 1989 as Missouri banks continued to decrease their exposure to LDC debt. This decrease in exposure is also reflected in the net loan loss data; the ratio of foreign loan losses to net loan losses declined from 26.6 percent in 1988 to less than 1 percent in 1989. The ratio of real estate loan losses to net loan losses almost doubled from 1988 to 1989, and stood at 27 percent at year-end 1989.

Despite increased profits and improved asset quality, the average primary capital ratio for Missouri banks fell slightly in 1989 to 8.54 percent. Four Missouri banks failed to meet the minimum primary capital ratio in 1989.

Tennessee

Tennessee banks posted the sharpest decline in profitability among District states: earnings totaled $269.51 million in 1989, down 22.7 percent from 1988 earnings of $348.48 million. ROA and ROE declined more than 25 percent from their 1988 levels, and the 1989 averages of 0.59 percent and 8.13 percent were well below District and national averages. More than 10 percent of Tennessee's reporting banks recorded losses in 1989. The net interest margin, net noninterest margin and loan loss provision ratio all contributed to the decline in profitabil-ity ratios. The loan loss provision ratio increased by almost one-third to 0.82 percent in 1989, the highest ratio among District states by far.

Deteriorating asset quality was primarily responsible for Tennessee banks' poor performance in 1989. Both the nonperforming loan ratio and the net loan loss ratio increased substantially in 1989. Nonperforming real estate loans climbed from 39.9 percent of total nonperforming loans in 1988 to 55.8 percent in 1989, primarily due to the delinquent commercial real estate loans of one developer. Tennessee banks wrote off $1.03 for every $100 in outstanding loans in 1989. Although real estate loan losses to net loan losses increased in 1989, commercial loan losses still made more than half of net loan losses.

Equity growth surpassed by a small margin asset growth of 4.7 percent at Tennessee banks in 1989, accounting for the slight rise in the average primary capital ratio from 8.35 percent in 1988 to 8.37 percent in 1989. Eight Tennessee banks failed to meet the minimum primary capital ratio in 1989, up from two banks in 1988.

CONCLUSION

Commercial banks in most Eighth District states continued to outperform their national peers in 1989, with higher earnings ratios, better asset quality and higher capital ratios. Although ROA and ROE declined on average for District banks in 1989 while they rose for U.S. banks of comparable size, the ratios were still well above national averages. Despite lower net interest margins, District banks were able to generate higher profitability ratios than U.S. banks overall because of lower overhead and loan loss provision ratios.

Asset quality as measured by the nonperforming loan ratio generally improved at District banks in 1989. As with banks across the country, nonperforming real estate loans made up a greater share of total nonperforming loans at most District banks in 1989 than in 1988. Although the net loan loss ratio declined at the District level in 1989, it rose in all states except Arkansas and Missouri as banks wrote off loans they had taken provisions for in the current and previous years. Finally, all District banks had average primary capital ratios well above the minimum standard.

RATIO DEFINITIONS

Return on assets ratio (ROA): a bank's net income divided by its average annual assets.
Return on equity ratio (ROE): a bank's net income divided by its equity capital. Equity capital consists of common and perpetual preferred stock, surplus, undivided profits and capital reserves and cumulative foreign currency translation adjustments.
Net interest margin: the difference between interest income and interest expense divided by average earning assets. Interest income comprises the interest and fees earned from interest-earning assets, and includes such items as interest and points on loans, interest and dividends from securities holdings, and interest from assets held in trading accounts. Interest expense includes the interest paid on all categories of interest-bearing deposits, the expenses incurred in purchasing federal funds and selling securities under agreements to repurchase and interest paid on capital notes.
Net noninterest margin: noninterest income less noninterest expense (overhead), usually a negative value, divided by average assets. Noninterest expense is the sum of the costs incurred in the bank's day-to-day operations, which includes employee salaries and benefits, expenses of premises and fixed assets, as well as legal and directors' fees, insurance premiums and advertising and litigation costs. Noninterest income includes income from fiduciary (trust) activities, service charges on deposit accounts, trading gains (losses) from foreign exchange transactions, gains (losses) and fees from assets held in trading accounts, and charges and fees from miscellaneous activities like safe deposit rentals, bank draft and money order sales and mortgage servicing. The net noninterest margin is reported as a positive number, so smaller net noninterest margins indicate better bank performance.
Loan (and lease) loss provision ratio: the provision for loan and lease losses divided by average assets. The provision for loan and lease losses is an income statement account that reduces a bank's current earnings.
Nonperforming loan and lease loss ratio: loan and lease financing receivables that are 90 days or more past due or in nonaccrual status divided by average total loans. Restructured loans and leases that fall into the 90 days or more delinquent status or in nonaccrual status are included as well.
Net loan loss ratio (charge-off rate): loan losses (adjusted for recoveries) divided by total loans.
Primary capital ratio: primary capital divided by average adjusted assets (total assets less goodwill). Primary capital is the sum of common stock, perpetual preferred stock, surplus, undivided profits (retained earnings), contingency and other capital reserve, qualifying mandatory convertible instruments, loan and lease loss reserves, minority interests in consolidated subsidiaries, *less* intangible assets excluding purchased mortgage servicing rights. (For the purposes of this article, only the goodwill portion of intangible assets was deducted).

FOOTNOTES

[1]The Eighth Federal Reserve District comprises the following: Arkansas, entire state; Illinois, southern 44 counties; Indiana, southern 24 counties; Kentucky, western 64 counties; Mississippi, northern 39 counties; Missouri, eastern and southern 71 counties and the City of St. Louis; Tennessee, western 21 counties. State data presented in this article cover the whole state, not just the portion of the state located within the Eighth Federal Reserve District.

[2]A more detailed analysis of the financial performance and condition of U.S. and Eighth District banks in 1989 is provided in the May/June 1990 issue of the Federal Reserve Bank of St. Louis' *Review*.

[3]Refer to the shaded insert "Ratio Definitions" for a brief description of the ratios presented in this article.

[4]Since 1985, banks have been required by the regulatory agencies to maintain minimum standards of 5.5 percent primary capital-to-total assets and 6 percent total capital-to-total assets. By year-end 1990, these standards will be replaced by a new core capital-to-total assets ratio (leverage ratio) and capital ratios based on risk-adjusted assets, standards designed to adjust capital requirements to the risk of investment activity. Through 1990, banks have the option of meeting the primary capital/total capital standards, or the transition capital requirements effective December 31, 1990, of 7.25 percent qualifying capital-to-risk-adjusted assets, 3.625 percent core capital-to-risk-adjusted assets and 3 percent leverage ratio. By year-end 1992, all banks will be required to meet the 3 percent leverage ratio, an 8 percent capital-to-risk-adjusted assets ratio and a 4 percent core capital-to-risk-adjusted assets ratio.

[5]Some performance measures at Illinois banks are skewed by the results at the biggest Illinois banks, the eight banks with assets of $1 billion or more, none of which are in the Eighth District. For example, overall earnings were negative for Illinois banks in 1987 because of huge provisions the big banks took for loans to lesser-developed countries.

Eighth District Manufacturers Expand Exports

Thomas B. Mandelbaum
Thomas A. Pollmann provided research assistance.

International business activity has become increasingly important throughout the United States. This activity takes numerous forms involving virtually all types of trade and investment flows. State leaders have recognized this fact and have become more involved in attempting to influence these flows. According to the National Governors' Association, for example, governors from 41 states and territories made trips to 34 countries in 1989. These visits, which generally include a delegation of state government and business officials, are designed to increase exports and attract investment. The goal of this paper is not to assess the effectiveness of these efforts but rather to highlight the importance of one underlying reason for many of these business trips, the export of manufactured products.

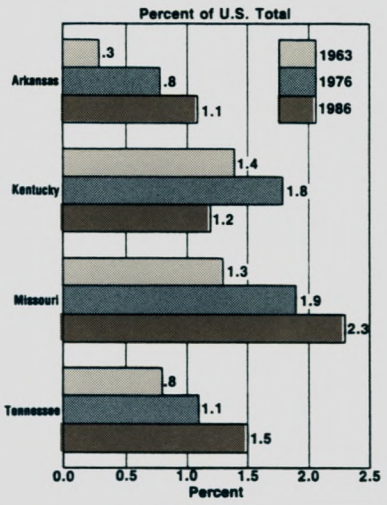
This article examines manufactured exports from the Eighth Federal Reserve District since 1963, with an emphasis on changes that took place between 1976 and 1986. District exports are first described in the context of the overall regional shift of U.S. export activity. A discussion of the economic significance of exports in the Eighth District and in District states and the composition of these exports follows.

The Regional Shift of Export Activity

Export activity involving manufactured products has played an important, and growing, role in the U.S. economy. In 1986, the value of direct manufactured exports totaled almost $160 billion, more than three times as much as in 1963, after adjusting for price changes.[1] The share of gross national product accounted for by these exports rose from 2.8 percent in 1963 to 4.3 percent in 1986.

Not all regions, however, have enjoyed the rapid growth of manufactured exports found at the national level. Export activity has shifted away from the so-called Rustbelt in recent decades, mirroring the general shift of manufacturing activity.

Figure 1
State Export Shares



The shares of U.S. manufactured direct exports from the Middle Atlantic Census Region declined from 21.3 percent in 1963 to 12 percent in 1986 while the East North Central Census Region's share declined from 29.9 percent to 23.3 percent.[2] The export shares of all other Census Regions have risen in that period, with the largest increase in the Pacific Region, which includes the three Pacific coast states, Hawaii and Alaska.

The Eighth District, which straddles several Census regions, experienced export growth slightly faster than the national average since 1963.[3] The District share of the U.S. total increased from 4.7 percent in 1963 to 5.6 percent in 1976 and 6.4 percent in 1986. The District's 1986 share was its largest for any year in the 1963-86 period. As figure 1 reveals, the District gain since 1963 has reflected relatively rapid growth in Arkansas, Missouri and Tennessee.

Real direct manufactured exports expanded rapidly between 1976 and 1980 in both the nation and the District. In subsequent years through 1986, however, these exports declined slowly in the nation and grew only weakly in the District. The lack of substantial export growth in the first half of the 1980s is partly attributed to the strengthening exchange value of the dollar, which tended to increase the price of U.S. exports in foreign markets. Other factors, such as sluggish economic growth abroad and rising levels of trade barriers, also hindered export growth.

No consistent state or regional export data is available after 1986.[4] At the national level, however, manufactured exports have grown rapidly in recent years. To the extent that the District share of U.S exports has been stable, or has continued to rise, District manufactured exports have also expanded.

Table 1
Employment Related to Manufactured Exports

	Export-Related Manufacturing Employment				Total Export-Related Employment, 1986	
	Level (thousands)		As a Percent of Mfg. Employment			
	1976	1986	1976	1986	Level (thousands)	As a Percent of Total Employment
United States	2125.4	2318.2	11.3%	12.6%	4576.6	4.1%
Eighth District	119.2	128.4	8.7	9.8	260.7	3.7
Arkansas	14.7	17.8	7.8	9.2	35.9	3.5
Kentucky	25.6	24.4	9.2	10.3	52.8	3.4
Missouri	40.7	44.0	9.6	10.8	89.4	3.7
Tennessee	38.2	42.2	8.0	9.0	82.6	3.8

SOURCE: U.S. Bureau of the Census. *1977 Census of Manufactures,* and *Exports from Manufacturing Establishments: 1985 and 1986.*

How Export-Dependent is the District Economy?

Despite relatively rapid growth to more than $10 billion in 1986, District exports accounted for a slightly smaller share of District economic activity than did exports at the national level. The value of District direct exports in both 1976 and 1986 accounted for approximately 6 percent of total manufacturing shipments compared with about 7 percent nationally. In 1986, Missouri, with 7.3 percent, was the only District state in which exports as a percentage of shipments exceeded the national average.

Employment data, shown in table 1, tell a similar story. Export-related manufacturing employment accounted for less than 10 percent of manufacturing employment in 1976 and 1986 compared with more than 11 percent nationally. The number of District manufacturing workers dependent on exports rose from approximately 119,000 in 1976, or 8.7 percent of manufacturing employment, to 128,000 in 1986, or 9.8 percent of manufacturing employment. Export-related manufacturing employment includes not only workers producing goods for export, but also workers in factories or manufacturers' administrative offices furnishing intermediate material inputs or services to the exporting plants. These supporting workers account for more than half of all export-related manufacturing employment in both the District and the nation.

The total number of workers dependent on manufacturing, however, goes beyond those in the manufacturing sector. Nonmanufacturing workers who supply services to export producers as well as workers in wholesale/retail trade, mining and transportation, communication and utilities firms who facilitate the production and shipping of exports are also dependent on manufactured exports. Including both manufacturing and nonmanufacturing workers, more than 260,000 District workers, or 3.7 percent of all civilian workers, held jobs related to exports in 1986. As table 1 shows, the corresponding national percentage of 4.1 percent was slightly higher.

Which District Industries Export?

Table 2 provides a more detailed picture of the value of direct export shipments in 1986. It is clear that the composition of state and District exports, shown in the first column for each area, differs substantially from the national average. The most significant differences include the District's relatively higher export concentration in transportation equipment, chemicals and food and kindred products and its smaller concentration in nonelectrical machinery and electrical equipment.

The second column for each area in table 2 indicates export orientation, that is, the percent of each industry's total shipments that was exported. Wide variation in export orientation is evident among District industries, ranging from 0.3 percent for printing and publishing—indicating it produces almost exclusively for the domestic market—to 10.6 percent for the transportation equipment sector.

Whereas transportation equipment was the leading export industry in both the District and the nation, the District share was much larger. The industry's $3.7 billion in direct exports accounted for more than a third of all District direct exports in 1986. This large share primarily stems from Missouri's export of motor vehicle- and aircraft-related products. Of Missouri's $4.3 billion total direct exports in 1986, more than two-thirds originated in this sector. The rapid growth since 1976 of transportation equipment exports from Missouri

Table 2
Composition of Direct Exports and Industry Export Orientation, 1986.

	ARKANSAS		KENTUCKY		MISSOURI		TENNESSEE		EIGHTH DISTRICT		UNITED STATES	
	Percent of Total Exports	Export Orientation[1]	Percent of Total Exports	Export Orientation[1]	Percent of Total Exports	Export Orientation[1]	Percent of Total Exports	Export Orientation[1]	Percent of Total Exports	Export Orientation[1]	Percent of Total Exports	Export Orientation[1]
Manufacturing		4.8%		5.2%		7.3%		5.5%		6.0%		7.1%
Food and kindred products	4.0%	7.1	14.6%	7.0	4.4%	2.1	9.9%	3.5	11.0%	4.2	7.0%	3.6
Tobacco products	NA	NA	2.4	2.5	NA	NA	3.7	22.7	1.5	6.6	1.3	10.6
Textile mill products	0.7	3.6	0.9	3.6	0.0	1.7	0.8	1.4	0.5	2.1	1.1	3.2
Apparel and textile	0.6	2.0	0.8	1.8	0.4	2.3	1.6	2.0	0.8	2.0	0.9	2.4
Lumber and wood products	3.0	2.3	0.5	2.2	0.1	0.9	0.6	1.9	0.6	2.0	1.7	4.6
Furniture and fixtures	0.2	0.4	0.1	1.1	0.2	1.4	1.0	1.9	0.4	1.5	0.3	1.5
Paper and allied	7.7	4.1	4.9	9.1	0.3	0.6	1.7	1.8	2.4	3.1	2.5	4.1
Printing and publishing	NA	NA	NA	NA	0.3	0.5	0.3	0.4	0.2	0.3	0.8	1.1
Chemicals and allied	15.2	16.2	17.8	8.8	7.5	6.6	31.2	12.3	17.0	10.1	13.2	10.6
Petroleum and coal	2.2	4.3	NA	NA	0.5	5.2	0.3	1.4	0.5	3.4	2.0	2.5
Rubber and plastic	3.5	3.4	2.4	3.7	1.3	4.6	2.3	2.6	2.0	3.4	1.9	4.0
Leather products	0.5	2.5	NA	NA	0.5	3.4	0.5	3.1	0.4	3.2	0.4	7.2
Stone, clay, glass	0.2	0.6	1.6	5.3	0.9	3.5	3.4	6.3	1.7	4.7	1.0	2.7
Primary metals	1.1	1.2	2.6	2.0	1.2	3.5	2.6	3.5	1.9	2.6	2.1	3.2
Fabricated metals	4.5	2.8	1.7	1.6	2.5	3.1	2.8	2.8	2.6	2.7	3.3	3.8
Nonelectrical machinery	7.9	5.3	17.0	9.1	5.3	9.4	15.6	10.3	10.7	9.1	20.4	15.6
Electrical equipment	9.8	3.8	6.2	3.6	6.2	7.0	7.8	4.8	7.0	4.9	11.4	9.2
Transportation equipment	4.8	5.5	22.5	6.4	67.2	12.7	10.3	6.8	35.9	10.6	22.6	11.5
Instruments	2.6	7.8	1.0	7.6	1.0	9.4	2.5	12.5	1.6	9.9	5.3	13.8
Miscellaneous	0.8	4.1	Z	NA	0.2	2.3	1.0	3.6	0.4	3.4	1.0	6.1

SOURCE: Figures were computed from data in U.S. Bureau of the Census. *Exports from Manufacturing Establishments* (January 1989).

NOTE: NA indicates that data are not available. Z indicates less than .05 percent.

[1]Percent of each industry's total shipments that were exported.

contributed heavily to the state's, as well as to the District's, faster-than-national export growth. Almost 13 percent of transportation equipment shipments produced in Missouri were exported in 1986, making the industry the state's most export-oriented. In addition to those from Missouri, exports of transportation equipment from Kentucky and Tennessee, including trucks and motor vehicle parts, also were substantial in 1986.

Exports of chemicals and allied products accounted for 17 percent of District exports and was the region's second-largest export industry in 1986. While chemical exports from all four states were considerable, more than half of District chemical exports emanated from Tennessee. The $908 million in chemical-related exports from Tennessee accounted for almost a third of the state's $2.9 billion in direct exports. More than 40 Tennessee firms are involved in exporting chemicals and allied products. They export a wide variety of products, including pharmaceutical, industrial, organic and agricultural chemicals. The rapid expansion of chemical-related exports in Tennessee since 1976 were partially responsible for the state's relatively rapid export growth.

Reflecting the District's sizable agricultural sector, exports from the food and kindred products industry are relatively larger than at the national level. Poultry products from Arkansas and liquor from Kentucky are among the primary processed food products being exported.

On the other hand, exports from the nonelectrical machinery sector, which includes many major capital goods, accounted for a substantially smaller proportion of District exports than in the nation. Nonelectrical machinery production plays a smaller role in the region's manufacturing sector and is less export-oriented than at the U.S. level. None of the products that dominate U.S. nonelectrical machinery exports, such as computers and construction equipment, are produced extensively in the region.

The importance of exporting to District state economies goes beyond the number of jobs exports generate. Reflecting its abundance of skilled labor relative to the rest of the world, the United States tends to export goods that require skilled labor. Wages, which are related to skill, tend to be higher in those U.S. industries that are more export-oriented. Such an association was also found for each District state.[5] Some of the highest wage rates, for instance, were earned in the states' transportation equipment and chemicals industries, which were among the most export-oriented.

Conclusion

Several developments suggest exports will continue to be a major source of economic activity for District states; however, the future course of exports remain uncertain. The U.S.-Canada Free Trade Agreement, recent Japanese commitments to remove trade barriers and the development of market economies in Eastern Bloc nations may provide enhanced opportunities for exporting. The economic integration of Europe after 1992 will most likely aid exporters by creating a more uniform and more rapidly growing market. Competition for sales to this market from nations in Europe and elsewhere in the world, however, is expected to intensify. It is also likely that some U.S. manufacturers will shift operations to Europe, making the net impact of the European integration on U.S. exports uncertain at this time. Finally the soon-to-be-completed Uruguay Round of General Agreement on Tariffs and Trade (GATT) negotiations should produce a more open international trading environment.

Even if U.S. manufactured exports continue to expand, some regions may not share in this growth. Between 1976 and 1986, real direct exports rose by almost 25 percent nationally but declined in the Middle Atlantic and East North Central regions. The District share of U.S. exports rose slightly during this period, as exports from some of its leading industries, particularly transportation equipment, chemicals and food processing, captured larger shares of the U.S. total. In light of the past importance of skilled labor for U.S. exports, states that are able to attract, develop and retain skilled labor are likely to fare relatively better in the 1990s.

FOOTNOTES

[1]Direct export data represent the value of export shipments. Data are from the Bureau of the Census' *Census of Manufactures*, 1963 and 1977 and *Exports from Manufacturing Establishments: 1985 and 1986 (January 1989)*.

[2]The Middle Atlantic Census Region comprises New York, New Jersey and Pennsylvania. The East North Central Region includes Ohio, Indiana, Illinois, Michigan and Wisconsin.

[3]Arkansas, Kentucky, Missouri and Tennessee, whose economies account for the bulk of Eighth District economic activity, are used to represent the District.

[4]A relatively new source of data, the "Origin of Movement of U.S. Exports by State" shown in the FT900 report published by the U.S. Census Bureau's Foreign Trade Division, provides insights into manufactured export activity beginning in 1987. See Tim R. Smith, "Regional Export Growth: Lessons from the State-Level Foreign Trade Data," *Regional Science Perspectives*, (1990), pp. 21-38, for discussions using this series and some of its limitations.

[5]Correlations between an industry's 1986 average hourly earnings and its export orientation in 1986 were .49, .28, .51 and .40 for Arkansas, Kentucky, Missouri and Tennessee, respectively.

Potential Pitfalls of Interpreting Farm Income Data

By Jeffrey D. Karrenbrock
David Kelly provided research assistance.

Accurate information is a key element in any decision-making process. Many businesses and policy makers in the Eighth Federal Reserve District and in the United States depend on accurate farm income data. Farm equipment dealers use farm income data to estimate potential demand for their products. Banks use farm income data to help determine clients' ability to repay loans. Policy makers compare farm income to non-farm income to see if current government programs are helping to maintain farm incomes at a "reasonable" level.

The usefulness of farm income data is complicated, however, by the existence of various farm income measures. This article highlights the differences in series designed to measure farm income and, in the process, stresses why these series are not always interchangeable for decision making.[1] Much of the discussion is couched in terms of the potential pitfalls in comparing farm income to non-farm income, but readers interested solely in analyzing farm income also will find the discussion useful.

Farm Income vs. Non-Farm Income

The Department of Commerce calculates personal income in the National Income and Product Accounts (NIPA) for both the farm and non-farm sectors. Personal income is equal to nonfarm personal income plus farm personal income. Personal income is the income received by households from all sources, including wages and salaries, interest and dividend payments, and transfer payments, such as social security payments. The farm personal income estimate includes farm proprietors' income, wages and salaries of farm labor, other labor income, such as employer's contributions to health insurance, and net interest.

Farm proprietors' income, the largest component of farm personal income, is estimated in the NIPA by adjusting the U.S. Department of Agriculture's (USDA) net farm income estimate. This adjustment is necessary because the method of capital consumption allowance (that is, depreciation) used by the USDA differs from that used in the NIPA. The relationship between NIPA's farm proprietors' income and USDA's net farm income, along with the relationship between farm proprietors' income and other income series discussed in this paper, is shown in table 1. In short, the bulk of NIPA's farm personal income estimate depends on USDA's net farm income estimate. Therefore, any problem associated with the USDA's net farm income estimate will influence NIPA's farm personal income estimate.

Real per capita personal income for the farm and non-farm U.S. population is shown in figure 1. Clearly, per capita farm personal income has fallen short of per capita non-farm personal income every year except 1972. On average, between 1960 and 1988, per capita farm income has been 69 percent of per capita non-farm income. The difference between the two figures, however, has changed over the years. During the 1960s, per capita farm income was about 57 percent of per capita non-farm income, while in the 1970s this figure jumped to 77 percent. The figure has since fallen to about 73 percent during the 1980s.

One shortcoming of using farm personal income estimates for this comparison can arise if users assume that the farm personal income figures represent the return to only farm labor and management. Recall that USDA's net farm income estimate is a key component of the farm personal income estimate. In the USDA's net farm income figure, land rental expense and interest on real estate debt are included as expenditures. However, if a farmer owns his/her land, no imputed expense is deducted from gross receipts to account for the opportunity cost of using the land. This implies that part of net farm income represents a return to land as a factor of production and not returns solely to labor and management. Thus, personal farm income overstates the return to labor and management and ideally should be adjusted to account for the opportunity cost of using owned land.

The Role of Off-Farm Income

The farm personal income figures discussed above include only income earned from farming operations and not any income earned by farm household members not working on the farm. For example, the income earned by a farmer's spouse working at the local bank would not be included in the farm income figures, even though the spouse is considered as part of the farm population. The most important part of off-farm income is wages and salaries, but interest, dividends, pensions, retirement, transfer payments and non-farm business or professional income are also included.

Table 1
Farm Income Data - Basic Accounting Relationships

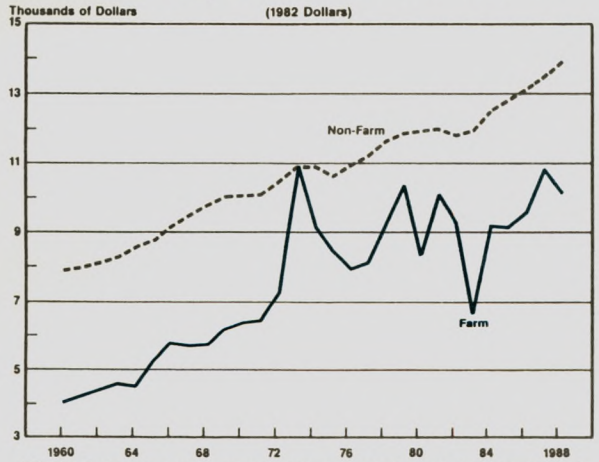
Net Farm Income (USDA)
- Plus: Depreciation and other consumption of farm capital (USDA)
  Monetary interest received by farm corporations
- Less: Capital consumption allowances with consumption adjustments (NIPA)
  Other
- Equals: **Farm Proprietor's Income**[1] (NIPA)

Farm Proprietor's Income (NIPA)
- Plus: Farm component of wages and salaries (NIPA)
  Farm component of other labor income (NIPA)
  Farm component of net interest income (NIPA)
- Equals: **Farm Personal Income (NIPA)**

Farm Personal Income (NIPA)
- Plus: **Off-Farm Income (USDA)**
- Equals: **Total Farm Income**

[1]The complete title of this account is "Farm Proprietors' Income and Corporate Profits with Inventory and Capital Consumption Allowances." Only the non-corporate portion of the account was used in this study.

Figure 1
Real Per Capita Personal Income



SOURCE: Derived from data provided in the *Economic Report of the President*, February 1990, and *Agricultural Statistics* (USDA), various years.

When comparing the income situation of the farm population to the non-farm population, it is inaccurate to assume that the farm population derives its income solely from the farm sector. Off-farm income has become an important part of farm households' total income and its omission clearly puts a downward bias on the per capita farm income estimate. In 1960, off-farm income accounted for about 35 percent of total farm income. Since 1970, that number has held relatively constant at around 45 percent.

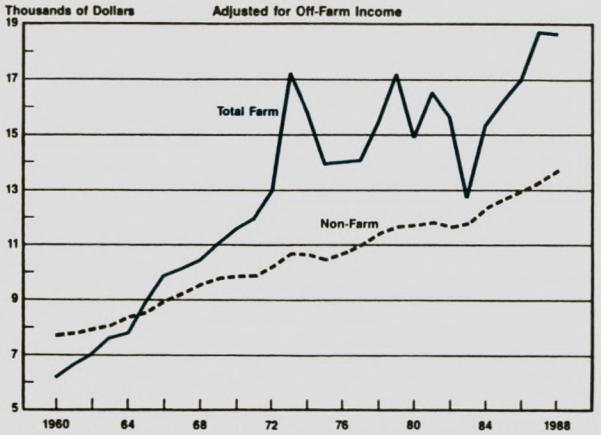
Estimates of per capita total farm income and non-farm income are shown in figure 2. These new income series were calculated by switching off-farm income, as estimated by USDA, from non-farm personal income to farm personal income. While per capita total farm income was below non-farm income during the early 1960s, per capita total farm income has been higher, as well as more variable, than per capita non-farm income since 1965. In fact, since 1965 per capita total farm income has averaged about 28 percent higher than per capita non-farm income. Even after subtracting direct government payments to farmers from total farm income, per capita farm income has been higher than per capita non-farm income since 1970, falling below only in 1983.

The preceding comparison, however, of per capita total farm income with non-farm income is not ideal. The off-farm income component of total farm income understates the true return to the farm population's labor and management skills. The off-farm income figures only represent off-farm income of the farm's principal operator's family. Say, for example, that a farm is operated by a father and his son, who does not live with his father and has a family of his own. If the father is the principal operator of the farm, then only off-farm income of his spouse and children living at home are included in off-farm income. Off-farm income of the son's family is not included in USDA's off-farm income estimate.

Since off-farm income is a component of total farm income, this understatement of off-farm income causes the income position of the farm population to be understated as well. On the other hand, total farm income also includes net farm income, which overstates the return to labor and manage-

Figure 2

Real Per Capita Income



SOURCE: Derived from data provided in the *Economic Report of the President*, February 1990, and various USDA publications.

ment. Thus, within total farm income, two components exist that may cause problems, one overstating and the other understating the returns to farm labor and management.

Per Capita Income vs. Household Income

The two measures of income discussed above were given in terms of average per capita income. Per capita income figures were calculated by dividing the respective income figure by the total farm or non-farm population. Some analysts, however, prefer to use average family or household income statistics as they are readily available for a wide variety of household descriptions. Research has shown that the average farm household's total income far surpassed the average income of all U.S. households during the early 1970s.[2] Farm household income fell below the U.S. average income during the late 1970s and early 1980s, but has surpassed the U.S. average level again in the late 1980s. Indeed, in 1988, the average U.S. farm household income was more than 20 percent greater than the average income of American households.

While household income measures provide an alternative means for analyzing income levels, they too have shortcomings. First, the household income figures say nothing about the average family size of the different groups being compared. Second, these household income figures are based on surveys and the accuracy of the income estimates is only as accurate as the numbers reported. The Census Bureau has noted that people tend to underreport government transfer payments, such as welfare and food stamp values. Thus, these average household income values may underestimate the true level of income for both farm and non-farm families and differences in the degree of underreporting could make any relative comparisons of income inaccurate.

Commercial Farmers vs. Part-Time Farmers

The preceding farm sector income figures are based on a very broad definition of the farm sector, where a farm is defined to be any rural place selling $1,000 or more in agricultural commodities per year. Anyone living on such an establishment is considered part of the farm population. Many of these farms could more accurately be described as part-time farms. Agricultural commodity sales of $1,000 could be achieved by raising and selling two butcher steers or growing and selling 10 acres of corn. Neither of these enterprises would be a full-time job.

Specific income characteristics of farms by commodity sales category are shown in table 2. The figures reveal that the $40,000 sales level marks a distinct difference in farm characteristics. For example, there is a sharp decline in the percent of total sales accounted for by farms with sales less than $40,000. Although these small farms account for 68 percent of all farms, they only account for about 10 percent of farm commodity receipts. Furthermore, these smaller farm operators rely substantially more on off-farm income than on farm income and work fewer hours per week than do the large farm operators. Farms with sales below $40,000 could perhaps be more accurately classified as part-time farms, while those farms with sales over $40,000 could be considered commercial farms.

Referring to table 2 again, the average net farm income of commercial farms, using USDA's net farm income series, in 1988 ranged from $15,155 to $200,766. The average net farm income of part-time farms ranged from $4,065 to $5,717. When off-farm income is added to net farm income, the total income of commercial farm households rises to a range of $34,684 to $229,757 and part-time farm household income rises to a range of $31,910 to $46,934.

These income figures by sales category reveal that when analyzing the income situation of the farm sector, it is important to specify whether or not those people who rely almost solely on farming for their income are being discussed or if anyone, however minutely involved in agriculture, is included. If the average income of all farms is being used to make a decision, then it is important to

Table 2
January 1, 1989, Financial Characteristics of U.S. Farms by Sales Category

	All Farms	$500,000 +	$250,000-$499,999	$100,000-$249,999	$40,000-$99,999	$20,000-$39,999	$10,000-$19,999	$9,999 or Less
Average Per Farm								
Government Payments	5,113	35,455	26,481	15,942	7,038	2,833	1,065	155
Net Farm Income	15,534	200,766	61,196	34,093	15,155	4,619	5,717	4,065
Off-Farm Income	28,895	28,991	19,993	20,580	19,529	27,291	41,217	31,869
TOTAL INCOME	44,429	229,757	81,189	54,673	34,684	31,910	46,934	35,934
Hours worked per week[1]	32	59	59	55	49	35	28	17
Percent of U.S.[2]								
Farms	100	2.0	4.0	11.7	14.0	11.0	11.9	45.4
Livestock Sales	100	33.1	17.7	25.1	13.6	4.4	2.9	2.9
Crop Sales	100	31.8	20.8	26.7	12.8	4.2	1.8	1.5
Government Payments	100	13.6	20.6	36.4	19.3	6.0	2.4	1.3

[1]Farm operator average.

[2]Numbers may not add to 100 due to rounding.

SOURCE: Derived from data taken from *Financial Characteristics of U.S. Farms, January 1, 1989.* Economic Research Service, USDA. Agriculture Information Bulletin No. 579.

realize that this figure is well below the average income of those farms that produce the majority of U.S. agricultural output. Many large farm operations that rely mainly on farm income, have total income levels that are substantially higher than the average American household.

The question that remains unanswered, however, is: What is the per capita income of these large farm operations? Unfortunately, farm population estimates by sales category size are not available. It is common, however, for large farms to support two or three generations of a family and the number of people depending on income from these commercial farms could be large. Thus, even though the overall profit level from these commercial farms is generally relatively large, whether or not the per capita income levels provided from these farms is larger than non-farm per capita income is uncertain.

Conclusion

The ideal definition of farm income depends on the intended use of the information. This article has pointed out that farm income data users should scrutinize the components of farm income estimates before using them. Many farm income statistics have shortcomings of which users should be aware. For example, the USDA's net farm income estimate includes returns to some land, labor and management and includes returns from farm operations that could be classified as part-time farms. The USDA's off-farm income estimate is only for the principal operator's family and may exclude a significant amount of income earned by a second family also depending on the farm for part of their income. When comparing household or family income levels, users should remember that no distinction is made between the average family size of the different groups. Similarly, when discussing the income levels of large and small farms, users should not assume a one-family-to-one-farm relationship holds for all sales categories.

FOOTNOTES

[1]This article does not discuss all of the income series available. The USDA estimates several other income series that address some of the problems mentioned in the text. See the USDA's *Economic Indicators of the Farm Sector: National Financial Summary.*

[2]Kalbacher, Judith Z. and Nora L. Brooks. "Farmers Are Part of American Mainstream," *Choices*, First Quarter 1990. The American Agricultural Economics Association.

Statistics

Eighth District Business

	Level	Compounded Annual Rates of Change			
	I/1990	IV/1989-I/1990	I/1989-I/1990	1989[1]	1988[1]
Payroll Employment (thousands)					
United States	110,214.0	3.0%	2.4%	2.8%	3.3%
District	6,904.0	4.3	2.6	2.9	3.5
Arkansas	910.8	4.8	3.1	3.0	3.5
Little Rock	250.0	5.1	3.0	3.0	3.5
Kentucky	1,471.3	6.7	3.7	3.8	4.1
Louisville	482.0	4.1	4.0	4.1	3.1
Missouri	2,333.3	2.8	1.5	2.2	2.8
St. Louis	1,189.7	2.5	1.7	2.3	2.3
Tennessee	2,188.6	4.0	2.6	3.0	4.0
Memphis	466.6	3.3	1.9	1.5	7.3
Manufacturing Employment (thousands)					
United States	19,409.7	−2.1%	−1.3%	1.1%	2.0%
District	1,479.4	0.9	0.4	2.0	3.2
Arkansas	230.5	2.8	0.0	1.6	3.1
Kentucky	284.2	−1.1	0.7	3.6	4.5
Missouri	437.0	0.0	−0.6	1.2	2.3
Tennessee	527.7	2.0	1.3	1.8	3.4
District Nonmanufacturing Employment (thousands)					
Mining	49.8	5.0%	−0.2%	−4.8%	−5.3%
Construction	307.2	12.2	−5.6	1.0	0.3
FIRE[2]	339.9	1.5	0.7	0.3	0.5
Transportation[3]	398.9	1.2	1.5	3.5	4.3
Services	1,550.6	5.5	4.4	5.1	6.3
Trades	1,662.0	6.2	2.6	3.0	3.7
Government	1,120.1	4.8	3.1	2.2	2.4
	IV/1989	III/1989-IV/1989	IV/1988-IV/1989	1989[1]	1988[1]
Real Personal Income[4] (billions)					
United States	$3,554.1	4.3%	2.6%	2.7%	3.4%
District	194.9	3.4	2.0	2.2	2.8
Arkansas	25.1	4.9	1.2	2.0	2.9
Kentucky	41.6	2.9	2.5	2.5	2.8
Missouri	69.0	4.8	2.1	1.9	2.1
Tennessee	59.2	1.4	2.1	2.4	3.6
		Levels			
	I/1990	IV/1989	1989	1988	1987
Unemployment Rate					
United States	5.2%	5.3%	5.3%	5.5%	6.2%
District	5.7	5.7	5.8	6.5	7.2
Arkansas	6.4	7.0	7.2	7.7	8.1
Little Rock	5.5	6.1	6.3	6.4	7.1
Kentucky	6.0	5.7	6.2	7.9	8.8
Louisville	5.4	5.2	5.6	6.3	6.9
Missouri	5.8	5.6	5.5	5.7	6.3
St. Louis	5.9	5.7	5.5	5.9	6.5
Tennessee	5.1	5.2	5.1	5.8	6.6
Memphis	4.4	4.6	4.7	5.2	5.7

Note: All data are seasonally adjusted. On this page only, the sum of data from Arkansas, Kentucky, Missouri and Tennessee is used to represent the District.

[1]Figures are simple rates of change comparing year-to-year data.
[2]Finance, Insurance and Real Estate
[3]Transportation, Communications and Public Utilities
[4]Annual rate. Data deflated by CPI-U, 1982-84 = 100.

U. S. Prices

	Level	Compounded Annual Rates of Change			
	I/1990	IV/1989-I/1990	I/1989-I/1990	1989[1]	1988[1]
Consumer Price Index (1982-84=100)					
Nonfood	127.7	7.5%	4.9%	4.7%	4.0%
Food	131.0	11.8	6.7	5.8	4.1
Prices Received by Farmers (1977=100)					
All Products	152.0	14.3%	1.5%	7.0%	8.8%
Livestock	170.7	12.6	7.4	6.6	2.7
Crops	132.3	15.2	-5.3	7.4	18.3
Prices Paid by Farmers (1977=100)					
Production items	168.0	7.5%	2.4%	5.3%	6.9%
Other items[2]	181.0	6.9	3.4	4.4	4.4

Note: Data not seasonally adjusted except for Consumer Price Index.

[1]Figures are simple rates of change comparing year-to-year data.

[2]Other items include farmers' costs for commodities, services, interest, wages and taxes.

Eighth District Banking

Changes in Financial Position for the year ending December 31, 1989 *(by Asset Size)*

	Less than $100 million	$100 million - $300 million	$300 million - $1 billion	More than $1 billion
SELECTED ASSETS				
Securities	-5.9%	8.6%	2.8%	18.8%
U.S. Treasury & agency securities	-4.4	11.5	7.7	30.0
Other securities	-10.5	-30.2	-35.8	-36.2
Loans & Leases	-1.5	11.5	10.9	9.7
Real estate	0.2	13.1	22.6	20.8
Commercial[1]	-23.6	3.0	7.9	2.1
Consumer	-0.4	11.9	2.1	9.2
Agriculture	2.8	31.3	24.2	-18.1
Loan loss reserve	-2.9	16.3	18.3	25.4
Total Assets	-2.3	11.9	8.6	7.9
SELECTED LIABILITIES				
Deposits	-2.4%	12.4%	8.0%	5.9%
Nontransaction accounts	-1.0	14.4	10.3	10.9
MMDAs	-18.5	-2.1	2.3	19.5
$100,000 CDs	4.5	13.4	2.4	-4.2
Demand deposits	-7.6	6.2	-0.4	-5.3
Other transaction accounts[2]	-4.8	8.5	8.4	1.5
Total Liabilities	-2.5	11.9	8.4	8.0
Total Equity Capital	-0.9	12.0	11.1	25.3

Note: All figures are simple rates of change comparing year-to-year data. Data are not seasonally adjusted.

[1]Includes banker's acceptances and nonfinancial commercial paper

[2]Includes NOW, ATS and telephone and preauthorized transfers

Performance Ratios *(by Asset Size)*

	Eighth District			United States		
	IV/89	IV/88	IV/87	IV/89	IV/88	IV/87
EARNINGS AND RETURNS						
Annualized Return on Average Assets						
Less than $100 million	1.00%	.96%	.88%	.75%	.64%	.50%
$100 million - $300 million	1.01	.97	.95	.91	.78	.73
$300 million - $1 billion	1.02	.99	1.07	.80	.67	.49
$1 billion - $10 billion	.60	.82	.51	.65	.75	.50
More than $10 billion	—	—	—	.06	.95	−.67
Agricultural banks	1.10	1.05	.73	1.03	.91	.65
Annualized Return on Average Equity						
Less than $100 million	10.96%	10.65%	9.94%	8.24%	7.20%	5.79%
$100 million - $300 million	12.54	11.99	11.80	11.43	9.94	9.52
$300 million - $1 billion	13.05	12.75	13.68	11.16	9.64	7.01
$1 billion - $10 billion	9.34	12.46	7.96	10.25	11.78	8.01
More than $10 billion	—	—	—	1.37	18.96	−15.40
Agricultural banks	11.26	11.07	7.82	10.64	9.64	7.13
Net Interest Margin[1]						
Less than $100 million	3.92%	3.89%	3.95%	4.17%	4.14%	4.24%
$100 million - $300 million	3.93	3.87	3.95	4.34	4.23	4.18
$300 million - $1 billion	4.02	3.90	3.96	4.29	4.17	4.15
$1 billion - $10 billion	3.56	3.66	3.64	4.07	4.04	3.96
More than $10 billion	—	—	—	3.37	3.63	3.35
Agricultural banks	3.81	3.79	3.80	4.02	3.99	3.95
ASSET QUALITY[2]						
Nonperforming Loans[3]						
Less than $100 million	1.55%	1.68%	2.05%	1.96%	2.21%	2.62%
$100 million - $300 million	1.64	1.63	1.90	1.98	1.94	2.18
$300 million - $1 billion	1.40	1.28	1.50	2.29	2.26	2.39
$1 billion - $10 billion	1.67	1.67	2.47	2.23	2.08	2.40
More than $10 billion	—	—	—	4.66	4.59	5.42
Agricultural banks	1.65	1.93	2.52	2.00	2.33	3.16
Loan Loss Reserves						
Less than $100 million	1.44%	1.46%	1.47%	1.55%	1.59%	1.65%
$100 million - $300 million	1.43	1.36	1.32	1.49	1.47	1.52
$300 million - $1 billion	1.42	1.35	1.29	1.60	1.62	1.75
$1 billion - $10 billion	1.64	1.60	2.18	1.93	1.74	1.93
More than $10 billion	—	—	—	4.07	3.75	4.39
Agricultural banks	1.68	1.84	1.83	1.99	2.05	2.12
Net Loan Losses[4]						
Less than $100 million	.43%	.50%	.74%	.66%	.79%	1.09%
$100 million - $300 million	.52	.50	.65	.61	.66	.79
$300 million - $1 billion	.51	.43	.71	.76	.79	.94
$1 billion - $10 billion	1.03	1.20	.69	.94	.96	.84
More than $10 billion	—	—	—	1.58	1.10	.90
Agricultural banks	.42	.48	1.16	.56	.75	1.35

Note: Agricultural banks are defined as those with 25 percent or more of their total loan portfolio in agriculture loans.

[1]Interest income less interest expense as a percent of average earning assets
[2]Asset quality ratios are calculated as a percent of total loans.
[3]Nonperforming loans include loans past due more than 89 days, nonaccrual, and restructured loans.
[4]Loan losses are adjusted for recoveries.