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# Business

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## AN EIGHTH DISTRICT PERSPECTIVE

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### Gross State Product Series Provides New Perspectives on Regional Economies

Arkansas' economy is slightly smaller than New Zealand's, while total economic activity in Kentucky, Missouri and Tennessee is comparable to that of Portugal, Austria and Denmark. These surprising comparisons are made possible due to a new data series, Gross State Product (GSP), recently published by the U.S. Commerce Department's Bureau of Economic Analysis (BEA). Since GSP corresponds to a nation's gross domestic product, a direct comparison of a state's economic output with a nation's is now possible. More importantly, analysts of regional economies, long hampered by the lack of a comprehensive measure of state economic output, can use the GSP series for regional analysis and forecasting.

#### What is GSP?

GSP indicates the market value of the goods and services produced within a state during a year. One way this could be measured is simply by adding up all types of spending on final goods and services produced in an area during a year. A different, more practical method, however, is used in computing GSP: all the income derived from the production of the year's output is added together. Except for two qualifications mentioned below, the two methods yield identical results. Income equals the market value of output because the receipts from the sale of output accrue to those involved in its production as income. This income includes compensation of employees, proprietor's income, rental and interest income as well as profits created in production.

The two qualifications regarding the equality of the market value of output and income are related to depreciation and indirect business taxes. Both cause the market price to differ from the amount of income received by producers. Depreciation can be thought of as the cost of capital goods that have been used in producing a year's output. Depreciation is thus a cost of production that adds to the market price, but is not available as income to producers. Depreciation, therefore, must be added to income in estimating GSP. Similarly, indirect business

taxes—primarily sales taxes and property taxes—are treated as costs of production by businesses and added to the prices of the products they sell. To measure GSP, or total market value of output, these taxes must be included.

GSP is reported as the sum of four components: three types of income, adjusted for depreciation, and indirect business taxes. *Employee compensation* is the largest component, accounting for almost 60 percent of the nation's total GSP in 1986. Employee compensation includes wages and salaries, employer's contributions for social insurance and other labor income. *Proprietor's income*, the second component of GSP, makes up 10 percent of the total. It is reported with adjustments for changes in inventory and for depreciation. The depreciation charge is called a capital consumption allowance. *Capital-related charges*, 22 percent of the 1986 total, include rental income, net interest income and corporate profits adjusted for depreciation. Finally, *indirect business taxes* make up the remaining 8 percent of the total.

The sum of the first two components of GSP—compensation and proprietors' income—is very similar to the "earnings by place of work" portion of state personal income published in past years. Capital charges and indirect business taxes, however, previously have been unavailable on a state basis. Since capital charges, and particularly corporate profits, tend to fluctuate more than earnings during business cycles, their inclusion makes GSP a more sensitive measure of the effects of business cycles on regional growth.

The GSP series, which will be updated in 1990, consists of annual figures from 1963 through 1986 for each state and the District of Columbia. For each area, the value of production in 61 different industries is available. A summary of the data can be found in the May 1988 **Survey of Current Business**, published by the U.S. Department of Commerce. More extensive data, including constant-dollar GSP estimates, can be obtained by contacting the Commerce Department.

The methods used by BEA to estimate GSP vary among industries. For the 34





## Gross State Product and Earnings Growth

	Gross State Product (billions of dollars)		Compounded Annual Growth Rates 1982-86	
	1982	1986	GSP	Earnings
U.S.	\$3,104.1	\$4,191.7	7.8%	7.6%
District	179.0	240.5	7.7	7.2
Arkansas	23.5	31.6	7.7	7.8
Kentucky	42.3	53.1	5.8	5.1
Missouri	61.2	83.5	8.1	7.6
Tennessee	52.0	72.3	8.6	7.9

service-producing industries included in the GSP series, each of the four components were estimated separately, then added to arrive at the total GSP figure. For the 27 farming, mining, construction and manufacturing industries, BEA directly estimated total GSP from economic census data on value added in production and also estimated three of the four components: employee compensation, proprietors' income and indirect business taxes. The sum of these three components is subtracted from GSP to get capital charges.

### Growth of District GSP

Before GSP data were available, analyses of regional growth were often based on less inclusive economic indicators, such as employment, personal income or earnings. Changes in these indicators are unlikely to provide a complete picture of the changes in a region's economic activity. The following example shows that a comparison of the District's and nation's growth based on earnings data differs somewhat from a comparison based on GSP.

The table shows annual growth rates of both GSP and earnings during the first four years of the current recovery period. Earnings in the District (as represented by Arkansas, Kentucky, Missouri and Tennessee) grew at a 7.2 percent annual rate during the first four years of the recovery, a somewhat slower rate than the nation's 7.6 percent rate. If GSP is used as the basis for the comparison, however, most of the disparity vanishes. As the table shows, District GSP grew at a 7.7 percent annual rate compared with a 7.8 percent national rate. District GSP grew from \$179 billion to \$240.5 billion between 1982 and 1986.

What accounts for the difference between the earnings and GSP comparisons? While both compensation and proprietor's income grew slower regionally than nationally

(as reflected in the earnings comparison), this was not true of the other components of GSP. Capital charges in the District grew nearly as fast as the national average and indirect business taxes grew substantially faster in the District.

The table also shows that Tennessee has enjoyed the strongest growth between 1982 and 1986 among the four District states, in terms of either compensation or GSP. Even more than the earnings data, the GSP figures show that Tennessee's economy expanded faster than the nation's during the first four years of the expansion period.

—Thomas B. Mandelbaum

This is the final issue of **Business - An Eighth District Perspective**. The Bank's three quarterly regional publications will be merged into one regional publication, **Pieces of Eight - An Economic Perspective on the Eighth District**. Our goal is to increase the usefulness of the Bank's analyses of economic activity in the Eighth District. The new format will allow greater flexibility in covering topics and providing data. **Pieces of Eight** will debut February 1989 and will be published quarterly. Current subscribers of our regional publications will automatically receive the new publication.

**Business—An Eighth District Perspective** is a quarterly summary of business conditions in the area served by the Federal Reserve Bank of St. Louis. Single subscriptions are available free of charge by writing: Research and Public Information Department, Federal Reserve Bank of St. Louis, P.O. Box 442, St. Louis, Missouri 63166. Views expressed are not necessarily official positions of the Federal Reserve System.

## EIGHTH DISTRICT BUSINESS DATA

	Rates of Change <sup>1</sup>			
	Current Quarter	1987	1986	1985
	III/1988			
<b>General Business Indexes<sup>2</sup></b>	<b>III/1988</b>			
Arkansas	1.6%	4.4%	-0.2%	1.5%
Kentucky	0.7	4.4	1.8	0.3
Missouri	1.9	3.0	2.4	3.0
Tennessee	2.0	5.1	4.6	3.4
<b>Payroll Employment</b>	<b>III/1988</b>			
United States	3.3%	3.3%	2.0%	2.7%
District	0.2	3.3	2.5	2.4
Arkansas	0.7	3.6	2.2	1.6
Little Rock	2.6	2.6	1.1	2.9
Kentucky	2.7	3.6	1.8	2.2
Louisville	1.4	4.4	2.7	2.3
Missouri	-1.0	2.1	2.4	2.1
St. Louis	-0.3	1.8	2.7	2.2
Tennessee	-0.3	4.4	3.3	3.2
Memphis	-2.6	5.2	3.6	3.1
<b>Manufacturing Employment</b>	<b>III/1988</b>			
United States	1.4%	2.1%	-1.2%	-1.8%
District	2.7	2.3	-0.2	-1.7
Arkansas	4.3	5.5	2.1	-1.8
Kentucky	6.1	3.5	0.2	-2.1
Missouri	2.1	0.3	-2.3	-1.4
Tennessee	0.6	2.2	0.4	-1.7
<b>Retail Sales<sup>3</sup></b>	<b>III/1988</b>			
United States	5.4%	4.2%	5.9%	6.2%
Arkansas	-5.4	3.8	2.0	2.1
Kentucky	31.6	3.5	-2.2	12.9
Missouri	-5.8	4.0	2.1	3.3
Tennessee	11.2	8.5	6.2	9.2
<b>Personal Income</b>	<b>II/1988</b>			
United States	8.4%	8.7%	5.9%	6.6%
District	6.9	8.6	5.7	5.8
Arkansas	13.2	5.5	5.8	5.7
Kentucky	7.0	9.7	4.1	3.6
Missouri	5.0	7.6	5.4	6.5
Tennessee	6.4	10.2	7.0	6.7
	<b>District Employment<sup>1</sup></b>		<b>Prices<sup>1</sup></b>	
	Current Quarter	Current Year	Current Quarter	Current Year
<b>Key Industries</b>	III/1988	III/1987 - III/1988	III/1988	III/1987 - III/1988
Fabricated Metal Products	4.4%	6.2%	9.5%	10.2%
Electrical and Electronic Equipment	6.3	2.1	0.7	1.6
Nonelectrical Machinery	2.8	4.1	2.1	2.7
Transportation Equipment	-0.3	-2.1	-0.7	1.7
Food and Kindred Products	5.7	-0.1	13.5	6.0
Textile and Apparel	-6.4	-2.7	2.6	3.9
Printing and Publishing	2.7	2.1	3.3	5.2
Chemicals and Allied Products	7.8	2.1	14.0	10.4
Construction	15.5	1.8	3.9	5.9



## EIGHTH DISTRICT BUSINESS DATA

	<u>Current Quarter</u>	<u>Previous Quarter</u>	<u>Average 1987</u>	<u>Average 1986</u>
<b>Unemployment Rate</b>	<b>III/1988</b>	<b>II/1988</b>		
United States	5.5%	5.4%	6.2%	7.0%
District	6.7	6.3	7.2	7.8
Arkansas	8.1	7.9	8.1	8.8
Little Rock	6.6	6.6	7.1	6.9
Kentucky	7.8	8.3	8.8	9.3
Louisville	5.9	6.1	6.9	7.1
Missouri	6.0	5.0	6.3	6.1
St. Louis	6.4	5.9	7.0	7.0
Tennessee	6.0	5.4	6.6	8.0
Memphis	5.2	4.8	5.7	6.8
	<u>Current Quarter</u>	<u>Previous Quarter</u>	<u>Same Period 1987</u>	<u>Same Period 1986</u>
<b>Construction Contracts<sup>4</sup></b> (millions of dollars)	<b>III/1988</b>	<b>II/1988</b>	<b>III/1987</b>	<b>III/1986</b>
<b>Residential Construction</b>				
District	\$478.9	\$502.1	\$503.2	\$535.5
Arkansas	49.8	47.0	53.4	63.4
Kentucky	105.1	102.1	104.4	110.7
Missouri	160.2	153.0	157.1	154.2
Tennessee	163.7	199.9	188.3	207.2
<b>Nonresidential Construction</b>				
District	\$406.9	\$381.9	\$415.1	\$392.3
Arkansas	18.7	31.5	30.0	53.3
Kentucky	102.1	75.3	93.4	110.2
Missouri	116.7	124.1	140.0	121.8
Tennessee	169.4	151.0	151.7	107.0

**NOTE:** With the exception of employment and prices in key industries, all data are seasonally adjusted. Data for Arkansas, Kentucky, Missouri and Tennessee are used to represent the District.

<sup>1</sup> All growth rates are compounded annual rates of change. The 1985 through 1987 growth rates compare the fourth quarter of the year listed with the fourth quarter of the previous year.

<sup>2</sup> Although each index is a comprehensive measure of economic activity, the Arkansas and Missouri indexes, computed by Southwestern Bell, are not strictly comparable to the Kentucky and Tennessee indexes, which are computed by South Central Bell.

<sup>3</sup> Sources: Arkansas from Southwestern Bell, Kentucky from the Kentucky Revenue Department, Missouri and Tennessee from the U.S. Department of Commerce.

<sup>4</sup> Excludes nonbuilding construction. Source: F. W. Dodge **Construction Potentials**, proprietary data provided by special permission.