

PERSONAL INCOME GROWTH IN ARKANSAS SINCE THE RECESSION

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Abstract

This paper uses shift-share and other techniques to analyze the composition of and changes in personal income for Arkansas since the 2008 recession. The analysis also includes comparison of pre and post-recession periods.

Personal Income Growth in Arkansas Since the Recession

Introduction

The Arkansas economy likely changed from 2009 to 2013 because of the 2008 recession. Earlier work focused on more immediate results of the recession (Rice and Horton 2012). Six years after the shock, additional work to understand more lasting effects is needed.

Personal income is an appropriate measure of economic activity to use to examine these changes because it includes income from all sources including government transfers to individuals. According to the U.S. Bureau of Economic Analysis, “personal income consists of the income of individuals, nonprofit institutions serving individuals, private noninsured welfare funds, and private trust funds,” (BEA, p. I-6) and its estimates are compiled from a variety of sources, including census data, government programs, and surveys of both the recipients and payers of the income (BEA, p. I-8).

Comparisons are made between Arkansas, the United States, and the Southeast Region of which Arkansas is a part. The focus is on comparing individual sectors (e.g., Durable Goods Manufacturing) of Arkansas with the corresponding sectors of the United States and the Southeast Region. The primary analytical tool employed is shift-share analysis.

Shift-share analysis has been used in some form to analyze regional economic changes since the early 1940s (Ashby 1968). First presented academically in the late 1950s (Dunn 1960), the technique was widely applied in regional studies (Brown 1969; Buck 1970) and critiqued almost from its inception (Houston 1967). Although modifications have been proposed and used (Barff and Knight 1988), the classic approach that this paper uses is still considered standard (Seyfried 1996). The procedure is to compare a large entity, such as the United States, with a smaller entity, such as Arkansas, that is a subset of the larger entity. The analysis will compare each sector’s change by separating the total change in the sector of the smaller entity into three separate components: (1) overall growth share, (2) differential-compositional share, and (3) sector-competitive share. The sum of the three shares will equal the overall change on a sector by sector basis.

The first component, the overall-growth share (OGS), represents the change (increase or decrease) in each sector of the smaller entity if the sector’s percentage change equaled exactly the overall percentage change of the larger entity. The second component differential-compositional share (DCS), represents the change (increase or decrease) in each sector of the smaller entity that would occur when the individual sector’s percentage change is compared to its overall-percentage change of the larger entity. If the difference is positive, the sector is considered to be a fast-growth sector. If the difference is negative, the sector is considered to be a slow-growth sector. The third component, sector-competitive share (SCS), represents the change (increase or decrease) in each sector of the smaller entity that results when the individual sector’s percentage change of the smaller entity is compared with the individual sector’s percentage of the larger entity. A positive difference indicates that the sector of the smaller entity is outperforming the corresponding sector of the larger entity. A negative difference

indicates that the sector of the smaller entity is underperforming when compared to the corresponding sector of the larger entity.

After calculating each component for each sector of the smaller entity, the three components are added together such that:

$$\text{Total change (sector)} = \text{OGS} + \text{DCS} + \text{SCS}$$

$$\text{Total change (smaller entity)} = \Sigma (\text{OGS}) + \Sigma (\text{DCS}) + \Sigma (\text{SCS})$$

Analysis

The 2009 and 2013 personal income data for the United States, the Southeast Region (which contains the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia) and Arkansas are used in this study. These data are publicly available at the Regional Economic Accounts pages of the U.S. Bureau of Economic Analysis website: <http://www.bea.gov/regional>. Details about how the data are cross-checked against different sources are contained in (Ruder, Pilot, and Nelson 2004) and (Stauffer 2012). These data are presented on an industry level in Table 1. In subsequent tables, the computations are the authors'.

Aggregate Change

The overall percentage change and the average annual percentage change in personal income from 2009 to 2013 are presented in Table 2. During this period, the United States percentages (16.63 and 3.92) slightly exceeded the Arkansas percentages (16.55 and 3.91). Both United States and Arkansas percentages noticeably exceeded Southeast Region percentages (15.63 and 3.64). These results suggest that Arkansas followed closely the United States recovery while the Southeast Region recovery has been at a slower pace.

The following discussion will focus on the bottom row (Total) of Tables 3, 4, and 5 which provides the shift-share summary for the three comparisons (Table 3, United States vs. Arkansas; Table 4, United States vs. Southeast Region; and Table 5, Southeast Region vs. Arkansas). The bottom line of the each table separates the total change in personal income from 2009 to 2013 into the three components [(1) overall-growth share (OGS), (2) differential-compositional share (DCS), and (3) sector-competitive share (SCS)] discussed in the introduction of this paper.

Table 3 shows that Arkansas personal income, during the 2009-2013 period, increased by \$15,167 million [\$106,792-\$91,625 (see Table 1)]. This increase is divided into three components: (1) overall-growth component of \$15,235 million, (2) differential-compositional component of \$614 million, and the sector-competitive component of -\$681 million. The overall-growth share represents the personal income that would have resulted if the Arkansas percentage had matched exactly that of the United States. The positive differential-compositional share, which is small, indicates that the aggregate industry mix of Arkansas was, in effect, a fast-growth combination of industries. The negative sector-competitive share, which is also small, indicates that, on a sector-by-sector comparison, the industries of Arkansas are

Table 1
Personal Income (millions of dollars)
United States, Southeast Region, Arkansas, 2009 and 2013

Industry	United States		Southeast		Arkansas	
	2009	2013	2009	2013	2009	2013
Farm	65,531	112,564	12,816	19,300	1,390	2,228
Forestry/Fishing	22,987	31,517	5,810	7,530	423	507
Mining	90,090	176,251	14,683	21,160	765	1,128
Utilities	71,966	82,763	14,893	16,603	707	922
Construction	492,669	561,620	113,260	122,733	3,566	3,749
Durable Goods	545,419	629,335	103,653	120,183	4,134	4,551
Nondurables Goods	322,258	358,961	77,970	84,576	3,870	4,177
Wholesale Trade	441,755	520,570	96,234	111,168	3,218	3,684
Retail Trade	533,708	600,285	128,963	144,520	4,240	4,865
Transportation	282,772	343,001	68,494	82,626	3,033	3,605
Information	295,456	326,804	50,419	52,593	1,481	1,071
Finance/ Insurance	628,689	712,379	110,789	125,179	2,425	2,711
Real Estate	136,276	190,023	29,369	40,420	992	1,069
Professional Services	849,742	1,018,803	171,801	201,313	2,963	3,481
Management	209,360	275,964	42,579	54,474	2,596	3,940
Administrative	329,827	410,847	79,327	98,268	1,708	2,171
Education	144,865	170,169	25,344	29,317	485	571
Healthcare	967,548	1,117,749	213,777	246,903	7,238	8,337
Arts/ Entertainment	93,481	109,011	20,473	23,373	255	287
Accommodations	259,815	321,138	62,515	76,836	1,596	1,920
Other Services	322,739	368,495	74,992	86,041	2,252	2,617
Governments	1,644,590	1,715,712	393,958	408,046	11,678	12,434
Adjustment for residence	3,019	3,343	13,548	16,491	-257	-233
Dividends, Interest, Rent	2,141,879	2,583,690	515,670	626,426	16,311	20,150
Transfer Receipts	2,140,155	2,444,612	545,039	633,230	21,950	25,243
less Social Security Contributions	962,858	1,104,361	216,353	246,407	7,393	8,394
Total	12,073,738	14,081,242	2,770,024	3,202,903	91,625	106,792

Table 2
Percentage Change in Personal Income
2009-2013

	Personal Income (millions of dollars)		Overall Percentage Change	Average Annual Percentage Change
	2009	2013		
United States	12,073,738	14,081,242	16.63	3.92
Southeast Region	2,770,024	3,202,903	15.63	3.64
Arkansas	91,625	106,792	16.55	3.91

slightly less competitive when compared to the corresponding sectors of the United States.

Table 4 presents the shift-share results for the United States versus Southeast Region comparison. The region's personal income growth totaled \$432,880 million and was partitioned as follows: (1) \$460,573 million in overall-growth share, (2) -\$8,523 million in the differential-compositional share, and (3) -\$19,170 million in the sector-competitive component. The net effect of these components is that Southeast Region personal income growth (3.64%) did not match the United States growth (3.92%). The negative differential-compositional component indicates that, in the aggregate, the Southeast is composed of slow-growth sectors. Additionally, the negative sector-competitive share suggests that on a sector-by-sector comparison, the Southeast Region is not faring particularly well.

The comparison of the Southeast Region and Arkansas is presented in Table 5. The total increase of personal income in Arkansas was \$15,167 million. This increase was composed of (1) positive overall-growth share (\$14,139 million), (2) positive differential-compositional share (\$566 million), and positive sector-competitive share (\$283 million). These aggregate results indicate that the economy of Arkansas is stronger than that of the Southeast Region. In particular, the combination of a positive differential-compositional component and a positive sector-competitive component suggests that, in the aggregate, Arkansas is strongly positioned in the Southeast Region with a group of fast-growth sectors that are competitively successful.

However, this five-year recovery period does not match the growth that was in progress prior to the recession. The five years (2003-2007) preceding the recession reflected larger overall percentage changes and larger average annual percentage changes than in the post-recession years presented in Table 2. The earlier period information is presented in Table 3. In Table 3, it can be seen that the overall percentage changes and the average annual percentage changes in the Southeast Region (28.96% and 6.56%) and in Arkansas (27.90% and 6.34%) were greater than the United States values (26.48% and 6.05%). In the subsequent five-year period (2009-2013), the performances were reversed with the United States and Arkansas both exceeding the Southeast Region percentages. All three entities performed much better in the pre-recession

Table 3
Percentage Change in Personal Income
2003-2007

	Personal Income (millions of dollars)		Overall Percentage Change	Average Annual Percentage Change
	2003	2007		
United States	9,479,611	11,990,244	26.48	6.05
Southeast Region	2,134,498	2,752,556	28.96	6.56
Arkansas	69,455	88,831	27.90	6.34

period than in the post-recession period. These results are consistent with information reported in the August 12, 2014, issue of the *Arkansas Democrat-Gazette* which identified a wage gap of 23% before and after the recession. That is, the jobs generated during the recovery paid 23% less than the jobs lost during the recession. In particular, higher-paying jobs in manufacturing and construction were lost and replaced by lower-paying jobs in food services, healthcare, and retail trade.

Sector Analysis

Tables 4 (United States vs. Arkansas) and 6 (Southeast Region vs. Arkansas) and Tables 7 and 8 are used for the sector analysis discussion. Table 7 provides the percentage contribution to personal income for each sector in the United States, the Southeast Region, and Arkansas. Table 8 presents the analysis of the top seven sectors in Arkansas.

From Table 7, the top seven sectors producing Arkansas' personal income in 2013 were identified and they are:

- Transfer Receipts (23.64%) ↓
- Dividends, Interest, and Rents (18.87%) ↑
- Governments (11.64%) ↓
- Healthcare and Social Assistance (7.81%) ↓
- Retail Trade (4.56%) ↓
- Durable Goods Manufacturing (4.26%) ↓
- Nondurable Goods Manufacturing (3.91%) ↓

These seven sectors account for 74.69 percent of Arkansas personal income. The arrows following the percentages indicate whether the 2013 percentage is higher or lower than the 2009 percentage.

Table 4
Shift-Share Results by Industry (2009-2013)
United States vs. Arkansas
(millions of current dollars)

Industry	Overall Growth	Differential-Composition	Sector-Competitive	Total Change
Farm	231	767	-160	837
Forestry/Fishing	70	87	-74	84
Mining	127	604	-368	363
Utilities	117	-11	110	216
Construction	593	-94	-316	183
Durable Goods	687	-51	-218	418
Nondurables Goods	643	-203	-134	307
Wholesale Trade	535	39	-108	466
Retail Trade	705	-176	96	624
Transportation	504	142	-74	572
Information	246	-89	-567	-410
Finance/Insurance	403	-80	-37	285
Real Estate	165	226	-314	78
Professional Services	493	97	-71	518
Management	432	394	518	1,344
Administrative	284	136	43	463
Education	81	4	2	86
Healthcare	1,203	-80	-25	1,099
Arts/ Entertainment	42	0	-10	32
Accommodations	265	111	-53	324
Other Services	374	-55	46	365
Governments	1,942	-1,437	250	755
Adjustment for residence	-43	15	52	25
Dividends, Interest, Rent	2,712	652	475	3,840
Transfer Receipts less Social Security Contributions	3,650	-527	171	3,293
Total	15,235	614	-681	15,167

Table 5
Shift-Share Results by Industry (2009-2013)
United States vs. Southeast Region
(millions of current dollars)

Industry	Overall Growth	Differential-Composition	Sector-Competitive	Total Change
Farm	2,131	7,067	-2,714	6,484
Forestry/Fishing	966	1,190	-435	1,721
Mining	2,441	11,601	-7,565	6,477
Utilities	2,476	-242	-524	1,710
Construction	18,832	-2,981	-6,378	9,473
Durable Goods	17,234	-1,287	583	16,530
Nondurables Goods	12,964	-4,084	-2,274	6,606
Wholesale Trade	16,001	1,169	-2,235	14,934
Retail Trade	21,443	-5,355	-531	15,556
Transportation	11,389	3,200	-456	14,132
Information	8,383	-3,034	-3,175	2,174
Finance/ Insurance	18,421	-3,673	-358	14,390
Real Estate	4,883	6,700	-533	11,051
Professional Services	28,565	5,615	-4,669	29,512
Management	7,080	6,466	-1,651	11,895
Administrative	13,190	6,296	-546	18,940
Education	4,214	213	-454	3,973
Healthcare	35,545	-2,358	-60	33,126
Arts/ Entertainment	3,404	-3	-501	2,900
Accommodations	10,394	4,361	-434	14,321
Other Services	12,469	-1,837	417	11,049
Governments	65,504	-48,467	-2,950	14,087
Adjustment for residence	2,253	-800	1,491	2,943
Dividends, Interest, Rent	85,741	20,628	4,387	110,756
Transfer Receipts less Social Security Contributions	90,624	-13,087	10,654	88,191
Total	460,573	-8,523	-19,170	432,880

Table 6
Shift-Share Results by Industry (2009-2013)
Southeast Region vs. Arkansas
(millions of current dollars)

Industry	Overall Growth	Differential-Composition	Sector-Competitive	Total Change
Farm	217	486	134	837
Forestry/Fishing	66	59	-42	84
Mining	120	218	26	363
Utilities	110	-29	134	216
Construction	557	-259	-115	183
Durable Goods	646	13	-242	418
Nondurables Goods	605	-277	-21	307
Wholesale Trade	503	-4	-33	466
Retail Trade	663	-151	113	624
Transportation	474	152	-54	572
Information	231	-168	-474	-410
Finance/Insurance	379	-64	-30	285
Real Estate	155	218	-296	78
Professional Services	463	46	9	518
Management	406	320	619	1,344
Administrative	267	141	55	463
Education	76	0	10	86
Healthcare	1,131	-10	-23	1,099
Arts/ Entertainment	40	-4	-4	32
Accommodations	249	116	-42	324
Other Services	352	-20	34	365
Governments	1,825	-1,407	338	755
Adjustment for residence	-40	-16	81	25
Dividends, Interest, Rent	2,549	954	336	3,840
Transfer Receipts less Social Security Contributions	3,430	121	-258	3,293
Total	14,319	566	283	15,167

Table 8
Selected Summary of Results

SECTOR	2013 Arkansas Percentage Contribution to Personal Income	2009-2013 Shift-Share Results (millions of dollars) Differential-Compositional Share		2009-2013 Shift-Share Results (millions of dollars) Sector-Competitive Share	
		AR vs. US	AR vs. SE	AR vs. US	AR vs. SE
Transfer Receipts	23.64	-527	121	171	-258
Dividends, Interest, Rent	18.87	652	954	475	366
Governments	11.64	-1,437	-1,407	250	388
Healthcare and Social Assistance	7.81	-80	-10	-25	-23
Retail Trade	4.56	-176	-151	96	113
Durable Goods Manufacturing	4.26	-51	13	-218	-242
Nondurable Goods Manufacturing	3.91	-203	-277	-134	-21

The top four sectors [(1) Transfer Receipts, (2) Dividends, Interest, and Rent, (3) Governments, and (4) Healthcare and Social Assistance] provided slightly over sixty percent (61.96%) of Arkansas personal income. The other three major sectors [(5) Retail Trade, (6) Durable Goods Manufacturing, and (7) Nondurable Goods Manufacturing] provided 12.73 percent of Arkansas personal income.

In addition to the seven major sectors which are discussed in detail in the following paragraphs, one sector, Construction, has experienced a sizable decline in its contribution to personal income (Table 7). The Construction percent contribution to personal income declined by 9.77 percent. In Arkansas, the Construction sector experienced a larger negative (decrease) than in the United States (-2.21%) and the Southeast Region (-6.36%). This large slowdown in Construction possibly reflects overbuilding that resulted in excess capacity in the northwest area of the state.

In reference to Table 8, only one sector, Dividends, Interest and Rent (which is the second largest sector in Arkansas) has a significant positive value for both the differential-compositional share [in comparison to the U.S. (+\$652 million) and the Southeast Region (+\$95.4 million)] and the sector-competitive share [in comparison to the U.S. (+\$475 million) and the Southeast Region (+\$366 million)]. This indicates that the Dividends, Interest, and Rent sector is fast-growing in Arkansas relative to the nation and region and growing faster than the corresponding sector in both the U.S. and Southeast. Also, this sector is the only one of the top seven Arkansas

sectors with an “up” arrow; thus, Dividends, Interest, and Rent is a particularly strong income producer in Arkansas. This might be expected in the context of a strong post-recession U.S. equities market, but it is unclear why it would be so in Arkansas more than in the Southeast Region and the U.S.

The largest component of personal income in Arkansas by percentage is Transfer Receipts (23.64%). This sector has two positive shares: (1) a positive differential-compositional share when the state is compared to the Southeast Region (+\$121 million) and (2) a positive sector-competitive share when the state is compared to the United States (+\$171 million). This is a mixed performance. The sector is fast-growth in the region but slow-growth in the nation, and it is growing faster than the corresponding sector in United States and slower than the corresponding sector in the Southeast Region. In other words, Arkansas growth in Transfer Receipts exceeds that of the nation but is slower than that of the region. In addition, according to Table 7, Transfer Receipts accounts for a larger percentage (23.64%) of Arkansas personal income than it does for either U.S. (17.36%) or Southeast Regional personal income (19.77%). Since Medicare is a large proportion of Transfer Receipts, the twin growth in this sector and in Dividends, Interest, and Rent (in part because of retirement earnings) may reflect the retirement of baby-boomers and the attractiveness of large planned communities such as Hot Springs Village and Bella Vista. Table 9 shows selected personal income growth by county in Arkansas from 2008 to 2012 (this period was chosen because the data are not yet available for 2013 and the five-year window is consistent with the rest of the analysis in this paper). The two fastest growing counties in terms of income were Benton and Saline. Benton County is the site of Bella Vista, a 36,000 acre planned community now incorporated) and Saline County shares Hot Springs Village, the largest gated community in the nation, with Garland County. Note that Garland County’s personal income growth still exceeded that of the statewide average.

Table 9
Personal Income Growth by County, Arkansas, 2008-2012
for Counties in Excess of Statewide Average Personal Income Growth

County	Personal Income Growth Rate	County	Personal Income Growth Rate
Saline	23.94%	Lincoln	15.69%
Benton	22.71%	Monroe	14.85%
Faulkner	22.05%	Poinsett	14.61%
Greene	18.83%	Hot Spring	14.51%
Craighead	17.90%	Drew	13.95%
Van Buren	17.26%	Cross	13.82%
Hempstead	16.90%	Desha	13.76%
Lonoke	16.44%	White	13.59%
Woodruff	16.29%	Fulton	12.84%
Chicot	15.77%	Jackson	12.80%
Ashley	15.71%	Perry	12.77%
Washington	15.70%	Garland	12.61%
Statewide		12.29%	

The third largest sector in Arkansas using 2013 personal income as a measure is Governments (11.64%). Table 7 indicates that this percentage has decreased from 12.75% in 2009. This directional change is consistent with the United States (from 13.62% in 2009 to 12.18% in 2013) and the Southeast (from 14.22% in 2009 to 12.74% in 2013), although the state growth in this sector has exceeded that of either the nation or the region. Further analysis of BEA detailed data (shown in Table 10) indicates that these declines have resulted from significantly lower percentage changes in the governmental sector for all three areas: The U.S., Arkansas, and the Southeast.

The remaining four largest sectors: (1) Healthcare and Social Assistance (7.81%), (2) Retail Trade (4.56%), (3) Durable Goods Manufacturing (4.26%), and Nondurable Goods Manufacturing (3.91%) are almost all slow-growth (negative differential-compositional shares) in the U.S. and Southeast, except for the Durable Goods Manufacturing sector which had a slight positive (\$13 million) in the Arkansas versus Southeast Region comparison (see Table 7). Similarly, all of the sector-competitive shares are negative except for Retail Trade. Since these four are a combination of slow-growth sectors that are not sector-competitive, they are not likely to show gains in personal income growth in the near future.

Table 10
Breakdown of Personal Income Growth in Governmental Sector (2009-2013)

Source of Income	United States	Arkansas	Southeast Region
Overall Sector	4.32 %	6.47 %	3.58 %
Military	2.85 %	-2.54 %	2.44 %
State and Local	3.71 %	9.84 %	2.40 %
Federal Civilian	7.84 %	-4.92 %	8.85 %

An additional data source from the Bureau of Economic Analysis, personal income *by county* for Arkansas, is used to develop Table 11. These data have limitations beyond those of the statewide data: (1) the data are lagged by one year, and (2) counties which have only one employer in a particular sector do not have personal income shown for that sector to protect the competitive position of that employer. Table 11 shows the leading counties in terms of the percentage of total Arkansas personal income in terms of the top seven categories indicated by the shift-share analysis. For example, Pulaski County, site of the state capitol, leads not only in its share government personal income as might be expected, but also in percentage population of the state. In fact, it leads in six of the seven categories, Transfer Receipts, Dividends, Interest, and Rent, Government, Healthcare, Retail Trade, and Durable Goods Manufacturing. The

concentration of industry in Little Rock and location of the UAMS campus explain much of this position. The Nondurable Goods sector is concentrated in Benton and Washington Counties, presumably because of their proximities to Walmart corporate headquarters.

Table 11
Distribution of County Population and Personal Income
by Statewide Leading Sectors for Personal Income

County	Population	Transfer Receipts	Dividends Interest and Rent	Government
Pulaski	13.19% (1 st)	12.90% (1 st)	20.80% (1 st)	33.94% (1 st)
Benton	7.88 (2 nd)	5.59 (2 nd)	8.29 (2 nd)	4.20 (3 rd)
Washington	7.17 (3 rd)	4.49 (3 rd)	7.62 (3 rd)	8.67(2 nd)
Sebastian	4.32 (4 th)	4.08 (4 th)	6.48 (4 th)	3.72 (5 th)
Faulkner	4.03 (5 th)	3.25 (7 th)	3.04 (7 th)	3.21 (7 th)
Saline	3.79 (6 th)	3.63 (6 th)	3.31 (6 th)	1.99 (9 th)
Craighead	3.38 (7 th)	3.21 (8 th)	2.90 (8 th)	3.28 (6 th)
Garland	3.29 (8 th)	4.07 (5 th)	4.94 (5 th)	2.22 (8 th)
Jefferson	2.53 (10 th)	2.88 (9 th)	1.99 (12 th)	4.09 (4 th)
Crawford	2.10 (13 th)	2.02 (11 th)	1.34 (15 th)	0.97 (18 th)
Mississippi	1.54 (15 th)	1.71 (16 th)	1.02 (21 st)	1.10 (16 th)
Union	1.39 (19 th)	1.64 (17 th)	2.12 (10 th)	1.02 (17 th)

County	Population	Healthcare	Retail Trade	Durable Goods	Nondurable Goods
Pulaski	13.19% (1 st)	26.51% (1 st)	22.08% (1 st)	12.68% (1 st)	7.84% (3 rd)
Washington	7.88 (2 nd)	9.05 (2 nd)	8.36 (2 nd)	6.14 (4 th)	8.05 (2 nd)
Benton	7.17 (3 rd)	5.37 (5 th)	7.93 (3 rd)	4.00 (5 th)	8.91 (1 st)
Sebastian	4.32 (4 th)	7.85 (3 rd)	5.17 (4 th)	9.73 (2 nd)	7.42 (4 th)
Faulkner	4.03 (5 th)	3.12 (7 th)	3.69 (8 th)	2.17 (8 th)	2.59 (11 th)
Garland	3.79 (6 th)	4.99 (6 th)	4.27 (5 th)	1.46 (15 th)	1.28 (16 th)
Saline	3.38 (7 th)	1.82 (12 th)	3.78 (7 th)	1.68 (12 th)	.13 (28 th)
Craighead	3.29 (8 th)	6.38 (4 th)	4.12 (6 th)	3.92 (6 th)	4.16 (6 th)
Jefferson	2.53 (10 th)	2.87 (8 th)	2.44 (9 th)	2.15 (9 th)	4.25 (5 th)
Crawford	2.10 (13 th)	0.93 (17 th)	1.36 (17 th)	1.27 (17 th)	3.51 (7 th)
Mississippi	1.54 (15 th)	-----	1.19 (19 th)	9.48 (3 rd)	1.33 (15 th)
Union	1.39 (19 th)	1.45 (14 th)	1.58 (12 th)	2.30 (7 th)	3.36 (8 th)

Concluding the sector analysis, it is interesting to examine the personal income totals for the post-recession period when the two primary sectors [(1) Transfer Receipts and (2) Dividends, Interest, and Rent] are excluded. In all three entities, the overall percentage increases declined as follows (United States, 16.63% to 16.19%; Southeast Region, 15.63% to 13.69%; and Arkansas, 16.55% to 15.06%). Thus it appears that these two sectors are immensely important to personal income growth and are sectors where no work is performed.

Summary

During the 2009-2013 period, the Arkansas economy as measured by personal income, increased by 16.55% which is equivalent to an average annual change of 3.91%. The Arkansas increases were slightly less than the United States increases of 16.63% for the five-year period or 3.92% annually. The Arkansas growth rate was almost as strong as the national growth rate. On the other hand, Arkansas fared somewhat better than the Southeast Region, which experienced an overall percentage increase of 15.63%, or an average annual change of 3.64%. The three largest sectors for generating personal income in Arkansas were Transfer Receipts (23.64%), Dividends, Interest, and Rent (18.87%), and Governments (11.64%). These three sectors alone accounted for more than 54% of the state total. The four next-largest sectors were Healthcare and Social Assistance (7.81%), Retail Trade (4.56%), Durable Goods Manufacturing (4.26%), and Nondurable Goods Manufacturing (3.91%). These four sectors contributed more than 20% of Arkansas personal income. Thus the top seven sectors contributed almost three-fourths of personal income for the entire state.

Of these seven sectors, the strongest was Dividends, Interest, and Rent, which had positive differential-compositional shares in comparisons with both the nation and region. Additionally, this sector demonstrates positive sector-competitive shares vis-à-vis both the nation and region. Therefore Dividends, Interest, and Rent is both fast-growth and competitive. This may be due to the bull market of 2009-2013 coinciding with growth of retirees in the state.

The second-strongest sector was Transfer Receipts, which happened to be the largest producer of Arkansas personal income. It may be considered the second strongest sector because, based on its differential-compositional shares in comparison with the U.S. (negative) and the Southeast Region (positive), it is growing slower in Arkansas than in the nation as a whole but growing faster in Arkansas than in the region. Also, the sector-competitive share comparison was positive relative to the national result and negative relative to the regional result. Overall, this sector can be expected to continue to be a significant contributor to state personal income because it includes Social Security and Medicare payments which will mirror the aging baby-boomers.

Further analysis of these primary two sectors [(1) Transfer Receipts and (2) Dividends, Interest, and Rent] during the post-recession period was conducted by excluding these two sectors from overall totals for personal income. The result for all three entities was a decline in the overall percentage increases as follows: United States, 16.63% to 16.19%; Southeast Region, 15.63% to 13.69%; and Arkansas, 15.55% to 15.06%. These results re-emphasize the major importance that these two primary sectors have in producing personal income. Since this income is unrelated to labor services, there is no reason to believe that higher personal income directly translates into employment gains.

The third-largest sector was Governments. As mentioned earlier, this sector declined in Arkansas from 12.75% of personal income in 2009 to 11.64% in 2013. This mirrors comparable declines in the U.S. (from 13.62% to 12.18%) and the Southeast Region (14.22% to 12.74%). These declines resulted from small or negative changes in the three subcomponents of this sector: military, state and local government, and federal civilian expenditures. In the future, it is

quite likely that this will continue to diminish as a source of personal income as service of the national debt squeezes employment and, consequently, income, from the public sector.

The four remaining leading sectors are Healthcare and Social Assistance, Retail Trade, Durable Goods Manufacturing, and Nondurable Goods Manufacturing. These have historically been slow-growth and not very competitive. Healthcare may provide additional jobs as the National Healthcare Act is enforced, but these are not likely to be high income positions. As the service economy ages into maturity, it will probably spin off fewer and fewer careers. For the state to improve incomes, manufacturing must grow. Perhaps Governor Beebe said it best when noting how the economic recovery has been tied to services: "...But we also need to know how to make stuff. Manufacturing is still and should be a major part of what this country is all about."¹

Additionally, it was noted that the percentage changes and annual growth rates were higher in the pre-recession period (2003-2007) than in the post-recession period (2009-2013). This resulted from jobs lost (manufacturing and construction) in the pre-recession period being replaced with lower-paying jobs (food services, healthcare, and retail trade) in the post-recession period.

Looking to the future, Arkansas personal income should continue to benefit from the state's attractiveness to retirees and aging baby-boomers. However new manufacturing plants are particularly needed to create employment and thereby more personal income. This is particularly true as the growing service economy begins to reach maturity, thereby creating fewer new jobs and personal income.

References

- Arkansas Democrat-Gazette* (2014) "Report: Post-recession Jobs Pay 23% Less," (August 12). Summary of Report of the U.S. Conference of Mayors.
- Ashby, Lowell D. (1968) "The Shift and Share Analysis: A Reply," *Southern Economic Journal*. 34 (3) (January): 423-425.
- Barff, Richard, and Prentice L. Knight III (1988) "Dynamic Shift-Share Analysis," *Growth and Change* 19 (2) (Spring): 1-10.
- Brown, James (1969) "Shift and Share Projections of Regional Economic Growth: An Empirical Test." *Journal of Regional Science* 9(1) (April): 1-17.
- Buck, T.W. (1970) "Shift and Share Analysis – A Guide to Regional Policy." *Regional Studies*. 4 (6) (December): 445-450.
- Dunn, Edgar S., Jr. (1960) "A Statistical and Analytical Technique for Regional Analysis." *Papers and Proceedings of the Regional Science Association*. 6: 97-112.
- Houston, David B. (1967) "The Shift and Share Analysis of Regional Growth: A Critique," *Southern Economic Journal*. 33 (4) (April): 577-581.
- Rice, Philip F. and Marshall J. Horton (2012) "Analysis of Recent Changes in Arkansas Personal Income Before and After the Economic Crisis of 2008-2009," *Journal of Business Administration Online*, 11 (2) (Fall). Available at <http://www.atu.edu/jbao/>
- Ruser, John, Adrienne Pilot, and Charles Nelson (2004) "Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond," paper prepared for presentation to the Federal Economics Statistics Advisory Committee (December 14). Available at <http://www.bea.gov/about/pdf/AlternativemeasuresHHincomeFESAC121404.pdf>
- Seyfried, William (1996) "Examining the Economic Competitiveness of the Economies of the Southern United States," *Business Quest (B>Quest)*. 1 (1) available at <http://www.westga.edu/~bquest/1996/index.html>
- Stauffer, Joseph L. (2012) "Alternative Measures of Household Income," *BEA Quarterly Report* (April): 64. Available at <http://bea.gov/regional/pdf/AltHousehold.pdf>
- U.S. Bureau of Economic Analysis (2013) "State Personal Income and Employment: Concepts, Data Sources, and Statistical Methods," (October) (cited as BEA (2013)) available at <http://bea.gov/regional/pdf/spi2012.pdf>

¹ Remarks made in Arkadelphia, Arkansas, on March 29, 2014, at the Hickingbotham School of Business annual luncheon at Ouachita Baptist University.