Accounting for Population Changes in Arkansas Counties:
Population Change On and Off the State Diagonal
As
Related to Per Capita Personal Income in 2015

By

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The U.S. Census recently released the April 1, 2010 to July 1, 2016 population estimates and components of population change. This report analyzes population change within individual counties found within Arkansas, and focuses on how county location affects regional population change within the state and per capita personal income.[1] The data release is available at the Institute for Economic Advancement.[2]

County Level Population Change in the Mountain Region, Delta, and on the State Diagonal

Arkansas's diagonal line separates the mountainous areas of the state from the delta flatlands. In some research, this diagonal becomes a baseline to explore the state's demographic characteristics, economic activities, and differences in economic levels. This paper refers to the regions above the diagonal as the mountain region; the counties below the diagonal are the delta region; the counties located on the diagonal are the state diagonal region. The mountain region population increased over the 2010-2016

[1] The source for per capita personal income was: Bureau of Economic Analysis, U.S. Department of Commerce. Data available at: https://www.bea.gov/iTable/index_regional.cfm.

[2] The source for the population data was: *Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2016*, U.S. Census Bureau, Population Division, March 2017. Data available at: http://iea.ualr.edu/population-estimates-a-projections/830-county-level-population-estimates-current-series.html#comp.

period. Of those 37 counties found in the mountain region, 14 experienced population growth and 23 experienced population loss. The 13 counties in the state diagonal region experienced overall population gain; although for the individual counties, 6 gained population and 7 lost population. The 25 counties located in the delta region saw the greatest amount of population loss overall with only 3 counties gaining population over the 2010-2016 period.

County Level Population Change in the Mountain Region

Table 1 shows the total population change, components of population change, and per-capita personal income (PCPI) levels for counties within the mountain region. These counties saw an overall population increase of 67, 346 with 26,166 peopled added due to positive natural increase and 41,290 people added due to positive net migration. The average county PCPI was $32,100 in 2015 the most recent data.

County Level Population Change on the State Diagonal Region

Table 2 shows the total population change, components of population change, and income levels for counties lying in the state diagonal region. These counties saw a total population increase of 33,734 people. Due to a 21,253 growth through natural increase combined with 12,717 additional migrants into the counties. The average PCPI for these counties was $33,542.

County Level Population Change Delta Region

Table 3 describes the population change, components of population change, and PCPI for counties located in the delta region. Taken together, the counties in the delta region saw population decline. This decline was due to a 32,232 decrease in migration offsetting a 3,797 gain through natural increases. Interestingly, the average PCPI for the counties located in the delta region was $33,007 that is higher than the PCPI of counties found in the mountain region. This finding suggests that the distribution of county incomes may provide an explanation as to why the delta region experienced population decline, but had higher average regional PCPI than counties in the mountain region that experienced population growth.

Table 1 Population Change and Population Change Components for Mountain Region				
County	Total Pop Change	Natural Increase	Net Migration	PCPI (2015)
Baxter County, Arkansas	-451	-1,953	1,495	$ 34,751
Benton County, Arkansas	36,927	10,905	25,362	$ 71,787
Boone County, Arkansas	401	82	353	$ 32,166
Carroll County, Arkansas	203	68	252	$ 30,526
Clay County, Arkansas	-1,163	-631	-492	$ 32,938
Cleburne County, Arkansas	-705	-762	81	$ 33,379
Conway County, Arkansas	-330	45	-325	$ 37,053
Crawford County, Arkansas	319	1,000	-650	$ 29,917
Faulkner County, Arkansas	8,985	4,202	4,640	$ 34,235
Franklin County, Arkansas	-495	-141	-378	$ 29,961
Fulton County, Arkansas	-122	-384	274	$ 26,116
Garland County, Arkansas	1,482	-1,572	3,298	$ 37,090
Greene County, Arkansas	2,508	586	1,961	$ 31,588
Howard County, Arkansas	-412	175	-564	$ 31,230
Independence County, Arkansas	521	289	309	$ 32,542
Izard County, Arkansas	-263	-441	230	$ 28,971
Johnson County, Arkansas	636	567	119	$ 26,218
Lawrence County, Arkansas	-676	-289	-379	$ 30,390
Logan County, Arkansas	-558	-155	-382	$ 34,032
Madison County, Arkansas	352	131	239	$ 31,356
Marion County, Arkansas	-326	-549	300	$ 28,695
Mississippi County, Arkansas	-3,645	936	-4,530	$ 31,150
Montgomery County, Arkansas	-608	-246	-334	$ 27,684
Newton County, Arkansas	-394	-137	-257	$ 26,583
Perry County, Arkansas	-309	-90	-245	$ 31,935
Polk County, Arkansas	-489	-185	-270	$ 28,776
Pope County, Arkansas	2,025	1,353	771	$ 32,684
Randolph County, Arkansas	-522	-247	-228	$ 29,256
Scott County, Arkansas	-931	42	-966	$ 28,790
Searcy County, Arkansas	-225	-236	26	$ 27,524
Sebastian County, Arkansas	2,017	2,912	-871	$ 37,983
Sevier County, Arkansas	-148	692	-817	$ 26,058
Sharp County, Arkansas	-110	-450	408	$ 30,957
Stone County, Arkansas	145	-295	410	$ 27,516
Van Buren County, Arkansas	-666	-326	-274	$ 30,219
Washington County, Arkansas	25,006	11,098	13,575	$ 35,205
Yell County, Arkansas	-633	172	-851	$ 30,441
Total/AVG Income	67,346	26,166	41,290	$ 32,100
Median	-263	-90	26	$ 30,957
Range	33,282	9,145	20,832	$ 45,729

Table 2				
Population Change and Components of Change for State Diagonal				
County	Total Pop Change	Natural Increase	Net Migration	PCPI (2015)
Clark County, Arkansas	-336	-65	-283	$ 31,021
Craighead County, Arkansas	9,392	3,552	5,705	$ 34,628
Hempstead County, Arkansas	-635	563	-1,161	$ 29,591
Hot Spring County, Arkansas	364	-159	553	$ 29,226
Jackson County, Arkansas	-777	-186	-594	$ 34,387
Little River County, Arkansas	-717	-134	-572	$ 32,686
Lonoke County, Arkansas	3,874	2,132	1,717	$ 35,413
Pike County, Arkansas	-459	-163	-265	$ 29,898
Poinsett County, Arkansas	-560	-188	-357	$ 29,719
Pulaski County, Arkansas	10,462	12,871	-1,876	$ 45,862
Saline County, Arkansas	11,562	2,023	9,379	$ 37,360
White County, Arkansas	2,187	1,166	931	$ 32,398
Woodruff County, Arkansas	-623	-159	-460	$ 33,858
Totals/AVG Income	33,734	21,253	12,717	$ 33,542
Median	-336	-65	-283	$ 32,686
Range	10,785	12,683	7,503	$ 16,636

Distribution of Arkansas' Counties PCPI

The accompanying Histogram plots the counties PCPI mountain, delta, and state diagonal regions for 2015. The accompanying Table 4 shows the average, median, and a measure of skewness for the three regions and state's PIPC distribution for 2015.

Even though the delta region has higher average PCPI than the mountain region and highest median county PCPI for the three regions and the state overall, its measure of skewness indicates a much more symmetric distribution than the other regions. This indicates the counties in the delta are more similar in terms of PCPI than the other regions cited in the table. To a lesser degree, this finding is also true for the PCPI of the counties in the state diagonal region. The mountain region has the highest measure of skewness indicating a greater asymmetry in the distribution of county PCPI in the region. For the mountain region, the distribution of county PCPI is less symmetric or more dissimilar than total the state distribution. The mountain region includes the county with the highest PCPI for 2015 in the state (Benton), and it includes the largest number of counties in the lowest frequency interval ($25,000 to $27,900). The overall state distribution of PCPI is also asymmetric indicating dissimilarity as compared to the counties in state diagonal region and delta region. However, the distribution of PCPI for counties in the state diagonal region indicates more similarity than the state overall and for the mountain region since its skewness coefficient is much less than those regions.

Table 3 Population Change and Components of Population Change for Delta Region				
County	Total Pop Change	Natural Increase	Net Migration	PCPI (2015)
Arkansas County, Arkansas	-804	93	-839	$ 39,643
Ashley County, Arkansas	-1,361	42	-1,376	$ 32,013
Bradley County, Arkansas	-512	-89	-401	$ 32,522
Calhoun County, Arkansas	-224	-42	-200	$ 30,770
Chicot County, Arkansas	-855	-77	-746	$ 32,289
Cleveland County, Arkansas	-448	-74	-395	$ 34,987
Columbia County, Arkansas	-651	-86	-545	$ 33,601
Crittenden County, Arkansas	-1,667	2,065	-3,659	$ 34,148
Cross County, Arkansas	-829	50	-858	$ 34,349
Dallas County, Arkansas	-647	-156	-474	$ 30,068
Desha County, Arkansas	-1,132	85	-1,226	$ 37,417
Drew County, Arkansas	142	300	-150	$ 35,039
Grant County, Arkansas	229	81	156	$ 34,323
Jefferson County, Arkansas	-7,419	586	-8,051	$ 32,189
Lafayette County, Arkansas	-798	-142	-626	$ 33,437
Lee County, Arkansas	-1,114	-84	-1,017	$ 25,940
Lincoln County, Arkansas	-429	38	-455	$ 25,003
Miller County, Arkansas	325	1,098	-692	$ 31,350
Monroe County, Arkansas	-981	-65	-862	$ 34,618
Nevada County, Arkansas	-599	-52	-546	$ 32,548
Ouachita County, Arkansas	-2,023	-394	-1,580	$ 33,525
Phillips County, Arkansas	-2,782	207	-3,019	$ 31,720
Prairie County, Arkansas	-464	-75	-399	$ 33,346
St. Francis County, Arkansas	-2,062	491	-2,515	$ 26,176
Union County, Arkansas	-1,752	-3	-1,757	$ 44,151
Total/AVG Income	-28,857	3,797	-32,232	$ 33,007
Median	-804	-3	-746	$ 33,346
Range	-7,094	1,671	-7,895	$ 19,148

These findings seem contrary to conventional wisdom. Usually, the delta region is associated with a lower level of economic development. For 2015, this is not necessarily true. Using PCPI as an indicater of economic development, the delta region actually performed better than the state and mountain region. The average of the delta counties PCPI and the delta median county PCPI were both higher than their counterparts in the mountain region and in the state overall.

The region's skewness coefficients suggest that distributional considerations are also important. There are pockets of counties in the mountain region that have relatively low PCPI but other pockets have relatively high PCPI. This higher PCPI potential in some counties in the mountain region and to a lesser

extent for some counties in the state diagonal region may account for their positive population growth over the 2010-2016 period. People may prefer to live in a region where there is the possibility and potential to obtain a higher standard of living (PCPI) than an average standard of living.

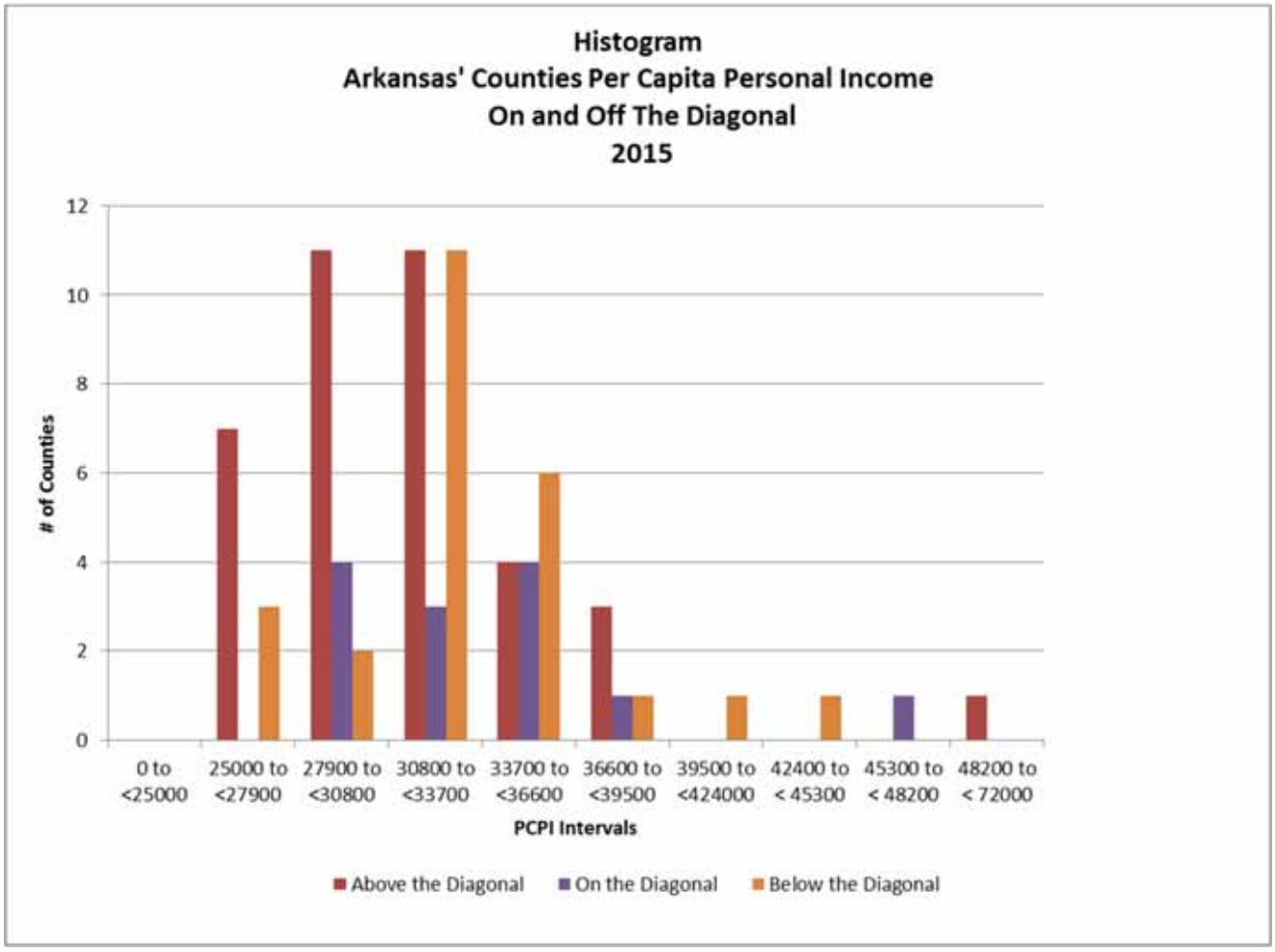

Table 4: Regional Measures			
PCPI			PCPI CO Distribution
Region	Average CO	Median CO	Skewness
State	$ 32,652	$ 32,166	4.08
Mountian	$ 32,100	$ 30,957	4.51
State Daigonal	$ 33,542	$ 32,686	1.81
Delta	$ 33,007	$ 33,346	0.39