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Spatial Variability of Tourism Demand and Differences in Economic Impact in a Rural Economic Development Context

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Abstract

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Statistically predicted future tourism demand is used to conduct an economic impact analysis in twelve tourism zones in the state of Arkansas. The analysis reveals spatial variability in employment, and output growth that will continue into the future. Tourism has the potential as an economic growth engine for the state, especially in economically disadvantaged regions with long-term benefits.

Background

According to the World travel and tourism council, travel and tourism is the world's largest industry and generator of quality jobs (Fretchling, 2001). The travel and tourism industry is a significant driver of the U.S. economy, creating a $582 billion impact on the nation. Comprising nearly 5 percent of the gross domestic product (GDP), travel and tourism yielded a $14 billion trade surplus for the United States (Southern Governors Association, Tourism Task Force (SGATTF), 2002). The benefits of tourism include both tangible (new jobs, state and local tax revenue, etc.) and less tangible (social structure, quality-of-life of residents in tourist destinations, etc.) community effects. The benefits and costs associated with tourism often provide the basis for a lot of public policy debate. In the southern US, where a number of states lag on major indices of economic growth and development, the industry is critical to the region's economy, where it ranks among the top three industries in most states. Travel and tourism produces a $194 billion economic impact in the region - employing over 3 million people (SGATTF, 2002). In spite of this, not enough academic attention has been devoted to examine the future potential of tourism and the likely impact this could have on the region. This study seeks to fill this void by using Arkansas as a case study.

Most studies on tourism impacts are often considered within a tripartite theoretical framework consisting of economic, socio-cultural and environmental domains (Hall et al, 2003). Economic benefits resulting from tourism can take a number of forms including increased employment, spending, and economic diversification. Employment increases directly in hotels, restaurants, recreation facilities, entertainment, arts, crafts, other allied tourism services, transportation and retail suppliers. Indirectly, additional jobs are created in infrastructure development, real estate construction and service and retail trade sectors to sustain increase in

population. Increased spending in the community generated from visitors or tourism businesses can directly and indirectly promote the viability of local businesses. Economic diversification is, for many communities, an insurance policy against hard times. By offering an additional means of income, tourism can support a community when a traditional industry is under financial pressure, particularly where that community relies heavily on a single industry. Community identity and pride can be generated through tourism. A positive sense of community identity can be reinforced and tourism can encourage local communities to maintain their traditions and identity (Queensland Tourism, 2008).

Tourism in Arkansas

Arkansas offers abundant opportunities for outdoor adventures and tourists are attracted to its natural beauty, as seen in the state's waterfalls, tour caverns and wild caving experiences, forested mountain trails and scenic drives. Amenities such as art galleries, live theater, professional sporting events, irresistible restaurants, microbreweries and a variety of lodging options can be found in the larger Arkansas cities. Arkansas boasts charming small towns that lure travelers seeking a restful reprieve from the hurried pace of modern life (Arkansas Tourism, 2007).

On average, the state spends over $ 10 million on tourism promotion and other related expenditures. Tourism generated about 50,000 jobs in the state in 2001. Between 1977 and 2001, inflation-adjusted travel expenditures in the state increased from $3.07 billion to about $4 billion; while the number of tourists increased from 13.6 million person-trips[3] to over 20.5 million person-trips. Although, within the state, there is spatial variation in the number of visitors and

[3] A person-trip occurs, every time one person goes to a place 50 miles or more, each way, from home in one day or is out of town one or more nights in paid or unpaid accommodations and returns to his/her origin (Arkansas Tourism).

tourism expenditures across the different regions, (e.g. the central part of the state consisting of 10 of the state's 75 counties, accounts for about 40 percent of total travel expenditures in 2001) but the differences in economic impacts have not been addressed.

Based on the figures provided by the Arkansas State tourism department, the state has been divided into twelve tourist regions[4]. Heart of Arkansas, Diamond lakes, Arkansas delta byways, and Northwest Arkansas regions (comprising 29 of the total 75 counties in the state) account for about 66 percent of all visitors coming into Arkansas in 2006. Especially, the Heart of Arkansas region accounts for over 26 percent of all visitors into the state in 2006. This region is home to the state capital, Little Rock, which is a major attraction for both within and out of state visitors. Other places popular in the state include Hot Springs, Fayetteville, West Memphis and Eureka Springs.

Objective

The major objective of this study is to examine the future potential of tourism to increase the welfare level of the citizenry in Arkansas, especially in the economically depressed regions of the state. To achieve this, the study's first specific objective is to make projections of the number of visitors into the state and then determine their economic impacts on the state and its different regions. With 80 percent of counties in Arkansas classified as rural counties, the findings are especially critical for rural communities of the state.

Theoretical Foundations

The study uses a combination of statistical techniques and input-output analysis to estimate the number of future tourists into the state, their potential economic impact and derive meaningful conclusions about the future of tourism in the state, especially the rural and economically

[4] Northwest Arkansas, Ozark Mountain Region, Ozark Gateway, Western Arkansas' Mountain Frontier, Arkansas River Valley Tri-Peaks, Greers Ferry Lake/Little Red River, Heart Of Arkansas, Diamond Lakes, Arkansas' Land Of Legends, Arkansas's Great Southwest, Arkansas' South, Arkansas Delta Byways.

disadvantaged counties. There are two broad methods of quantitative forecasting for tourism demand, extrapolative and causal (Frechtling, 2001). Extrapolative methods (time series) assume that a variable's past course is the key to predicting the future and also account for trends and seasonality. Causal methods attempt to mathematically simulate cause-effect relationship. Simple extrapolation models like linear trend model, exponential model, autoregressive trend and logarithmic autoregressive trend models are used to predict the number of visitors as well as the per capita tourist expenditures (Pindyck, 1997). Since the annual data exhibits no seasonality and is of relatively short length, a trend analysis is done which produces reliable forecasts in the short run. Trend analysis uses least squares to fit a trend line to a set of time series data and then project the line into the future for a forecast. Trend analysis is a special case of regression analysis where the dependent variable is the variable to be forecasted and the independent variable is time. While moving average model limits the forecast to one period in the future, trend analysis is a technique for making forecasts further than one period into the future. The regression analysis uses a log linear form to estimate the coefficients of the chosen variables affecting tourism demand in the state (Pindyck, 1997). A model is specified for each of the six leading states from where visitors travel to Arkansas for tourist activities.

The input-output framework is used to study the multiplier effects of expenditures made by tourists in each of the sectors (industries). I-O analysis is a means of examining relationships within an economy both between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. The resulting mathematical formulae allow one to examine the effects of a change in one or several economic activities on an entire economy (IMPLAN Pro, 1999). While primary I-O study is based on data directly collected from industries, IMPLAN uses secondary input-output data collected from

other sources to construct the accounts. There are two phases in I-O analysis, descriptive and predictive modeling. The descriptive model includes information about local economic interactions known as regional economic accounts. These tables describe a local economy in terms of the flow of dollars from purchasers to producers within the region. Trade flows are also part of the descriptive model. They describe the movement of goods within a region and the outside world. The initial IMPLAN data details all purchases including imported goods and services. When regional economic accounts (REA) are created, imports to the region are removed from the initial data, allowing examination of local inter-industry transactions and final purchases. The REA are used to construct local level multipliers and describe the response of the economy to a stimulus. The multipliers represent the predictive model

Input-output models make a number of assumptions. The basic ones include: (1) all firms in a given industry employ the same production technology (usually assumed to be the national average for that industry), and produce identical products; (2) there are no economies or diseconomies of scale in production or factor substitution; (3) I-O models are essentially linear – double the level of activity/production and you double all of the inputs, the number of jobs, etc; (4) the model doesn't explicitly keep track of time, but analysts generally report the impact estimates as if they represent activity within a single year; (5) the various model parameters are accurate and represent the current year; (6) I-O models are firmly grounded in the national system of accounts that relies on the North American Industry Classification System (NAICS codes) and various federal government economic censuses, in which individual firms report sales, wage and salary payments and employment; (7) the I-O models are generally a few years out-of-date, which usually is not a major problem unless the region's economy has changed

significantly; (8) an I-O model represents the region's economy at a particular point in time (Stynes, 2006).

Data/Methods

The data on consumer price index in southern US, food away from home price index and gasoline price index in the Southern states were obtained from the data website Economagic.com (Economagic, 2007). Data on per capita personal income and population were obtained from the Regional Economic Information System (REIS, 2005). Data on number of visitors and per capita tourist expenditure, and proportion of visitors to the twelve tourist zones are obtained from the Arkansas Department of tourism website (Arkansas Tourism, 2007). The proportion of tourist expenditures was obtained from Travel Industry Association of America (TIAA, 2005).

The methodology chart illustrated in Figure 1 explains the sequence of the analysis used in the study. In the first stage, the annual time series data on number person-trips from 1977 through 2006 is used to predict 5 and 10 years into the future. Several techniques were used to come up with accurate predictions, (the best fit, i.e. with least variation from actual data). The data being annual, there is no element of seasonality that can be captured in the prediction process. The theoretical underpinnings for the techniques used in prediction are explained in the previous section. The alternate model specifications estimated in the study are done using statistical software Shazam (Shazam, 2004). The forecasted values for 2012 and 2017 are used to demonstrate the impact of tourism on the state economy 5 and 10 years into the future. The per capita tourist expenditure is also predicted using similar method. The product of number of visitors and per capita tourist expenditure are then used to derive the total tourist expenditures in 2012 and 2017. The tourist expenditures are then distributed into the twelve tourist zones based on proportions estimated from 2006 data provided by Arkansas tourism (Arkansas Tourism,

2007). It is significant to mention that the proportion remains fixed in the short run, i.e. the trend of visitors to locations is assumed to remain unchanged into the immediate future. This assumption is rooted in the trend of visitors into the state over the past two decades during which the regions have maintained their share.

For the regression analysis, tourism demand in Arkansas measured by number of visitors is hypothesized to be a function of personal consumption expenditure level in real terms in 6 states (Texas, Illinois, Missouri, Arkansas, Louisiana and Oklahoma) that provide the majority of tourists to Arkansas, general consumer price index (minus food and energy), food away from home price index, and gasoline consumer price index. While it would have been interesting to observe the impact internet is having on travel behavior, there are not enough observations available to use it as a variable. Same is the case with promotional expenditures made by the state, the number of social and special events etc. that are critical to attracting more tourists but cannot be included due to paucity of organized time series data. The regression analysis is conducted using Shazam (2004).

Findings

Table 1 gives the forecasted values of future visitors expressed in person-trips and per capita tourist expenditure expressed in dollars. The number of visitors is predicted to increase from about 21.83 million person trips in 2005 to 24.3 and 27 million person trips in 2012 and 2017 respectively. Similarly, the per capita personal tourist expenditure will increase from $212 in 2005 to $242 in 2012 and $264 in 2017. The total tourist expenditure in the state, calculated as a product of number of visitors and per capita tourist expenditure will increase from $4.63 billion in 2005 to $5.85 billion in 2012 to $7.04 billion in 2017. Based on trends of visitors into the state and the continued focus of the state and local governments to promote tourism through

advertising and development of infrastructure, it is likely that the increasing trend of visitors will continue into the future. Since the study uses forecasts for 5 and 10 years, the estimates are expected to be reliable subject to future uncertainties that might hinder leisure travel decisions.

The projection of total state tourism expenditure is distributed into the 12 tourism zones in the state based on proportions provided by the Arkansas tourism department. Figure 2 provides a diagrammatic representation of the proportional distribution of tourists coming to Arkansas. The most recent available information on the distribution of visitors is for 2006 which is assumed to stay roughly at the same level for the next 10 years. The 12 regions within the state have a lot of variation, ranging from 26 percent of visitors coming to the Heart of Arkansas to about 2 percent coming to the Arkansas Land of Legends region. In terms of tourism expenditure, Heart of Arkansas, Northwest Arkansas and Diamond Lakes regions account for 29, 14 and 12 percent of total tourism expenditure in the state. The differences in the flow of visitors can be ascribed not only to presence of major tourist attractions, but also to the disadvantaged economies in the less visited regions. There is a ripple effect at work through time wherein the unattractiveness of the economically disadvantaged regions partially due to lack of adequate focus on tourism draws fewer visitors. The low multiplier values due to pre-existing economic conditions in turn result in tourism expenditures not translating into output and employment growth not being as pronounced as in the other relatively wealthier regions. This further leads to not enough importance being attached to tourism and this vicious cycle continues to be repeated in those regions from which they are unable to recover

The result of the regression analysis conducted is presented in Table 2. The variables hypothesized to be driving the demand for Arkansas tourism expressed in terms of number of visitors from 1977 through 2006 are consumer price index in Southern US (minus food and

energy), gasoline price index in Southern US, food away from home price index in the Southern USA and per capita personal income in six states with maximum tourists into Arkansas. Since a log-linear specification is used, the estimated coefficients represent the respective price and income elasticities. Per capita personal income is statistically significant in all the states, with Arkansas, Illinois, Missouri, having elasticities greater than unity i.e. highly income elastic. Based on this, it will be useful for the state to advertise more in these states to draw a much greater response. Overall consumer price index, representative of prices of all goods in the state of Arkansas minus food and gas is statistically significant in 4 states. It is highly elastic in Louisiana and Texas. Gasoline price index in Southern USA is statistically significant in Louisiana, Oklahoma and Texas. Price elasticity in all three states is in the inelastic range. Price of food away from home is statistically significant in Arkansas, Illinois and Louisiana. It is in the elastic range in Arkansas and Louisiana. The R-square values in all the six models are greater than 0.90 indicating that the variables chosen have a statistically significant impact on demand for Arkansas tourism.

In the second phase of the study, the economic impact in each of the 12 tourism zones is estimated. The major tourism expenditure is broadly in 6 major sectors, auto transportation, public transportation, food, lodging, entertainment and general merchandise. Potential economic impact for 2012 and 2017 including employment and output is presented in Tables 3 - 6. For presentation purpose, the 528 sectors in IMPLAN are aggregated into 20 broad categories which are reported.

As illustrated in Table 3, a total of 133,000 jobs will be created in the state as a result of tourism related expenditures. Maximum jobs in 2012 will be created in the Heart of Arkansas region (39,692 jobs, 29.7 percent), followed by Northwest Arkansas (18,835 jobs, 14 percent),

Diamond Lakes (17,278 jobs, 12.9 percent) and Arkansas Delta Byways (14,718 jobs, 11 percent). It is significant to mention that while Northwest Arkansas region includes 4 counties, Heart of Arkansas and Diamond Lakes include 5 counties each, the Arkansas Delta Byways includes 15 counties and thus the impacts reported are not indicative of actual performance of the counties, rather the result of summing a large number of them. Arkansas Land of Legends region adds the least number of jobs with 2,733 (2 percent) which is about 5 percent of the total labor force in the region.

Table 4 lists the number of jobs created in 2017 in the 12 tourism zones. A total of 162,860 jobs will be created in 2017. Heart of Arkansas will add 47,200 jobs (29.1 percent), and Northwest Arkansas region will add 22,500 jobs (13.8 percent). Arkansas Delta Byways region shows an increase in job growth accounting for about 13 percent of the total jobs compared to 11 percent in 2012. Arkansas Land of Legends will continue to be the region to add the least jobs. In both the periods, the direct impacts are in transportation, retail trade[5], arts/entertainment[6] and the accommodation and food services sectors[7]. Employment growth in rest of the sectors is entirely due to the indirect and induced effects. The major impact of tourism expenditures is in the retail trade, accommodation and food service industries which account for over 80 percent of the job growth in these two sectors.

The impact on output in the 12 regions also follows trends that exist in employment. In 2012, the state adds $6.35 billion in output with the retail trade and accommodation/food services accounting for 66-67 percent of the share. As expected, Heart of America region adds the most to the state output $2.08 billion (32.7 percent), followed by Northwest Arkansas with $0.95 billion (15 percent), Diamond lakes with $0.8 billion (12.6 percent), and Arkansas Delta

[5] Food, beverage stores, gas stations, general merchandise, sporting goods etc.
[6] Museums, historical sites, spectator sports, zoos, parks, performing arts companies.
[7] Hotels, motels, other accommodations, food services, drinking places

Byways with $0.69 billion (10.8 percent). The least output is in the Arkansas Land of Legends region that adds $0.11 billion (1.8 percent). The output in 2017 at the state level is about 22 percent higher than in 2012. At $7.74 billion of output, tourism expenditure is among the major driving force of the Arkansas economy. The major output increase is in the retail trade and accommodation and food services which accounts for approximately 36 and 29 percent. However, due to pre-existing and inherent differences between the 12 regions, it will be erroneous to draw inferences from the aggregate output and employment and the likely impact they have on the local economies.

To make a comparative assessment of the performance of the various regions, a per capita measure is developed for the following: per capita distribution of tourism expenditure, total regional output per capita, and per capita growth in employment based on the direct, indirect and induced effects of tourism expenditures in 2012. In the per capita tourism distribution of expenditure measure, the Diamond Lakes region has the highest value with $4,310 followed by Ozark Mountain Region, Heart of Arkansas and Northwest Arkansas with $3,179, $2,803 and $2,195 respectively. Arkansas Land of Legends region has the lowest value with $1,105. Based on the employment generated in 2012, the job created per person is 0.10 in the Diamond Lakes region, 0.075 in the Ozark Mountain region, 0.064 in Heart of Arkansas and 0.049 in Northwest Arkansas. It is lowest in Arkansas Land of Legends with 0.022 jobs per capita. The per capita output in 2012 is highest in Diamond lakes, followed by Heart of Arkansas, Ozark Mountain region and Northwest Arkansas.

From the above estimates, it is evident that the regions that attract more tourists not only generate more revenue, but the tourists actually spend more per capita in those regions. The regions that attract more tourists, the Heart of Arkansas, Diamond Hearts and Northwest

Arkansas region, are the economically prosperous regions of the state. Due to this the multiplier effects of each dollar spent is higher compared to the regions that attract fewer tourists. The impacts are also greater because of their larger and more diversified economies due to which there is less leakage from those counties. Additionally, due to the already existing tourism infrastructure and network, those regions find it easier to attract more tourists. Therefore on both fronts, 7 of the 12 regions with less than 5 percent of the total share of tourists lose out to the traditionally attractive destinations.

Conclusion and Discussion

The results of the study reinforce the differences that exist in the 12 tourism zones in the state of Arkansas. The starting point of the study revolves around forecasting the future number of visitors and per capita tourism expenditure. The choice of the model for forecasting is based on the reliability of the specification, determined by examining the difference between the actual and predicted values. The employment and output impacts are on expected lines. The regions that have dominated over the past 3 decades will continue their dominance in terms of attracting visitors and thus benefit their economies.

A careful observation of the 12 regions indicates that the 16 high poverty counties (USDA, 2007) in the state are distributed in the following tourism regions. Arkansas Delta Byways accounts for majority of the extreme poverty counties defined by ERS/USDA with 8 of the 16 counties. The results of the ADB therefore should not be construed as a significant effect of tourism expenditure. First, it is comprised of 15 counties and as is mentioned earlier, accounts for 8 of the 16 extreme poverty counties. The other regions that accounted for the rest 8 extreme poverty counties include Ozark Mountain Region, Greers Ferry Lake, Arkansas' South, and Arkansas' Great Southwest. All these regions are among those that have the least number of

visitors. Based on the results, increased focus to develop and advertise these regions will not only help bring in more tourists, it will reinvigorate the local economies which can lead to greater economic impacts and allow them to reap greater benefits in the long run. It is recommended that these regions need to be studied individually and targeted for additional investments for developing tourist attractions that already exist. A more detailed study of the Arkansas Delta Byways needs to be conducted to determine how the actual benefits of tourism are impacting the counties within it. The question that needs to be addressed is: are the impoverished counties receiving benefits from tourism or are the other seven ADB counties receiving most of the benefit? Eco-tourism is one area that does not require huge expenditures, rather careful planning to use available natural resources for recreation purposes with minimal damage to the environment. The popularity of farmers' markets is increasingly becoming a key driver of economic development in many rural and urban areas. Activities such as visits to farms and farmers' markets, fruit picking and agricultural farm accommodation may provide important supplemental activities to struggling rural areas. Some of the benefits of farmers' markets seen include: showcases local produce and local products, encourage visitors from other areas, showcase the local and regional areas, allows for community events to be incorporated , provides distribution opportunities for small businesses, valuable contribution to the economic development of the area as money is spent locally, infrastructure development (infrastructure including roads, parks, and other public spaces can be developed and improved both for visitors and local residents through increased tourism activity in a region).

Forecasting future tourist arrivals and the likely economic impacts accurately are helpful for businesses and policy makers as it assists them to make more reliable and less risky decisions. Businesses can set marketing goals, simulate the impact of future events on demand,

determine operational requirements, study the financial feasibility of new infrastructure, add new airline service to a destination etc. From a policy maker's perspective, it will help to understand the economic, socio-cultural consequences of visitor's better. It will also enable them to better appreciate potential environmental impacts, budget revenues for additional public investment in meeting the needs of the projected tourists, and ensure adequate infrastructure development including roads, highways, airports, energy and water utilities etc. Overall, sound demand forecast can reduce risks of decisions and the costs of attracting and serving the tourists (Frechtling, 2001).

The results and strategy outlined reinforce on the continuation of tourism as a strategy for economic and rural development for a number of reasons: (a) with declining agrarian fortunes in rural America, initiate discussion on the growing importance of agri-tourism (b) as a growth engine for rural counties to promote long term economic growth (c) reliable information for state officials engaged in policy-making to assess the growing significance of tourism and any changes that might be required in public funding or promoting certain areas to promote economic development (d) role of internet resulting in a paradigmatic shift in the way the travel is perceived and conducted, both from a demand and supply perspective (e) the growing importance of eco-tourism in Europe and how states in America can adopt it (f) strategies for making the popular destinations currently favored by visitors sustainable in the long run.

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Figure 1. Schematic representation of methodology

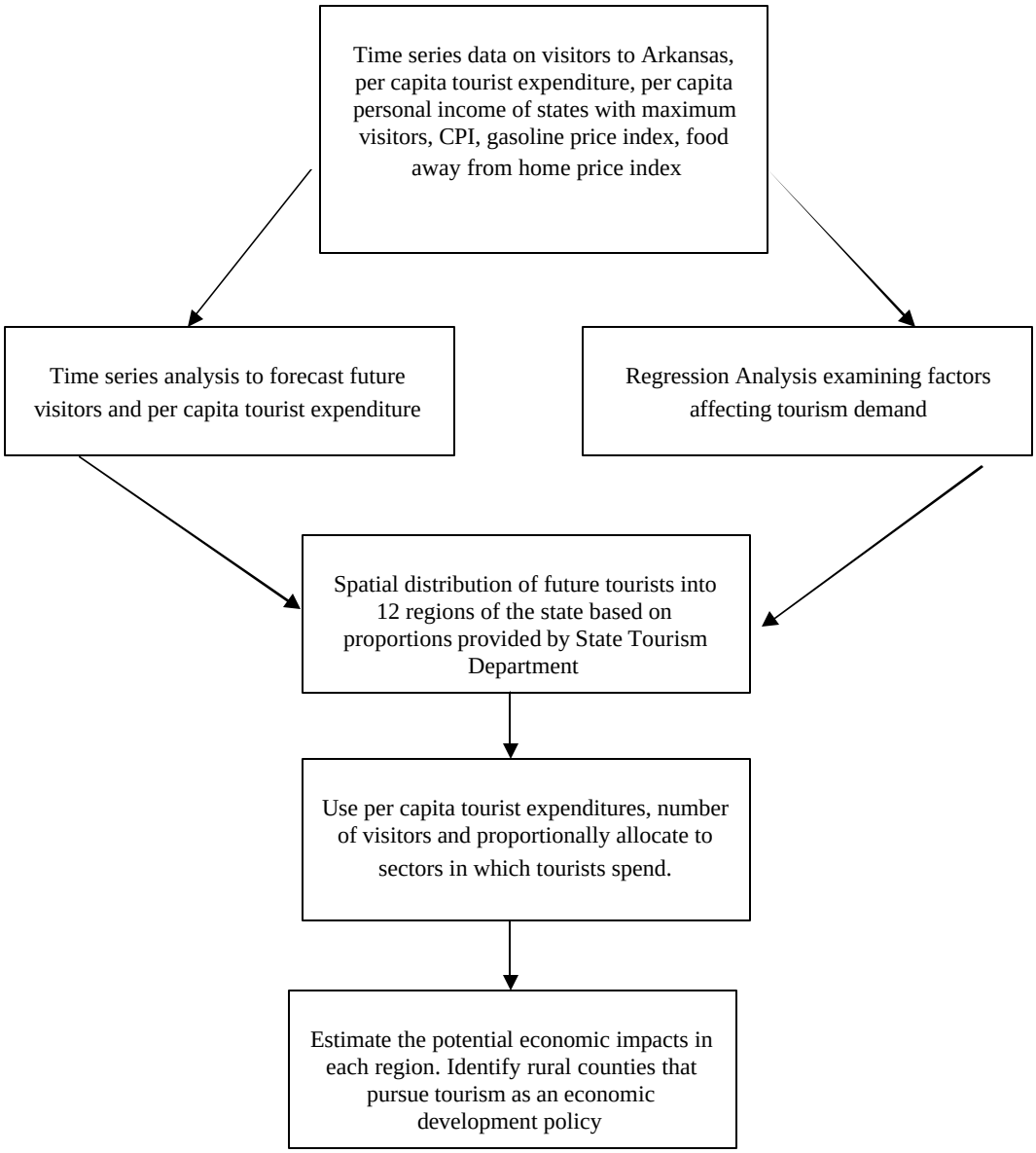
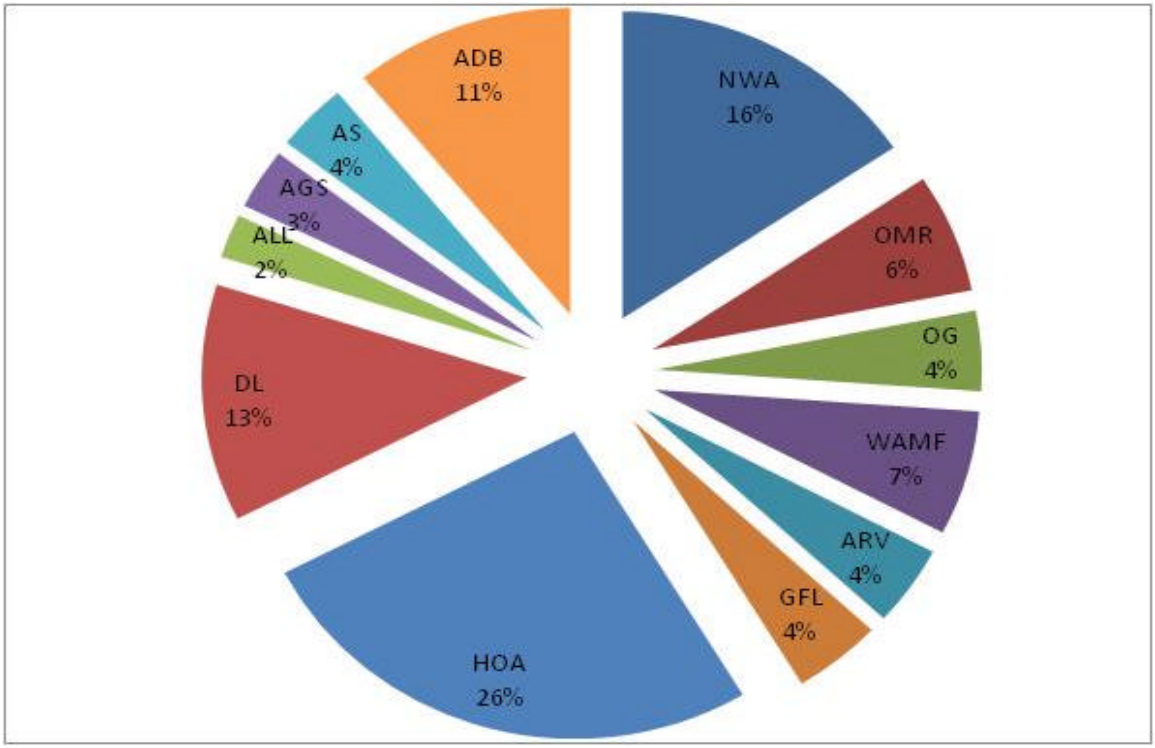


Figure 2. Visitor Share in 12 Tourism Zones in Arkansas, 2006



Northwest Arkansas (NWA), Ozark Mountain Region (OMR), Ozark Gateway (OG), Western Arkansas' Mountain Frontier (WAMF), Arkansas River Valley Tri-Peaks (ARV), Greers Ferry Lake/Little Red River (GFL), Heart Of Arkansas (HOA), Diamond Lakes (DL), Arkansas' Land Of Legends (ALL), Arkansas's Great Southwest (AGS), Arkansas' South (AS), Arkansas Delta Byways (ADB)

Table 1. Future tourists (1000, Person-trips) and Per capita Tourist Expenditures

	Per Capita Tourist Expenditure ($)		Number of Visitors (1000 Person-trips)		Total
Year	Linear	Log-Linear	Linear	Log-linear	Expenditure (1000 $)
2007	219.95	236.01	21,816	22,248	4,893,441
2008	224.34	243.36	22,127	22,657	5,082,911
2009	228.73	250.94	22,439	23,074	5,277,696
2010	233.12	258.76	22,750	23,498	5,477,927
2011	237.51	266.81	23,061	23,931	5,683,738
2012	**241.9**	**275.13**	**23,372**	**24,371**	**5,895,267**
2013	246.29	283.70	23,684	24,819	6,112,655
2014	250.68	292.53	23,995	25,275	6,336,044
2015	255.07	301.64	24,306	25,740	6,565,584
2016	259.46	311.04	24,617	26,214	6,801,424
2017	**263.85**	**320.73**	**24,928**	**26,696**	**7,043,718**
2018	268.24	330.72	25,240	27,187	7,292,625
2019	272.63	341.02	25,551	27,687	7,548,305
2020	277.02	351.64	25,862	28,196	7,810,923

Table 2. Estimated Coefficients from regression analysis for tourism demand

	Variable Name	Estimated Coefficient	Standard Error	T-Ratio	P-value	R-square
Arkansas	LPCPI	1.38600	0.16120	8.59900	0.00000	0.9718
	LCPI	-0.46887	0.29420	-1.59400	0.12400	
	LGASCPI	0.02532	0.03148	0.80420	0.42900	
	LFOODCPI	-1.05070	0.44090	-2.38300	0.02500	
	CONSTANT	3.74870	0.41620	9.00800	0.00000	
Illinois	LPCPI	1.34890	0.15320	8.80200	0.00000	0.9727
	LCPI	-0.54099	0.28690	-1.88500	0.07100	
	LGASCPI	0.04918	0.03189	1.54200	0.13600	
	LFOODCPI	-0.87801	0.41800	-2.10100	0.04600	
	CONSTANT	3.03700	0.48550	6.25500	0.00000	
Louisiana	LPCPI	0.70250	0.16660	4.21700	0.00000	0.9347
	LCPI	-1.48860	0.43990	-3.38400	0.00200	
	LGASCPI	-0.10478	0.04650	-2.25300	0.03300	
	LFOODCPI	1.13780	0.48010	2.37000	0.02600	
	CONSTANT	5.14260	0.51610	9.96500	0.00000	
Missouri	LPCPI	1.48150	0.24540	6.03800	0.00000	0.9545
	LCPI	-0.72909	0.36640	-1.99000	0.05800	
	LGASCPI	0.04457	0.04172	1.06800	0.29600	
	LFOODCPI	-0.87398	0.57450	-1.52100	0.14100	
	CONSTANT	2.86310	0.73290	3.90700	0.00100	
Oklahoma	LPCPI	0.72516	0.22000	3.29600	0.00300	0.9221
	LCPI	-0.94048	0.47510	-1.97900	0.05900	
	LGASCPI	-0.15670	0.05735	-2.73200	0.01100	
	LFOODCPI	0.60823	0.60320	1.00800	0.32300	
	CONSTANT	5.03140	0.68500	7.34500	0.00000	
Texas	LPCPI	0.81104	0.16920	4.79300	0.00000	0.9417
	LCPI	-1.12170	0.40770	-2.75100	0.01100	
	LGASCPI	-0.10699	0.04387	-2.43900	0.02200	
	LFOODCPI	0.59136	0.49330	1.19900	0.24200	
	CONSTANT	4.86950	0.51150	9.52000	0.00000	

Table 3. Employment Impact in 12 Tourism Zones in 2012.

Sector	NWA	OMR	OG	WAMF	ARVTP	GFL/LPP	HOA	DL	ALL	AGS	AS	ADB
Ag, Forestry, Fish & Hunting	71	41	15	59	21	20	85	108	4	7	14	34
Mining	0	0	0	5	0	0	6	1	0	1	1	0
Utilities	31	12	10	15	8	9	61	38	5	3	3	17
Construction	79	33	14	36	19	23	184	81	6	13	12	53
Manufacturing	213	37	34	97	39	28	224	97	19	27	23	114
Wholesale Trade	141	50	30	63	18	35	338	125	14	14	14	105
Transportation & Warehousing	293	111	37	109	34	47	578	145	14	49	19	171
Retail Trade	8,288	4,054	2,656	5,130	2,554	3,158	19,821	8,331	1,586	1,807	2,268	7,376
Information	72	40	22	34	22	26	154	88	12	10	19	63
Finance & Insurance	168	46	22	55	24	26	397	149	12	20	18	99
Real Estate & Rental	288	155	32	120	51	61	831	250	18	21	29	225
Professional- Scientific & Tech Services	170	55	30	117	26	29	346	136	15	21	22	104
Management of Companies	51	15	5	28	6	7	132	54	1	1	9	34
Administrative & Waste Services	268	99	57	139	57	94	609	208	24	41	28	220
Educational Services	83	6	12	16	24	18	198	54	5	1	6	35
Health & Social Services	606	246	121	307	118	134	1,316	553	81	69	88	488
Arts- Entertainment & Recreation	368	209	33	89	64	127	795	506	44	106	24	222
Accomodation & Food services	7,267	2,703	1,620	3,093	1,711	1,691	12,814	5,950	826	1,272	1,026	5,042
Other Services	333	145	83	145	75	88	673	365	38	54	62	276
Government & Non NAICs	45	20	10	18	9	11	129	39	9	8	7	38
Total	**18,835**	**8,077**	**4,844**	**9,676**	**4,879**	**5,631**	**39,692**	**17,278**	**2,733**	**3,547**	**3,691**	**14,718**

Northwest Arkansas (NWA), Ozark Mountain Region (OMR), Ozark Gateway (OG), Western Arkansas' Mountain Frontier (WAMF), Arkansas River Valley Tri-Peaks (ARV), Greers Ferry Lake/Little Red River (GFL/LPP), Heart Of Arkansas (HOA), Diamond Lakes (DL), Arkansas' Land Of Legends (ALL), Arkansas's Great Southwest (AGS), Arkansas' South (AS), Arkansas Delta Byways (ADB)

Table 4. Employment Impact in 12 tourist zones in 2017

	NWA	OMR	OG	WAMF	ARVTP	GFL/LPP	HOA	DL	ALL	AGS	AS	ADB
Ag, Forestry, Fish & Hunting	85	49	18	71	26	24	101	130	5	8	16	48
Mining	0	0	0	6	0	0	7	1	0	1	1	0
Utilities	37	14	12	18	10	11	73	45	6	4	4	23
Construction	94	40	17	43	23	27	220	97	7	16	14	75
Manufacturing	254	45	40	116	47	33	267	116	22	32	27	161
Wholesale Trade	169	60	36	75	21	42	404	149	17	17	17	149
Transportation & Warehousing	350	132	44	130	40	56	690	174	17	58	23	242
Retail Trade	9,903	4,844	3,173	6,129	3,051	3,774	23,682	9,954	1,894	2,159	2,710	10,433
Information	86	48	26	41	26	31	184	105	15	12	23	90
Finance & Insurance	201	55	27	66	28	31	474	177	15	24	21	141
Real Estate & Rental	344	185	38	143	61	73	993	299	22	25	35	318
Professional- Scientific & Tech Services	204	65	36	140	30	35	414	163	18	25	26	148
Management of Companies	61	18	6	34	7	8	158	65	2	2	11	49
Administrative & Waste Services	320	119	68	166	68	112	728	249	28	49	34	311
Educational Services	99	8	15	19	29	21	236	64	6	2	7	49
Health & Social Services	724	294	144	367	141	160	1,573	661	97	83	105	691
Arts- Entertainment & Recreation	440	250	40	106	77	152	950	604	53	126	29	314
Accomodation & Food services	8,683	3,229	1,936	3,696	2,044	2,020	15,310	7,109	987	1,520	1,226	7,132
Other Services	398	173	99	173	90	105	804	436	45	65	74	391
Government & Non NAICs	53	24	12	21	11	13	154	47	11	10	9	54
Total	**22,504**	**9,651**	**5,788**	**11,560**	**5,830**	**6,728**	**47,424**	**20,644**	**3,265**	**4,238**	**4,410**	**20,818**

Northwest Arkansas (NWA), Ozark Mountain Region (OMR), Ozark Gateway (OG), Western Arkansas' Mountain Frontier (WAMF), Arkansas River Valley Tri-Peaks (ARV), Greers Ferry Lake/Little Red River (GFL/LPP), Heart Of Arkansas (HOA), Diamond Lakes (DL), Arkansas' Land Of Legends (ALL), Arkansas's Great Southwest (AGS), Arkansas' South (AS), Arkansas Delta Byways (ADB)

Table 5. Output Impact in 12 Tourist Zones in 2012.

	NWA	OMR	OG	WAMF	ARVTP	GFL/LPP	HOA	DL	ALL	AGS	AS	ADB
Ag, Forestry, Fish & Hunting	7,734,993	1,381,300	1,186,652	4,591,424	1,953,204	1,451,142	5,205,855	5,917,145	529,743	1,006,654	1,270,161	2,035,601
Mining	1,444	2,425	241	1,736,327	48,189	487	2,388,495	228,069	43,540	241,185	371,670	1,366
Utilities	11,878,012	3,513,597	3,096,896	5,186,616	4,172,655	2,633,540	26,833,690	13,028,705	1,783,304	1,038,042	1,089,247	5,286,517
Construction	6,036,036	2,191,484	974,977	2,768,162	1,442,783	1,561,358	15,115,685	5,846,788	416,050	929,111	998,965	3,896,885
Manufacturing	41,970,616	5,991,153	5,388,177	19,067,118	8,021,044	5,650,948	50,807,756	18,990,508	2,795,331	4,509,548	5,269,100	24,904,474
Wholesale Trade	20,064,668	3,761,281	2,470,404	5,955,863	1,949,559	2,758,819	41,219,908	11,106,620	1,223,626	1,189,104	1,442,016	9,635,858
Transportation & Warehousing	30,848,066	11,914,379	2,730,996	11,315,274	2,705,079	3,561,381	67,733,392	16,887,282	1,137,080	6,128,555	1,656,492	16,256,160
Retail Trade	281,910,464	131,507,400	84,369,800	167,536,464	85,780,608	98,144,160	709,395,072	284,136,928	53,191,156	63,528,308	74,710,224	264,956,832
Information	14,520,583	6,238,352	3,819,906	7,324,779	3,880,615	3,786,747	43,510,004	15,719,940	1,448,859	2,645,557	2,459,617	11,295,609
Finance & Insurance	22,532,660	5,726,849	2,654,223	7,264,375	3,063,435	3,207,370	60,420,288	17,344,582	1,778,176	2,481,886	2,166,029	12,517,950
Real Estate & Rental	30,545,252	12,631,594	2,935,254	11,372,941	4,111,181	5,389,448	89,698,216	24,536,730	1,999,821	2,268,979	2,763,303	20,300,146
Professional- Scientific & Tech Services	14,495,394	3,866,224	1,942,339	8,196,210	1,744,104	2,051,459	35,479,056	9,951,862	1,000,647	1,452,246	1,471,470	7,432,607
Management of Companies	8,598,958	1,549,457	587,366	4,365,874	753,753	752,053	18,812,406	7,587,094	151,178	250,230	1,428,870	4,123,653
Administrative & Waste Services	12,674,803	3,628,957	1,636,968	4,683,029	2,042,922	2,206,378	24,540,176	8,810,319	1,073,152	1,160,085	1,264,229	7,289,436
Educational Services	3,178,276	216,283	518,491	537,460	954,720	797,685	8,926,785	2,339,677	136,129	51,925	180,582	1,008,446
Health & Social Services	41,280,200	16,216,637	7,379,331	20,248,654	6,975,463	8,909,142	94,932,408	37,497,088	5,035,815	3,840,398	5,374,589	31,735,924
Arts- Entertainment & Recreation	46,454,352	10,631,942	2,085,827	7,545,489	3,521,943	3,330,186	93,911,904	14,858,395	3,674,294	3,418,554	2,842,462	32,840,524
Accomodation & Food services	303,713,440	102,378,168	59,094,520	126,161,016	63,878,956	65,064,704	560,820,416	257,341,888	31,939,068	49,129,824	39,078,420	190,650,224
Other Services	16,138,241	6,097,636	2,809,905	6,334,946	3,009,097	3,624,394	35,128,844	13,672,926	1,799,275	2,142,180	2,095,668	10,405,550
Government & Non NAICs	39,233,220	14,236,685	7,644,767	16,960,296	7,926,681	8,994,618	94,094,352	32,007,986	5,238,663	6,403,569	6,220,963	29,759,968
Total	**953,809,677**	**343,681,799**	**193,327,040**	**439,152,315**	**207,935,990**	**223,876,018**	**2,078,974,708**	**797,810,533**	**116,394,905**	**153,815,940**	**154,154,075**	**686,333,729**

Northwest Arkansas (NWA), Ozark Mountain Region (OMR), Ozark Gateway (OG), Western Arkansas' Mountain Frontier (WAMF), Arkansas River Valley Tri-Peaks (ARV), Greers Ferry Lake/Little Red River (GFL/LPP), Heart Of Arkansas (HOA), Diamond Lakes (DL), Arkansas' Land Of Legends (ALL), Arkansas's Great Southwest (AGS), Arkansas' South (AS), Arkansas Delta Byways (ADB)

Table 6. Output Impact in 12 Tourist Zones in 2017.

Sector	NWA	OMR	OG	WAMF	ARVTP	GFL/LPP	HOA	DL	ALL	AGS	AS	ADB
Ag, Forestry, Fish & Hunting	9,241,819	1,650,387	1,417,822	5,485,888	2,333,709	1,733,835	6,220,005	7,069,856	632,950	1,202,774	1,517,585	2,879,313
Mining	1,725	2,897	288	2,074,582	57,576	582	2,853,796	272,500	52,022	288,172	444,070	1,932
Utilities	14,191,939	4,198,068	3,700,176	6,197,023	4,985,543	3,146,565	32,061,144	15,566,835	2,130,729	1,240,279	1,301,428	7,477,664
Construction	7,211,902	2,618,400	1,164,907	3,307,429	1,723,856	1,865,516	18,060,364	6,985,807	497,104	1,110,127	1,193,560	5,512,060
Manufacturing	50,146,780	7,158,269	6,437,831	22,781,614	9,583,634	6,751,789	60,705,580	22,690,034	3,339,929	5,388,114	6,295,501	35,226,824
Wholesale Trade	23,973,414	4,494,003	2,951,651	7,116,131	2,329,356	3,296,252	49,249,932	13,270,296	1,462,016	1,420,769	1,722,916	13,629,708
Transportation & Warehousing	36,857,368	14,235,322	3,262,996	13,519,607	3,232,064	4,255,153	80,928,376	20,177,084	1,358,608	7,322,420	1,979,170	22,993,960
Retail Trade	336,828,896	157,125,408	100,804,224	200,174,048	102,492,096	117,262,992	847,591,488	339,489,952	63,554,224	75,904,984	89,263,440	374,775,776
Information	17,349,306	7,453,618	4,564,020	8,751,719	4,636,612	4,524,420	51,986,152	18,782,354	1,731,129	3,160,973	2,938,741	15,977,393
Finance & Insurance	26,922,212	6,842,472	3,171,266	8,679,550	3,660,234	3,832,178	72,190,720	20,723,492	2,124,602	2,965,416	2,587,963	17,706,370
Real Estate & Rental	36,495,724	15,092,302	3,507,042	13,588,509	4,912,092	6,439,335	107,172,248	29,316,740	2,389,429	2,711,031	3,301,584	28,714,118
Professional- Scientific & Tech Services	17,319,210	4,619,387	2,320,706	9,792,914	2,083,880	2,451,091	42,390,704	11,890,594	1,195,594	1,735,178	1,758,106	10,513,261
Management of Companies	10,274,098	1,851,297	701,780	5,216,387	900,595	898,555	22,477,232	9,065,148	180,632	298,981	1,707,207	5,832,817
Administrative & Waste Services	15,143,954	4,335,897	1,955,851	5,595,329	2,440,912	2,636,186	29,320,828	10,526,675	1,282,218	1,386,096	1,510,495	10,310,753
Educational Services	3,797,445	258,416	619,493	642,163	1,140,711	953,077	10,665,806	2,795,471	162,649	62,041	215,759	1,426,428
Health & Social Services	49,321,952	19,375,724	8,816,812	24,193,296	8,334,380	10,644,673	113,426,120	44,801,924	6,016,894	4,588,598	6,421,538	44,889,792
Arts- Entertainment & Recreation	55,504,780	12,703,104	2,492,167	9,015,466	4,207,997	3,978,875	112,206,824	17,752,894	4,389,980	4,084,543	3,396,200	46,452,408
Accomodation & Food services	362,878,240	122,322,432	70,607,032	150,738,640	76,323,320	77,739,720	670,073,856	307,474,848	38,161,416	58,701,768	46,690,744	269,670,368
Other Services	19,282,104	7,285,490	3,357,275	7,569,058	3,595,310	4,330,439	41,972,268	16,336,561	2,149,810	2,559,529	2,503,896	14,718,427
Government & Non NAICs	46,876,196	17,010,070	9,133,960	20,264,334	9,470,906	10,746,801	112,424,800	38,243,488	6,259,259	7,651,135	7,432,785	42,094,844
Total	**1,139,619,063**	**410,632,961**	**230,987,295**	**524,703,686**	**248,444,781**	**267,488,034**	**2,483,978,243**	**953,232,552**	**139,071,193**	**183,782,926**	**184,182,686**	**970,804,215**

Northwest Arkansas (NWA), Ozark Mountain Region (OMR), Ozark Gateway (OG), Western Arkansas' Mountain Frontier (WAMF), Arkansas River Valley Tri-Peaks (ARV), Greers Ferry Lake/Little Red River (GFL/LPP), Heart Of Arkansas (HOA), Diamond Lakes (DL), Arkansas' Land Of Legends (ALL), Arkansas's Great Southwest (AGS), Arkansas' South (AS), Arkansas Delta Byways (ADB).