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**Analyzing Arkansas' Economic Growth:
Need for Future Rural Development Strategies**

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Abstract

A shift-share analysis was conducted for the 75 counties of Arkansas to determine the changing structure of the states' economy for the period 1980-2000. The analysis reveals a lack of overall comparative advantage in the majority of rural counties due to their inability to obtain higher paying jobs in manufacturing and professional sectors.

Key Words: Rural Development, Shift Share Analysis, Structural Changes

JEL Classifiers: R11, R12

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Introduction

Arkansas enjoys the advantages of its central location in the country, excellent natural surroundings, low cost of living, and is among the top business friendly states in Southern United States (SBD, 2002). At the state level, real per capita personal income has grown steadily from \$15,837 in 1980 to \$22,000 in 2000, but was below the 2000 national average of \$29,760 (REIS, 2001). In 2000, the manufacturing, services, finance, insurance and real estate (FIRE), retail and wholesale trade, and government were the major contributors to the Gross State Product (GSP), their shares being 21, 18, 14, 13.5, and 12.6 percent respectively (REIS, 2001). For the same year, services, manufacturing and retail trade were the major employers in the state with approximately 25.24, 17.22 and 16.87 percent share of the total employment (REIS, 2001).

Although there was significant economic growth during the twenty year period from 1980-2000 when the real per capita disposable income grew by nearly forty percent, the nature of economic progress was spatially uneven, and certain regions of the state experienced and continue to enjoy higher level of economic prosperity compared to others (ADED, 2005). Especially, northeast and northwest Arkansas (see Figure 1 for regional breakout) registered and still have significantly higher economic growth relative to the other regions of the state (ADED, 2005). Both these regions had per capita income higher than the state average (ADED, 2005). However, within these high growth regions, there was a lot of variation between the counties. For instance, in Northwest Arkansas, Benton and Washington counties outpaced other counties in the region in terms of job and income growth (Arkansas Quickfacts, 2005). On the other hand, the southeast region of the state has lagged behind in major indices of development. On a broader scale, the

development in the state is mostly centered in the four urban conglomerations and the rural areas continue to lag in terms of quality of human capital and overall quality of life.

The skewed economic growth has resulted in widening the economic disparity between the regions that has had an impact on the well being of its residents and translated into myriad socio-economic issues affecting the overall economic development of the state. This has led to a growing concern among government agencies, academia, and the citizens of the state. There is thus a need to examine the variation in economic growth within the state and pinpoint areas of strength and weaknesses, at the state and county level. Understanding the dynamics of the local economies can better assist state and local decision makers and businesses in framing socio-economic development policies and making investment decisions targeting specific regions. Towards this objective, this paper conducts a shift share analysis for the state of Arkansas and each of its seventy-five counties.

Shift-Share Analysis

Shift-share analysis is a technique employed to decompose the components of regional economic growth. The components of regional growth include national share, regional (local) shift and industry mix. These components are explained in the following section. Shift-share analysis helps the researcher answer questions like: Compared to other regions, does the community seem highly competitive in any particular industries? Does this information support popular perceptions? Or, does the analysis uncover surprising areas of economic strength? Are observed differences in growth rates due to differences in employment mix found at the local level relative to that observed in the

larger economy? Or are differences due to the competitive advantage or disadvantage that the specific local economy has relative to the larger economy (Shields, 2003).

The results of the analysis pinpoint the important differences between the composition of industrial employment growth locally versus industrial growth in the nation. It provides a static account of total regional employment attributable to growth of the national economy, a mix of faster/slower than average growing industries in the region, and the competitive nature of the local economy. The analysis is conducted using regional and national employment data for the various sectors and total employment at two points in time. Like some other analytical tools, the shift-share technique is only a descriptive tool that should be used in combination with other analysis to provide a summary of a region's key employment potential industries. The next three sub sections give more detail on the national share, regional share, and industry mix components of the analysis.

National Share

The national share represents the regional employment growth attributed to the growth of the overall national economy. The national share indicates how much the regional employment would have grown in each sector if they all grew at the same rate as the national economy. This means that if the nation as a whole is experiencing economic growth (decline), one would expect to have positive (negative) growth in the regional economy.

The national share is calculated by multiplying the base year employment in sector i (Emp_i^t) with the national employment growth rate (G^N) represented in equation

1. This can be a positive or negative value depending on the performance of the national economy.

$$\text{National Share}_i = \text{Emp}_i^t * G^N \quad (1)$$

Regional (Local) Share

The Regional Share indicates the extent to which local factors have contributed to the growth or decline in employment for each sector. Typically, in every region, some sectors fare much better than others. This is mainly due to the comparative advantage that each sector has, possibly due to the available natural resources, labor situation, or linked industries. The regional share helps the analyst to identify sectors that are economically competitive. For a particular sector, it is calculated by multiplying the base year regional employment in sector i (Emp_i^t) with the difference of the sector i's regional employment growth (G_i^R) and the national employment growth rate (G_i^N) represented in equation 2. It is positive if G_i^R is higher than G_i^N and negative otherwise. If the regional share is positive, it indicates the region had a comparative advantage in this sector for the time period studied. Sectors for which the region has a comparative advantage should be examined further for additional growth potential. However, if the regional share is negative, it implies the region had a comparative disadvantage in the sector during this time period.

$$\text{Regional Share}_i = \text{Emp}_i^t * (G_i^R - G_i^N) \quad (2)$$

Industry Mix

The Industry Mix indicates the change in regional employment that results from the national performance of sectors present in the regional economy. It highlights the

fact that nationally, some sectors have grown faster or slower than others. It is positive when G_i^N is higher than G^N and negative otherwise. A community that relies heavily on a declining industry is more likely to experience economic contractions and conversely a regional economy that relies heavily on an expanding industry is more likely to experience economic expansion. For any particular sector, it is calculated as the product of the employment of sector i in the base year (Emp_i^t) and the difference of the sector's national employment growth (G_i^N) from the overall national employment growth rate (G^N) represented in equation 3.

$$Industry\ Mix_i = Emp_i^t * (G_i^N - G^N) \quad (3)$$

This analysis is however not without shortcomings. The method falls short in actually identifying comparative advantages. A shift-share industrial analysis is a “snapshot” of two particular points in time, and the results are sensitive to the period of time chosen. Additionally, shift-share is sensitive to differences caused by levels of industrial detail. Shift share, and the local share component in particular, can point to industries that enjoy local comparative advantage. It cannot, however, identify what the actual comparative advantage is. The shift-share technique also minimizes the impact of issues such as business cycles (Shields, 2003).

Previous Studies

In a study of Southern United States economies, Seyfried (1996) examined the economic competitiveness by using Gross State Product (GSP) data from 1982 through 1989. Results indicated that the industrial structure of the region had a positive effect in seven states, though it was quite small in Florida and Maryland (3.9 percent and 4.3 percent, respectively). Half of the states had positive regional competition effects, which

indicated superior economic performance. Among the sixteen Southern states studied, it was found that the industrial structure effect was positive in seven, while the regional competitiveness effect was positive in eight. The competitive position of each state had a sizeable effect in most cases, but the impact of the national economy tended to be larger. Finally, education and wages were found to have significant impacts in explaining state competitiveness; the former positive and the latter negative.

Kiel (1991) examined and compared the manufacturing sector of a representative rustbelt state, Indiana, and a representative sunbelt state, Texas, using data from the 1972, 1977, and 1982 editions of the census of manufacturing. Findings revealed that for the 110 industries in Indiana, only 15 had positive competitive shifts for both periods. Thirty-seven industries had negative competitive shifts for both periods. Gainers and losers matched from 1972 to 1977, but losers clearly dominated from 1977 to 1982. Indiana began the study period with an advantageous industrial mix in terms of growth potential and cyclic sensitivity compared to most states and suffered a differential shift or outmigration of approximately 98,500 jobs. Texas although not saddled with an adverse industrial mix, did not begin with as strong an industrial mix as did Indiana. Thus, a large percent of Texas's economic growth of approximately 287,500 jobs came from competitive shifts that totaled 270,295.

Finally, Sirakaya et al (2002) demonstrated the usefulness of the dynamic shift-share method in examining the performance of the tourism industry using time-series employment data for the State of Texas and the USA, and compared its results with those of the traditional accounting based shift-share analysis. The findings showed that, compared to the US average, the change in employment in Texas was mainly due to the

strong national economy and not due to the region's competitiveness or sectoral make-up. According to the findings, the use of a dynamic shift-share model eliminated one theoretical problem inherent in the classical static method.

Although some literature does exist in this area, it is dated and does not address local issues within any particular state. This paper aims at studying one state in depth and analyzing local issues in detail. From a development policy perspective, this could provide better insights to planners and investors.

Shift-Share Analysis for Arkansas

A shift-share analysis was conducted for the state and each of the 75 counties in Arkansas. The county was chosen as the unit of analysis as this would better assist policy makers and private entrepreneurs to understand a particular county and facilitate efficient decision making. Choosing a cluster of counties (region) could understate or overstate the actual changes that take place within each individual county in the region.

Employment data for the United States and Arkansas from the Regional Economic Information System (REIS, 2001), Bureau of Economic Analysis, 1969-2001 were used for the study. The analysis was done using Microsoft Excel. ARCMAP (ESRI, 2005) was used for graphic representation of the findings. The time periods considered were 1980, 1990, and, 2000.

Findings

During 1990-2000, agriculture, forestry, and fishing grew at about 70 percent, followed by services, transportation/public utilities, retail trade, state/local government, and manufacturing that grew by approximately 41, 29, 27, 12 and 11.75 percent respectively (Table 1). In absolute terms, services added 112, 263 jobs during the decade

while retail trade, state/local government, construction, transportation, public utilities, added 59,633, 30,722, 27,255, and 20,421 jobs respectively. The total regional share was positive indicating that the state of Arkansas had a higher rate of job growth than the national economy. Except farming and military, all the other sectors had a positive regional share indicating a comparative advantage for the state in those sectors. The overall industry mix was negative mainly due to the state's heavy dependence on manufacturing and its decline at the national level. The farming and military sectors also declined significantly at the national level and contributed significantly to the Arkansas' negative Industry Mix value. Employment increased by 17.05 percent during the 80's and approximately 25 percent during the 90's. Specifically, employment in the services and retail trade sectors increased the most in terms of jobs added, whereas, agriculture, forestry, and fishing, construction, and services increased significantly regarding rate of change in the 90s.

Several common as well as unique local factors contributed to the changing economic structure in the state and each county. Manufacturing, services, retail trade and farming sectors are discussed first. Next, a summary of the findings at the counties is presented for which the results are presented region-wise for which the state was divided into four regions, northeast, northwest, southeast, and southwest that is shown in Figure 1.

Manufacturing

The share of Arkansas total employment in manufacturing declined from 20.75 and 19.80 percent in 1980 and 1990 to 17.22 percent in the year 2000 (Figure 2). This was not unique to Arkansas; rather it was a national trend, the share of the US

manufacturing sector declined from 18.19 percent in 1980 to 14.12 and 11.42 percent in the years 1990 and 2000 respectively. The decline in manufacturing employment in the nation can be linked to two primary sources, one, an increase in labor productivity from improvements in technology, and two, outsourcing of low-skill manufacturing jobs to developing nations because of the comparative advantage they had with abundant labor at relatively lower wages.

In the two decades following the 1982 recession, labor productivity in the United States grew very rapidly. This is reinforced by the fact that although employment in manufacturing declined on an annual average basis for the past twenty years, production output continued to grow. By 2001, the average worker in the United States produced one-third more than in 1981 (Orazem, 2004). Analysts identified investments in new information technologies as playing a crucial role in accelerating productivity growth over that time period. This led to a shift in labor demand toward more skilled workers, transforming the workplace, and raising the productivity and wages on those using these technologies on the job. Organizational efficiencies and other factors also contributed to increased productivity.

Outsourcing of manufacturing jobs to developing countries with relatively cheap labor also led to the gradual decline in manufacturing employment in the US.

“Outsourcing” usually refers to employment and production shifted to lower cost foreign countries (offshore outsourcing) to produce goods formerly produced in the United States. With the world market structure becoming more free trade oriented, American labor became relatively expensive affecting the profitability of American production sites. To retain the competitive edge and share in the world market, industries started

cutting costs by employing more advanced technologies and when this was not economically feasible by moving their manufacturing facilities to developing nations.

Services

The decline in manufacturing employment has been accompanied by a gradual increase in the service sector employment (Figure 2). Services defined by the Bureau of Labor Statistics (BLS) includes, lodging, personal service, business services, automotive repair, motion pictures, amusement, health, legal, educational, social, museum, engineering, accounting, research, management, etc. Services accounted for 55.7 percent of Gross US income in 2002, up from 54.9 percent in 2001, with distributive trades, real estate, transport, finance, healthcare and business services being the most important (Economist, 2005)³. The impact of new technology was also felt in the services sector, especially in the delivery of many services over the Internet (Economist, 2005). Studies have demonstrated that, as the economy grows, the contribution of this sector will continue to dominate in the future. Increasing incomes combined with the changing lifestyles resulted in increased demand for personal, financial, real estate, healthcare and entertainment services. In Arkansas, with the economic growth fuelled by Wal-Mart Corporation, Tyson Foods, JB Hunt Transportation, and other industries, especially the northwest region of the state experienced relatively higher economic growth that resulted in a surge in demand for services, housing, transportation and public utilities.

Retail and Wholesale Trade

Employment share of retail and wholesale trade in Arkansas increased from 19.76 in year 1980 to 22.74 percent of the total state employment in year 2000. The growth of

³ Services here refer to all activities in which a product is not being produced and includes retail and wholesale trade, finance, real estate, and transportation. Which is not to be confused with the service sector as identified under the SIC codes and being discussed in the rest of this section.

this sector was linked to the increases in income and population in the state and changes in consumer expenditures patterns. Over the past two decades, there was a steady increase in the population of most counties in the state. The northwest region of the state was among the demographically fastest growing regions in the nation and that contributed to an increased demand for consumer goods leading to a rise of the retail/wholesale trade industry. Population growth in the state was fuelled partly due to the rise in manufacturing employment during 1980-2000. Although the employment share of manufacturing declined over the past two decades, the number of jobs steadily increased in this industry. Further with increasing income levels and changes in tastes and preferences, consumers shifted to purchases of more goods and services there was a surge in the service related activities and retail trade. Studies reveal that consumer spending (as opposed to governmental spending) occurs primarily in retail enterprises. The consumer urge to spend during 1980-2000 was mostly fueled by higher equity and housing prices, otherwise known as the wealth effect. Valuations in both housing and the stock market increased very quickly during the 90's, fueling a record-setting frenzy in consumer spending. Further, the availability of relatively cheap imported goods because of a high exchange rate also contributed to the rise of the retail trade industries.

Farm

Like manufacturing, the farm employment share has declined through time. Arkansas' farm employment share declined from 8.85 percent in 1980 to 5.42 percent of the total state employment in 2000 (Figure 2). Over the past several decades, there was significant movement away from a labor-intensive to a capital-intensive form of farming. Mechanization of agricultural practices made farming more efficient, and less dependent

on human labor, i.e. the productivity of labor increased leading to higher production levels with relatively less labor. High-yielding seed varieties made it possible to have higher yields with similar labor inputs. Further, the introduction of water efficient irrigation technologies that aid in optimal water application to crops enhanced the yields of several crops. Technological advances has had a profound impact on livestock farming increasing productivity by making practices more efficient, and less dependent on human labor. Although there was a decline in farm employment during 1980-2000, agriculture related industries in the manufacturing sector especially, food processing, wood processing, paper, farm machinery, and chemical industries registered significant employment growth during this period. Similarly, agriculture related finance, insurance, and transportation services also generated additional employment in the state.

Combined with the development of newer and advanced agricultural technologies, information technology has also enhanced the movement towards the ‘industrialization’ of American agriculture. Traditional agriculture gradually transformed into agribusiness, small family farms disappeared and large corporations emerged that revolutionized traditional farming practices. Especially in the 1990s, access to the internet opened up several new frontiers for agricultural producers earlier inaccessible. Online trading in futures markets, price calculators and other web-based marketing assistance had a significant impact on labor productivity. As a result, output levels increased and employment declined.

Comparative Advantage of Arkansas Counties

A county in Arkansas had a comparative advantage in a sector if the regional share was positive i.e. the rate of local employment growth in the sector was greater than

the rate of employment growth of its national counterpart during the years 1990-2000.

Table 2 summarizes the number of counties that have an overall comparative advantage as well as in manufacturing, retail trade, services, and farming.

As depicted in Figure 3, counties in the northwest, northeast and southwest regions had comparative advantage in manufacturing where 36 of the 44 counties were located. This was due to the presence of major industries involved in poultry processing, paper products, and light electronics in these regions. All the top manufacturing employers of the state including Tyson Foods, Inc, Pilgrims Pride Corporation, Georgia-Pacific Corporation, International Paper Company, and Whirlpool Corporation had facilities in these regions.

Among the major employment sectors, retail trade performed better in terms of job growth, with 47 of the 75 counties registering higher job growth relative to its national counterpart (Figure 4). The majority of the counties in the northwest, northeast and southwest regions had a comparative advantage in retail trade. Interestingly, a majority of the counties having a comparative advantage in manufacturing also had it in retail/wholesale trade. This is not surprising as the manufacturing sector typically pays higher wages which leads to greater demand for services and retail goods. Additionally, many counties in northwest, northeast, and southwest Arkansas have developed good tourism industries which creates additional demand for retail trade and services. The northwest and northeast regions of Arkansas together accounted for 65 percent of the state population, which explains why retail trade in these two regions performed well.

The service sector which added the maximum jobs during the twenty year period in the state had a comparative advantage in 42 counties of which 26 were in the northeast

and northwest regions (Figure 5). Noticeably, 15 of the 19 northwest counties had a comparative advantage in services which was mainly due to the population, and income increases in the area as a result of economic growth taking place due to the growth of manufacturing and retail trade industries.

Twenty-seven counties in the state had a comparative advantage in farming, 17 of which were in the northeast and southeast regions. Figure 6 depicts these counties. The geography of these two regions consists of the Mississippi Alluvial Plain or Delta. The Arkansas, Mississippi, Ouachita, and White Rivers traverse the region and make it ideal for growing crops such as rice and wheat. Besides these two crops, soybeans, cotton and aquaculture are also concentrated in the eastern region of Arkansas. Together, these two regions account for Arkansas' high rankings nationally in crop production. It ranks first in rice, third in catfish, ninth in soybeans and thirteenth in wheat production.

Southeastern Arkansas has a great deal of potential for the development of agriculture related biotechnology industries. The region consists of several biotechnology research laboratories including the Rice Germplasm Evaluation and Enhancement Research Center, the University of Arkansas Rice Research Extension Center, and the Stuttgart Aquaculture Research Center. In addition, the National Center for Toxicological Research and the Arkansas Regional Laboratory are located in Jefferson County (ADED, 2005). However, the northwest and southwest had very little growth in farm employment during 1980-2000. The major agriculture activity in these two parts included poultry farming and wood products used mostly by the paper industry that had a strong presence in the region.

Finally, as shown in Figure 7, 44 counties in the state had an overall comparative advantage of which 29 were in the northwest and northeast. Northwest Arkansas demonstrated a strong employment growth, where 18 of the 19 counties had higher employment growth than the national average. The growth in Northwest Arkansas was fueled by the expansion of retail giant Wal Mart, the world's largest protein processor Tyson Foods, and trucking industry leader JB Hunt. However, the southeast and southwest failed to catch up with the rest of the state. While in the southwest, manufacturing had minimal presence, the absence of it in the southeast affected this region and farming continued to be a relatively major employer in the region.

Concluding Remarks and Limitations

The results reinforced the broad perception among Arkansans that the northwest region was growing more rapidly than the other regions in the state. Especially, Benton and Washington counties have witnessed rapid increases in population, jobs, and income (Forbes, 2005). However, it was interesting to note that agriculture, the main economic activity in the eastern part of the state, did not grow and thus many counties in Eastern Arkansas are struggling economically. Although agriculture continues to be a dominant sector, the farm employment is gradually declining and thus the rest of the eastern economy, as the region has been unable or unwilling to diversify. Further, the employment growth of the farm sector in the state was below the national average. Although manufacturing was still a dominant employer, retail trade and services slowly emerged as the leading employers in the state during the 90's following the national trend.

As the results of the analysis suggest, major economic activity in the state is concentrated in the four urban areas in Northwest and Northeast Arkansas (ADED, 2005). From the findings it is also evident that the majority of counties that experienced relatively slower economic growth were the non-urban counties with a predominantly rural, non-diversified economic structure. Thus, it is pertinent to say that the state needs to focus heavily on rural economic development. The remainder of the discussion is more prescriptive and includes rural and local economic development strategies that can assist the state to achieve a more uniform level of economic growth. Although this study does not target any specific issues, improving the quality of human capital, and quality of life in the rural areas can largely mitigate the economic ills that plague rural areas within the state.

Human capital improvements and economic development go together. To effectively increase business activity and provide employment benefits, local economic development programs need to include customized education programs that can effectively serve the needs of two types of clients, the business community and the labor force. Government should subsidize the provision of basic information to businesses that will help increase business productivity and survival. The coordination of economic development programs must involve the groups that benefit and the groups that can provide special services. Economic development should be coordinated on a local labor market basis because that is where the benefits accrue and where local business inputs are provided. Private businesses, educational institutions, and community organizations are among the groups that should be involved in local economic development, because of the special support they can provide to local economic development efforts. There is no one

best strategy for successful local economic development. Each local area is different, with its own unique economic base and local institutions. Success is more likely if local economic development efforts are aimed at broadening opportunities in local and regional markets and filling in local market gaps (Bartik, 2003).

Workers in the rural areas usually have lower levels of formal education and training relative to their urban counterparts and receive lower returns on their investments in human capital. Employers in rural areas have less demand for skilled workers and tend to be located in competitive markets that push them to cut costs, especially for job training. The rural localities should therefore attempt to overcome these obstacles by encouraging more employer training and establishing better ties between schools and employers (Green, 2003). Schools could play a role in nurturing self-reliance, respect for local knowledge production, and entrepreneurship by employing more place-based and experiential approaches to curriculum. Local youth and adults can leave the community for a specific period to study or work in a different location and then return home with new ideas and skills. However, they are not likely to return unless they have a strong sense of community that will draw them away from opportunities elsewhere. Duncan (1999) emphasizes the important role newcomers and returning local people can play in challenging traditional thinking and hierarchal social structures, by introducing new skills and ideas into the community. Stauber (2001) insists that rural development is not principally about agribusiness, nor any other “rural economic sector,” but about community and a common purpose that looks toward a sustainable rural way of life for which he offers four recommendations. First, “become more knowledgeable about the significance of place in the adoption of rural development initiatives and education

accountability and reform”. Second, “strengthen new development and education programs that support place-based learning, sustainable agriculture, and entrepreneurial economic development”. Third, “take a stand on rural school consolidation issues in isolated and high-poverty rural areas and begin to recognize schools as potentially important assets in community infrastructures”. Finally, “develop policy sets that simultaneously address rural community development and strengthen small schools and districts in which community identities and social capital reside”.

Rainey et al emphasized the importance of improving human capital, infrastructure, and social capital for rural communities to be viable in the global economy. A strong human capital base is vital for the employees to keep pace with new production technologies and the development of entrepreneurial activities. Adequate public capital is needed for productivity enhancements to private capital. Strong social capital networks facilitate the transfer of knowledge and information across individuals and industrial sectors.

Possible actions of local leaders could address the areas of home-based/micro-enterprise development, retail development, small manufacturing, tourism, value-added agriculture, or youth entrepreneurship. Expertise of the extension service staff could be used to help communities make those all-important decisions--the critical why's, what's, who's, when's, and how's of creating sustainable economic development. Extension's knowledge of strategic planning, coupled with expertise in guiding community leaders through the maze of decisions, could be used to assist with a critical first step for communities or regions. Both state and federal resources can also be utilized to assist the communities as they consider future options to improve the local economy and quality of

life. Topics such as tourism development, value added agriculture, and local health care could be addressed by the communities. National experts could be utilized in local and regional training programs (Woods, 1997).

The state government should also aim at providing direct assistance to local governments in locating and obtaining the resources they require towards making their communities more livable and prepared for development opportunities. Local government should provide direct project management assistance to communities to ensure projects are implemented within a legal and qualitative framework and facilitate networking with other agencies, at all levels, to maximize the local areas ability to support development initiatives which it does not have the resources to carry out unilaterally (EAPDD, 2004).

The private sector could also participate in regional economic development. There are however advantages, as well as risks, in doing so. This can be in the form of a formal public-private partnership that administers some programs or tries to coordinate programs, a formal public-private partnership that implements a specific project, or more informal public-private cooperation. The private sector may provide additional funding for local economic development. The private sector may sometimes be more flexible in what it can do; in particular, the private sector can sometimes assist businesses in ways that are forbidden to local governments under state law.

In addition to providing educational opportunities, improving the quality of life involves having adequate healthcare support and other physical infrastructure such as road networks and telecommunication. Thrust of the government effort thus should be towards adopting counties that do not have a competitive edge and harness the local areas

potential by providing better connectivity to all areas such that the local advantages can be tapped by businesses. The governmental effort should be balanced between supporting those counties that are and providing added assistance in strategic planning and monitoring the development of the economically weaker regions.

Though the analysis points to areas needing attention in the state, it does not identify which industries communities should try to target in crafting their economic development strategy. The availability of more disaggregated county employment data would be useful to examine the performance of specific industries and give greater detail on the competitiveness, or their lack of, each county possess across industries. Thus, an avenue for future study would be to use more recent, disaggregated data to highlight specific regional strengths and weaknesses.

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Table 1. Shift Share Analysis Results for the State of Arkansas, 1990-2000.

Industry	1990	2000	Reg %	Nat %	Reg Chg	Reg Chg(%) 1980-90	Reg Chg(%) 1990-00	Nat Share	Reg Shift	Ind Mix
Farm	66,809	63,539	4.21	2.26	-3,270	-23.74	-4.89	13,348	-2,359	-14,259
A.F.F	13,551	21,458	1.42	1.04	7,907	69.60	58.35	2,707	1,490	3,710
Mining	7,627	6,207	0.41	0.75	-1,420	-18.31	-18.62	1,524	493	-3,437
Construction	61,914	89,169	5.91	5.21	27,255	8.32	44.02	12,370	7,962	6,923
Manufacturing	240,009	259,795	17.22	14.13	19,786	11.75	8.24	47,953	26,968	-55,135
T.P.U.	65,973	86,394	5.73	4.71	20,421	28.62	30.95	13,181	3,409	3,831
Wholesale trade	47,074	57,549	3.81	4.81	10,475	10.71	22.25	9,405	4,369	-3,299
Retail trade	194,803	254,436	16.87	16.44	59,633	27.14	30.61	38,921	21,669	-957
F.I.R.E.	62,303	83,097	5.51	7.68	20,794	10.72	33.38	12,448	6,288	2,058
Services	268,560	380,823	25.24	27.76	112,263	41.44	41.80	53,657	10,061	48,545
Federal, civilian	22,640	22,188	1.47	2.32	-452	8.01	-2.00	4,523	1,936	-6,911
Military	25,955	18,689	1.24	1.95	-7,266	8.78	-27.99	5,186	-1,116	-11,335
State and local	134,516	165,238	10.95	10.93	30,722	11.80	22.84	26,876	8,407	-4,561
Total	1,211,734	1,508,582	100	100	296,848	17.05	24.50	242,099	89,577	-34,828

Table 2. Arkansas Counties having Comparative Advantage in Selected Sectors during 1990-2000.

Region	Manufacturing	Retail Trade	Services	Farm	Overall
Arkansas	44	47	42	27	44
Northeast	10	13	11	9	11
Northwest	15	16	15	5	18
Southwest	11	10	8	5	9
Southeast	8	8	8	8	6

Figure 1. Four regions of the State of Arkansas



Figure 2. Employment in Arkansas for Selected Sectors (1980-2000).

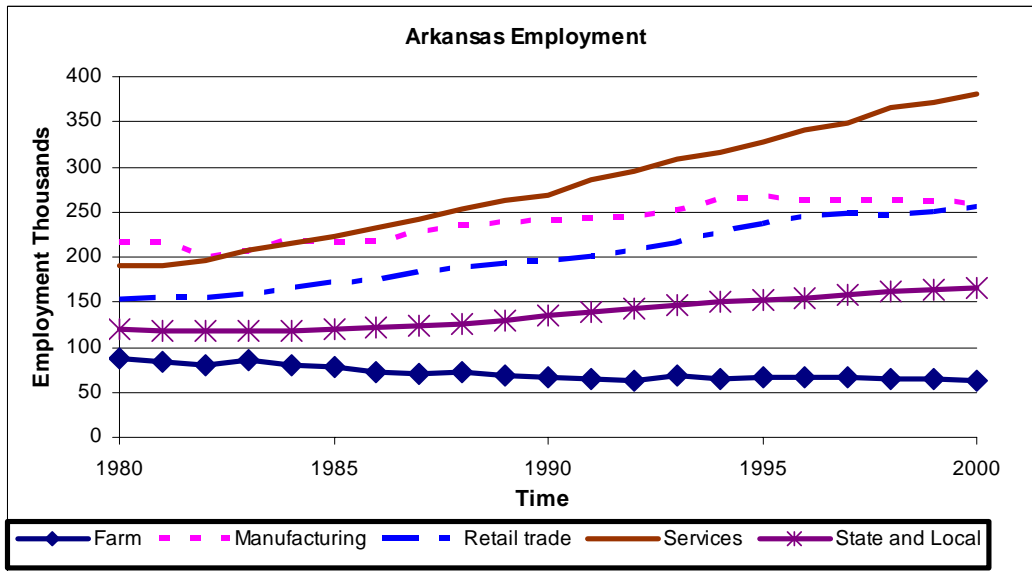


Figure 3. Arkansas Counties with Comparative Advantage in Manufacturing.



Figure 4. Arkansas Counties with Comparative Advantage in Retail Trade.

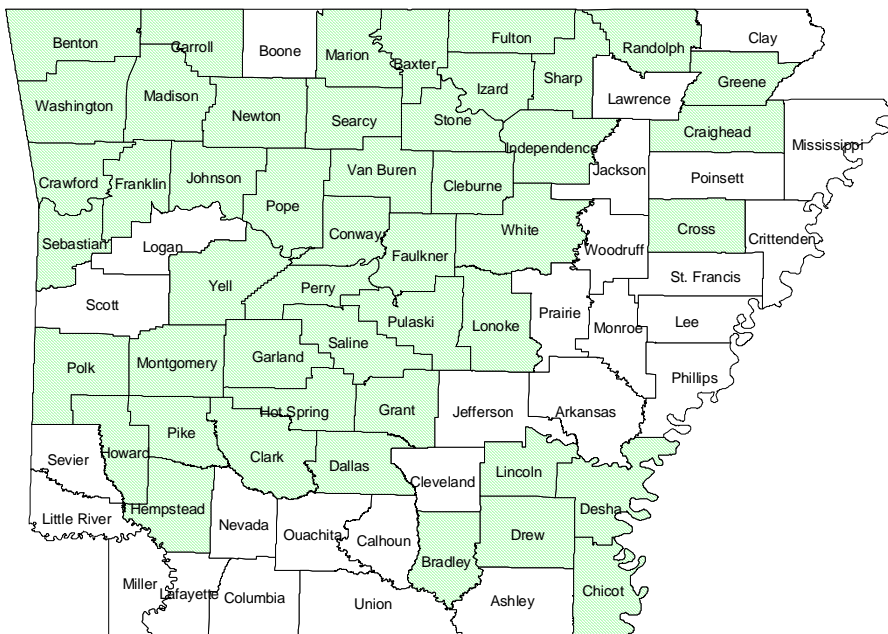


Figure 5. Arkansas Counties with Comparative Advantage in Services.



Figure 6. Arkansas Counties with Comparative Advantage in Farming.

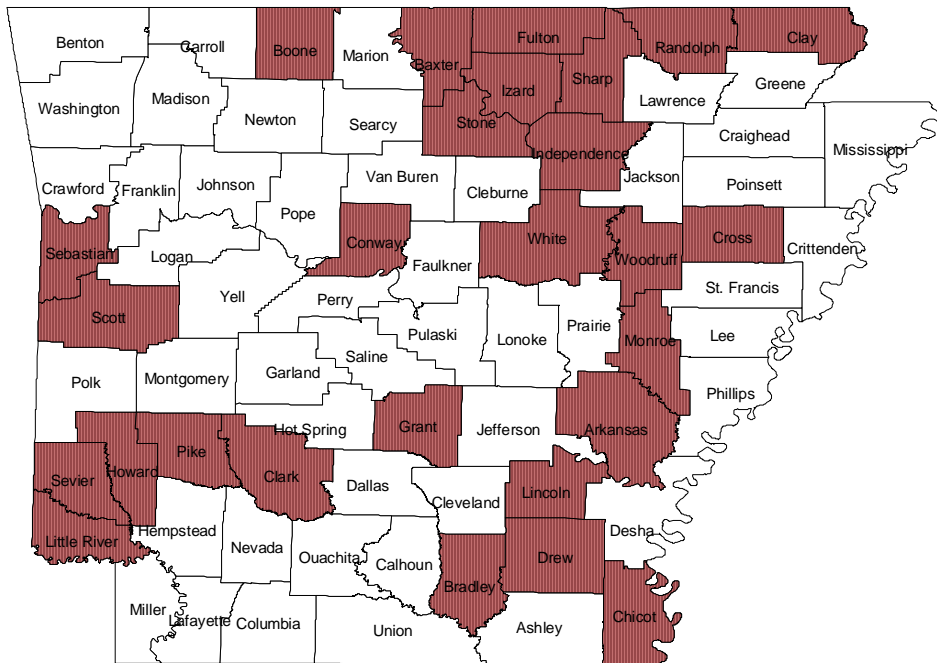


Figure 7. Arkansas Counties with overall Comparative Advantage.

